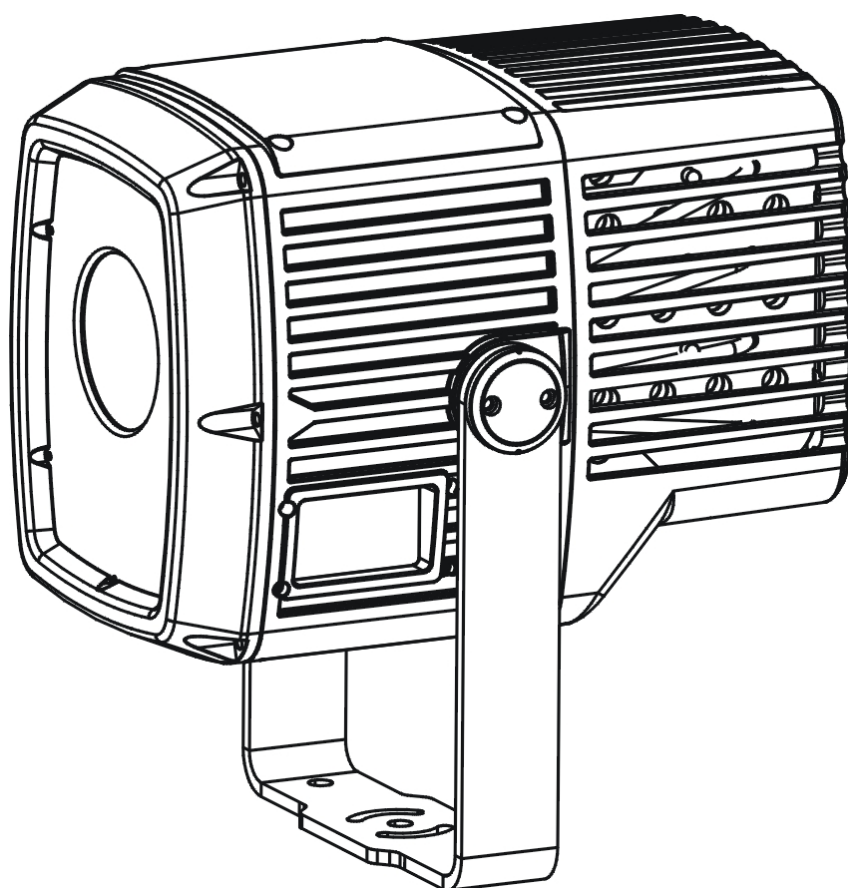
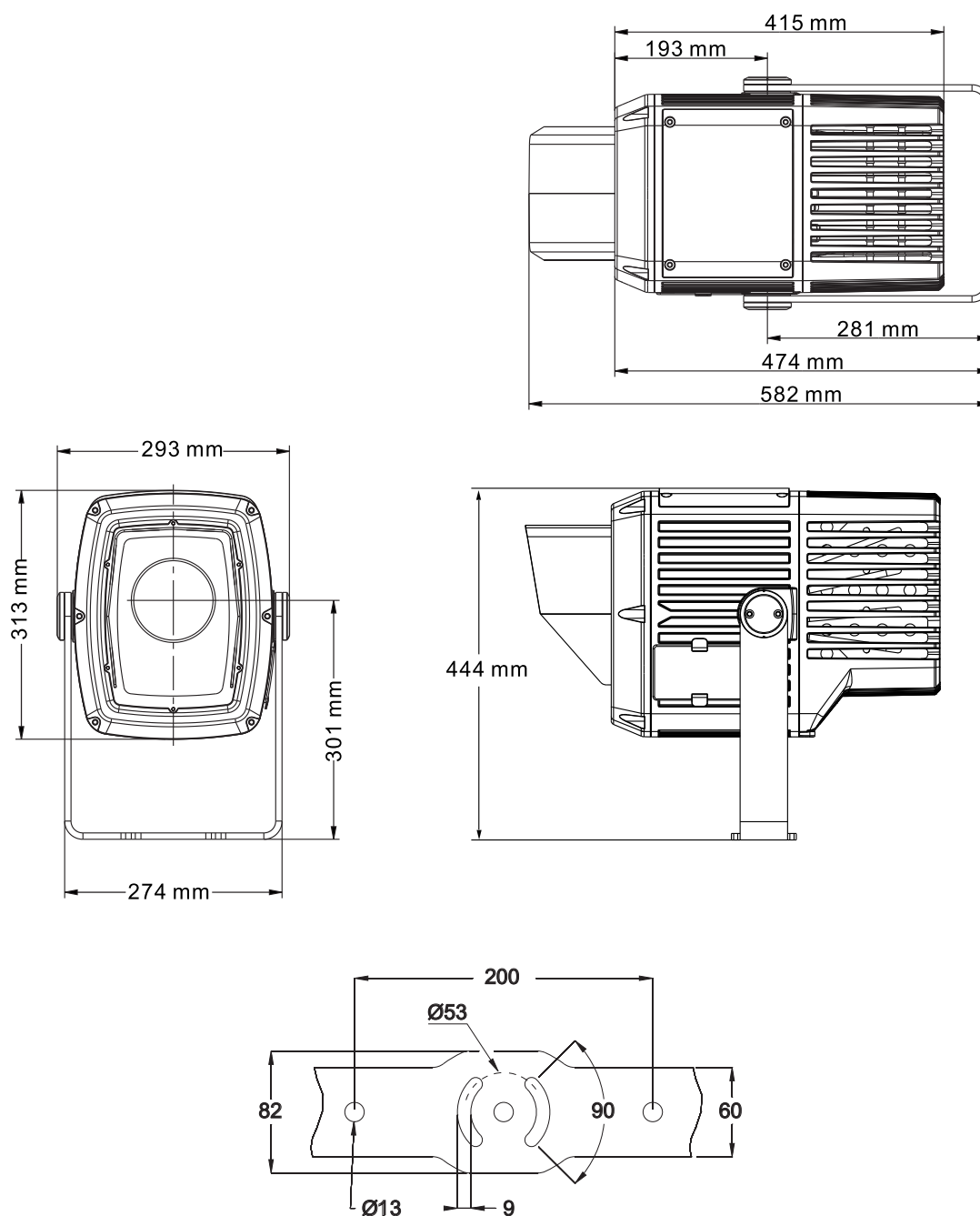


Exterior Projection 500

User Manual



Dimensions



All dimensions are in millimeters

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

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Safety information



WARNING!

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

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



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



Warning! 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.

The latest software, manuals and other documentation for all Martin products are available for download at www.martin.com

If you have any questions about how to install, operate or service the fixture safely, please contact your Martin® distributor. For technical support in North America, please contact Harman Professional Technical Support by e-mail: HProTechSupportUSA@harman.com or by phone: (844) 776-4899. For technical support outside North America, please contact your national distributor.

The light source contained in the fixture may be replaced by Martin or an authorized Martin service agent only.

A terminal block for connection to AC mains power is not included and must be supplied by the installer.



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.



Protection from electric shock

This fixture is IP66 rated. It is suitable for use in wet locations, but do not immerse it in water or install it in a location where it may become submerged.

This fixture is a Class I product according to IEC 61140. Ensure that the fixture is electrically connected to ground (earth).

Disconnect the fixture from AC power when it is not in use.

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.

Shut down power to the entire installation at the main power distribution board and lock out power before carrying out any installation or maintenance work.

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, are rated for the current requirements of all connected devices, are protected to IP67 or higher and are of suitable type for the location (including water, pollution, temperature and UV resistance).



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 modify the fixture in any way not described in this manual or install other than genuine Martin parts. Do not stick filters, masks or other materials onto any lens or other optical component. Use only accessories approved by Martin™ to modify the light beam.

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

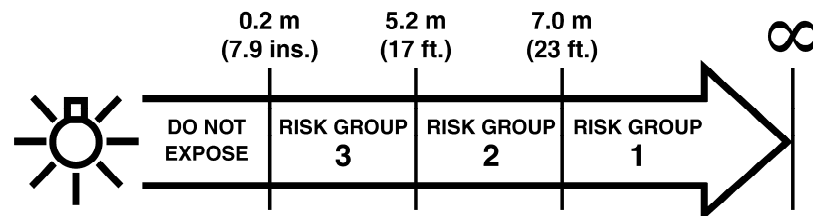
Do not stare directly into the light output. Ensure that persons are not looking directly into the lamp when the fixture lights up suddenly. This can happen when power is applied, when the fixture receives a DMX signal, or when certain control menu items are selected.

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 12° (Narrow model) to 51° (Very Wide model), letting the user select the optimum beam angle and obtain the best image projection in a specific installation. 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.

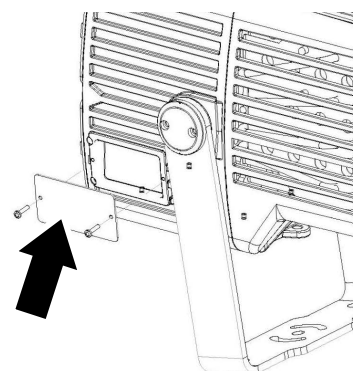
The Exterior Projection 500 can be controlled using any controller that is compatible with the industry-standard DMX512 lighting control protocol. It will also respond to RDM (Remote Device Management) communication if you use an RDM-compliant controller. RDM lets you set up and retrieve status information 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.

This user manual covers fixture software version 1.6.0.

Before using the product for the first time

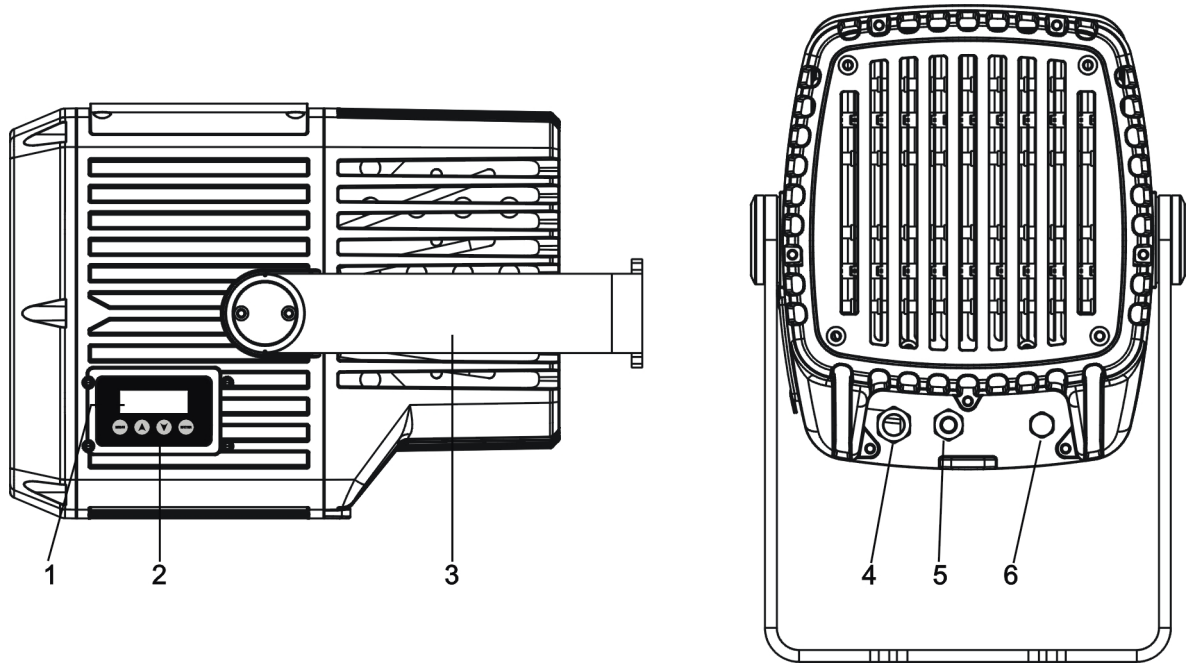
1. Unpack and ensure that there is no transportation damage before using the fixture. Do not attempt to operate a damaged fixture.
2. Check the fixture's Tech Docs / Product Support page on the Martin Professional™ website at www.martin.com and make sure that you have read the latest user documentation 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 5 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 LCD display on the side of the fixture so that you can set up the fixture using the control panel. Otherwise, to help prolong the life of the LCD display you should keep the cover installed when it is not needed.



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



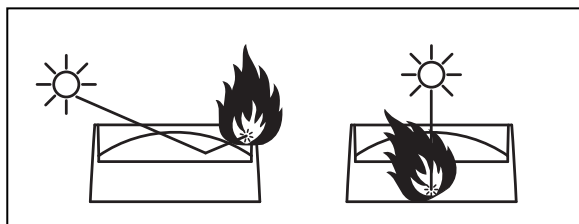
Warning! Read 'Safety information' on page 5 before installing the fixture.

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 55) 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.



Cooling

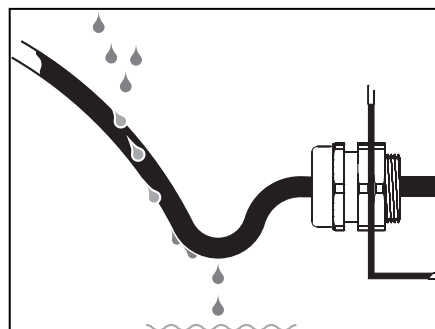
The Exterior Projection 500 has a thermal protection system. If temperatures inside the fixture exceed safe levels, it regulates LED output to protect components.

The fixture has internal forced air cooling but it needs to dissipate heat externally by convection. Ensure sufficient ventilation and free airflow around the fixture, especially around the grills on the back of the fixture, to minimize any reduction in LED output in high ambient temperatures.

Protection from moisture

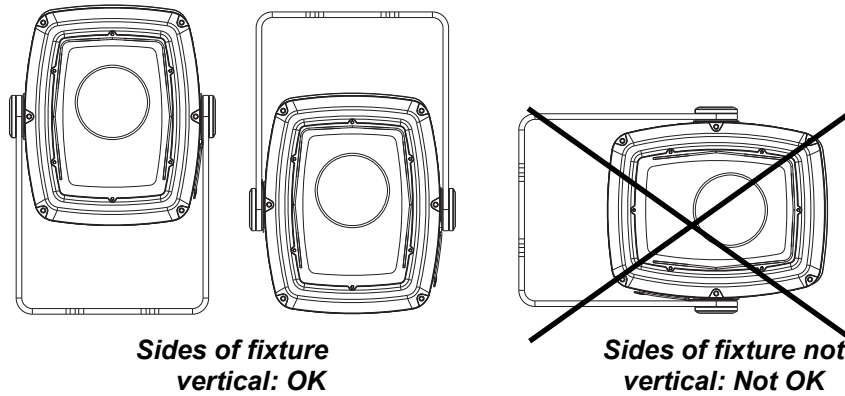
If there is a break or cut at any point in a cable (for example at a connection point), and if this is exposed to water, moisture can be drawn up the inside of the cable due to the vacuum effect of temperature fluctuations during operation. Ensure that the fixture is protected from the entry of water 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.



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.

Installing on a rigging truss

It is possible to install the fixture temporarily on a rigging truss or similar support. If you do this, fasten two approved rigging clamps to the mounting yoke with two grade 8.8 strength M12 bolts fastened through holes **B** in the mounting yoke base (see illustration at bottom of page) and suspend the fixture using the two clamps. Install the fixture hanging vertically downwards only. Secure the fixture with a safety cable as described in 'Secondary attachment' on page 12.

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.

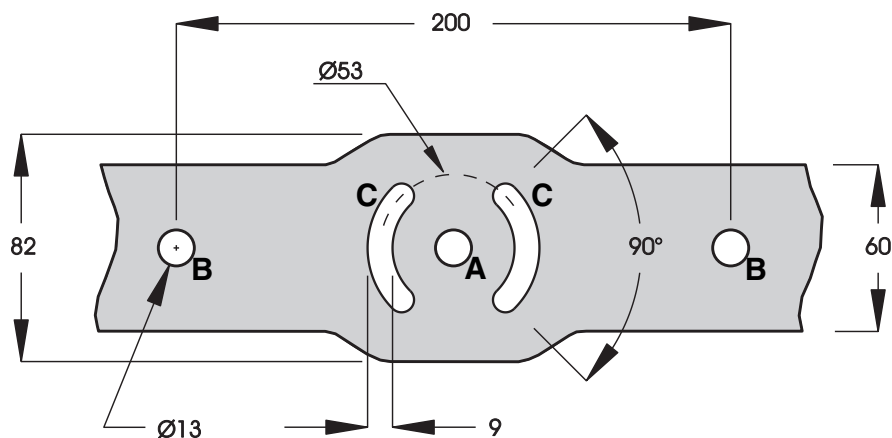
Anchoring to a surface or structure

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.

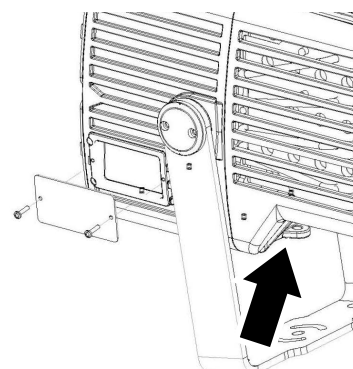
- Adjust the fixture's pan angle (side-to-side beam aiming) as described later in this chapter. Adjusting pan is best carried out with power applied to the fixture so that the projection is visible. Once pan is correct, fasten two 12 mm (1/2 inch) shaft diameter bolts to the surface with one bolt passing 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.



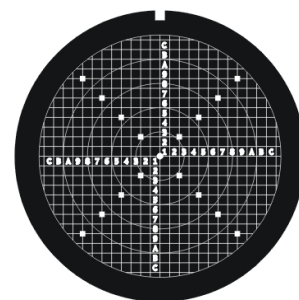
Adjusting aiming (pan and tilt)



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.

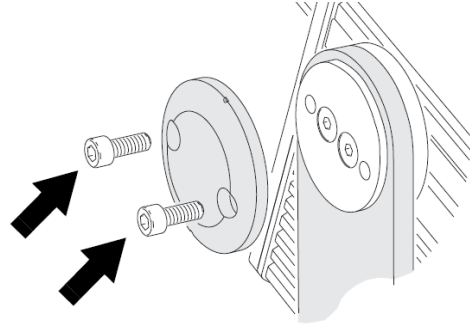
See illustration on right. If you require very precise aiming and setup, we recommend that you order the projection setup gobo available from Martin for the Exterior Projection 500 (see 'Accessories' on page 55) and install it in the gobo wheel while you adjust fixture aim, focus, etc.



To adjust the aim of the fixture:

- 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 20).

2. Put on heat-resistant gloves.
3. See 'Anchoring to a surface or structure' on page 11. 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 11. 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 5 before installing the fixture. Lock out power to the entire installation before working on cables and connections.



Electrical installation must be carried out by qualified professionals only.

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.

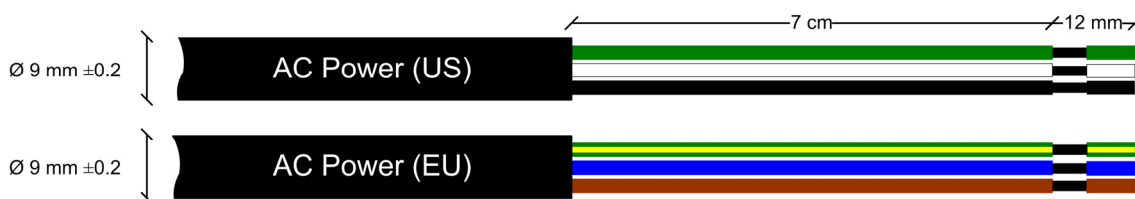
Protecting connections from moisture

Moisture can cause corrosion in unprotected cable connections. Moisture can also be sucked along the inside of cables at breaks or cuts in the cable jacket (for example at connection points) and into fixtures because of the vacuum effect of temperature fluctuations inside fixtures. To protect connections and fixtures from moisture, take at least one of the following precautions:

- Locate cable junctions in dry areas (e.g. junction boxes in dry locations).
- Use connectors or junction boxes that are protected to IP67 or higher.
- Fill junction boxes with potting compound to seal the ends of cables and to protect connections from corrosion.

Connecting to 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.

Installing a temporary power plug

It is possible to install a power plug on the power cable for temporary use (such as setting up a fixture before installation) only. If you choose 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 \oplus
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.

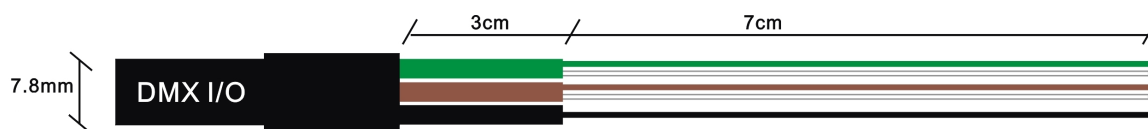
Connecting the data link

Important! Protect all connections and all breaks in cable jackets from moisture (see 'Protecting connections from moisture' on page 14).

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	<i>white</i>	<i>green</i>	<i>white</i>	<i>brown</i>	<i>black</i>
Signal	<i>DMX in +</i>	<i>DMX in –</i>	<i>DMX out +</i>	<i>DMX out –</i>	<i>common</i>
Male XLR pinout	<i>pin 3</i>	<i>pin 2</i>	<i>-</i>	<i>-</i>	<i>pin 1</i>
Female XLR pinout	<i>-</i>	<i>-</i>	<i>pin 3</i>	<i>pin 2</i>	<i>pin 1</i>

Data connection pinout

Fixture setup



Warning! Read 'Safety information' on page 5 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 49. Some settings and functions are also available via RDM. See the end of this chapter.

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 123 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 111 and cannot be changed. This password can be used to enter the control menus if necessary.

To enter 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 contain up to 20 scenes that last 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 when no DMX or Master signal is received' on page 22. 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

Important! We strongly recommend that you set the display to turn off automatically after 1 minute in order to maximize the lifetime of the display. AUTO OFF → YES is the factory default setting.

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 16.

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 inserting a DMX termination plug (a plug with a 120 Ohm resistor across data hot and data cold) in the data IN connector 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.
- If you want master/slave operation, set only the first fixture on the link to MASTER. Set all the other fixtures to SLAVE. If you set more than one fixture to act as master, fixtures may behave unexpectedly.
- If you want fixtures to keep obeying the last DMX command they received if a DMX signal is lost, set all fixtures to be MASTER. If a fixture is set to SLAVE, it will always black out if it is not receiving a DMX signal or a signal from a MASTER fixture.

Setting up master/slave operation

To set up master/slave operation:

1. Program a standalone show in each fixture as described under 'Programming a standalone show' on page 19.
2. On each fixture, access the control menu and select FIXTURE CONFIG. Press ENTER.
3. On the first fixture on the link select MASTER and press ENTER to confirm. Then press MENU to return to the FIXTURE CONFIG menu.
4. On all the other fixtures on the link, select SLAVE and press ENTER to confirm. Then press MENU to return to the FIXTURE CONFIG menu.
5. On all fixtures, scroll to OFFLINE MODE and press ENTER. Then select RUN SHOW and press ENTER to confirm. Finally, press and hold MENU to exit the control menus.
6. 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. Note that, if a slave fixture stops receiving a signal from the master fixture, it will black out until it receives either a signal from the master fixture or a DMX signal.

Offline mode – behavior when no DMX or Master signal is received

There are three options for setting how a fixture behaves in offline mode, i.e. when it is not receiving a control signal from either a DMX controller or a master fixture:

RUN SHOW: Fixture executes its standalone show (fixture must be set to MASTER).

If the fixture is set to MASTER and it does not receive a control signal, the fixture will execute the scenes in its pre-programmed standalone show (see 'Programming a standalone show' on page 19). It will also send a signal to any fixtures that are connected to it and set to SLAVE instructing them to run their standalone shows.

If the fixture is set to SLAVE and it does not receive a control signal, it will black out until it receives a control signal.

DMX LAST STATE: Fixture holds and displays the last received DMX command (fixture must be set to MASTER).

If the fixture is set to MASTER and it does not receive a control signal, it will continue to obey the last DMX command that it received.

If the fixture is set to SLAVE and it does not receive a control signal, it will black out until it receives a control signal.

BLACK OUT (default): Fixture blacks out.

If the fixture is set to MASTER and it does not receive a control signal, it will black out until it receives a control signal.

If the fixture is set to SLAVE, it will always black out if it does not receive a control signal.

These options also apply if a fixture is receiving a control signal but that signal is suddenly lost.

To set a fixture's offline mode behavior:

1. Access the control menu and scroll to FIXTURE CONFIG. Press ENTER.
2. Scroll to MASTER/SLAVE and press ENTER. Press UP or DOWN to select master or slave operation and press ENTER to confirm. Press MENU to go back up one level.
3. Scroll to OFFLINE MODE and press ENTER. Press UP or DOWN to select RUN SHOW, DMX LAST STATE or BLACK OUT. Press ENTER to confirm.

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 with manually operated framing module, available from late 2017).

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

You should normally never need to change the Fixture Offsets setting. We recommend that you change the setting with guidance from Martin Service only.

You can 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 user password (factory default = 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 'Device Discovery / 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.

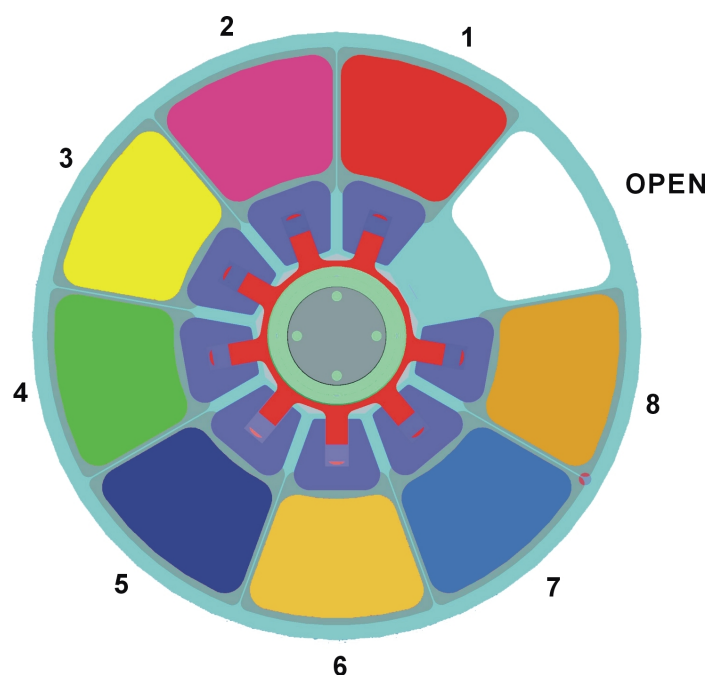
Electronic dimming

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 2: Magenta

Slot 3: Yellow

Slot 4: Green

Slot 5: Dark Blue

Slot 6: CTO

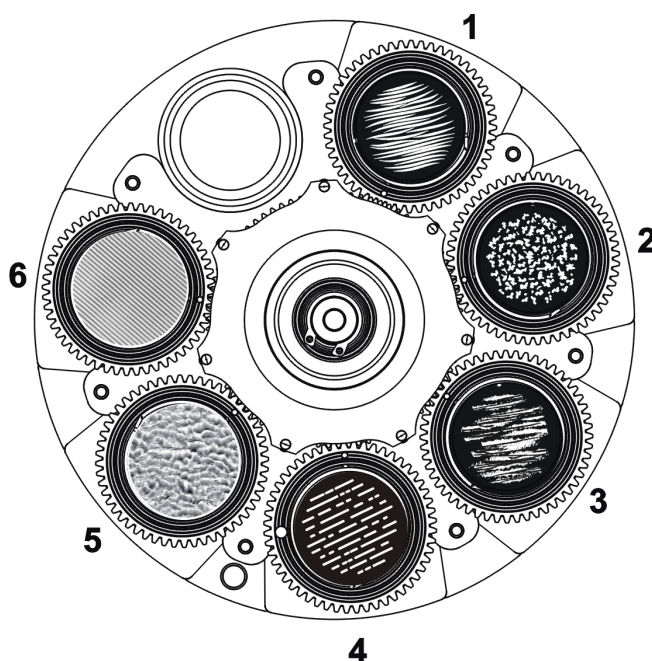
Slot 7: Cyan

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 54).

Gobo indexing angles

Mechanical tolerances mean that there can be small changes in the indexing angles (rotational angles) of gobos if you move them and then return them to the initial indexing angle.

From firmware version 1.7.0 (available mid-2018), a 'Precise gobo indexing' mode is available on the fixture settings DMX channel 13. This mode returns gobos more accurately to their original position after a move. If you require the tightest possible gobo indexing angle repeatability and the fixture is running firmware version 1.6.0 or earlier, we recommend that you update to firmware v. 1.7.0 or later and enable 'Precise gobo indexing'.

In 'Precise gobo indexing' mode, the fixture always moves gobos to their programmed angles from a counterclockwise direction (as seen when looking at the projection). If you enable 'Precise gobo indexing', you should also always move gobos to indexing angles from a counterclockwise direction while you are programming a show on a DMX controller or programming a stand-alone

show as described under 'Programming a standalone show' on page 19. If you overshoot the desired angle, do not fix the problem by moving the gobo back to the desired angle in a clockwise direction. Instead, move the gobo back *past the desired angle* in a clockwise direction, then move it to the desired angle from a counterclockwise direction again.

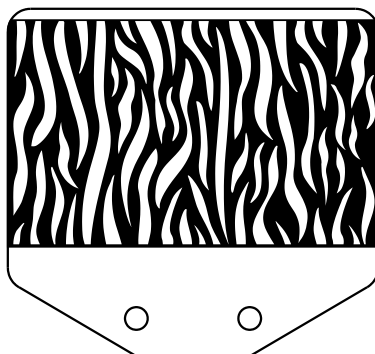
Note that you do not need to have 'Precise gobo indexing' mode selected during programming. In fact, it might be easier to disable this mode during programming and then enable it in the final cue.

Note also that slow fading from one gobo indexing angle to another is slightly less smooth when 'Precise gobo indexing' mode is enabled. If you want to compensate for this, use short fades or snap to indexed angles, or program a blackout cue prior to the indexed position.

Finally, remember that – no matter which fixtures you are using – you can avoid visible differences in gobo indexing angles if you avoid programming very tight gobo mapping in multiple fixtures. For example, avoid aligning a vertical or horizontal line in gobo projections from two or more fixtures.

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.

See also 'Focus distances' on page 29.

Operation

The Exterior Projection 500 is designed to operate at ambient temperatures between -30°C (-22° F) and 45° C (113° F). For instant wake-up with no warm-up mode, we recommend that you keep power applied constantly in ambient temperatures below 0° C (32° F).

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

Projection data

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 the following image sizes and light intensity in the projection:

Narrow beam angle (12°) models

Distance to projection surface	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.)
Projection diameter in meters (ft.)	0.8 (2.6)	1.2 (3.8)	1.5 (5.1)	1.9 (6.3)	2.3 (7.6)	2.7 (8.9)	3.1 (10.2)	3.5 (11.4)	3.9 (12.7)
Center illuminance in lux	12688	5639	3172	2030	1410	1036	793	627	508
Center illuminance in candela	1179	524	295	189	131	96	74	58	47

Projection data, gobo with max. image size, Narrow beam angle

Medium beam angle (22°) models

Distance to projection surface	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.)
Projection diameter in meters (ft.)	1.4 (4.7)	2.1 (7.0)	2.9 (9.4)	3.6 (11.7)	4.3 (14.1)	5.0 (16.4)	5.7 (18.8)	6.4 (21.1)	7.2 (23.5)
Center illuminance in lux	4813	2139	1203	770	535	393	301	238	193
Center illuminance in candela	447	199	112	72	50	36	28	22	18

Projection data, gobo with max. image size, Medium beam angle

Wide beam angle (37°) models

Distance to projection surface	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.)
Projection diameter in meters (ft.)	2.5 (8.1)	3.7 (12.1)	4.9 (16.2)	6.2 (20.2)	7.4 (24.2)	8.6 (28.3)	9.9 (32.3)	11.1 (36.4)	12.3 (40.4)
Center illuminance in lux	1750	778	438	280	194	143	109	86	70
Center illuminance in candela	163	72	41	26	18	13	10	8	7

Projection data, gobo with max. image size, Wide beam angle**Very Wide beam angle (51°) models**

Distance to projection surface	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.)
Projection diameter in meters (ft.)	3.5 (11.5)	5.3 (17.3)	7.0 (23.0)	8.8 (28.8)	10.5 (34.6)	12.3 (40.3)	14.0 (46.1)	15.8 (51.8)	17.6 (57.6)
Center illuminance in lux	688	306	172	110	76	56	43	34	28
Center illuminance in candela	64	28	16	10	7	5	4	3	3

Projection data, gobo with max. image size, Very Wide beam angle

Focus distances

The minimum distances at which you can obtain sharp focus are shown in the table below:

	Approximate DMX value	Minimum sharp focus distance
Narrow (12°)	255	2.7 m (8.9 ft.)
Medium (22°)	190	2.7 m (8.9 ft.)
Wide (37°)	130	3 m (9.9 ft.)
Very Wide (51°)	90	4.3 m (14.2 ft.)

Minimum sharp focus distances

These distances also apply if the optional framing module is installed in the fixture.

Maintenance



Warning! Read 'Safety information' on page 5 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 30 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-humidity 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 32.

Pressure relief valves

A valve with a Gore-Tex membrane on the back of the fixture (see 'Fixture overview' on page 9) 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

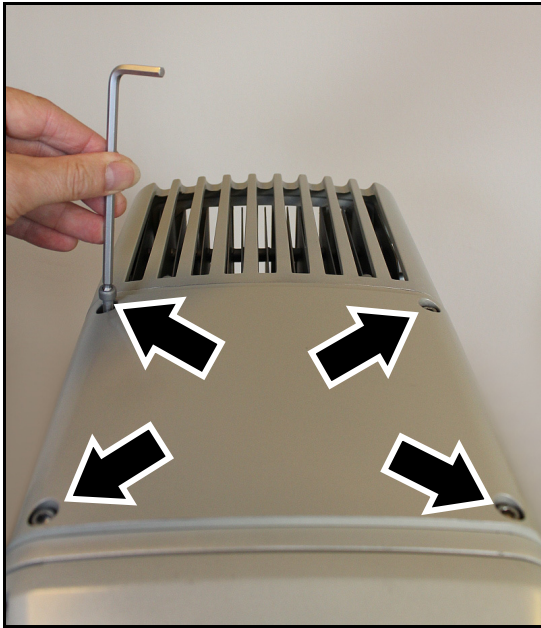
Important! Open the fixture in dry weather conditions only. Use Evaporation Mode as described below and a new silica gel desiccant bag to avoid humidity inside the fixture.

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:

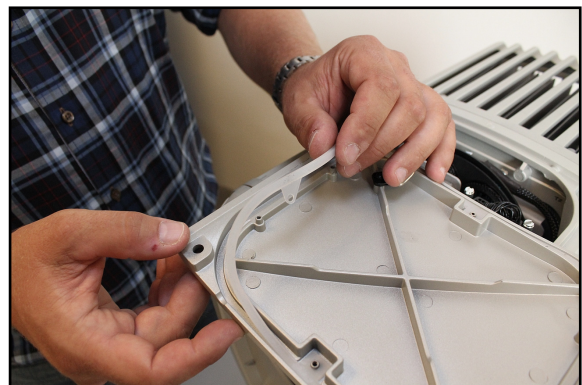
1. Disconnect the fixture from power and allow it to cool for at least 60 minutes.
2. See illustrations below. Use a 5 mm Allen key (hex wrench) to remove the four top cover screws (arrowed). Lift the top cover off the fixture. For ease of access – and if it is safe to do so – you can unclip the safety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



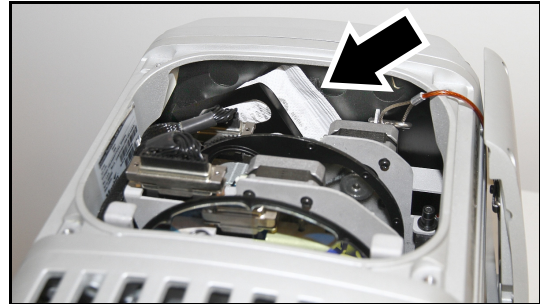
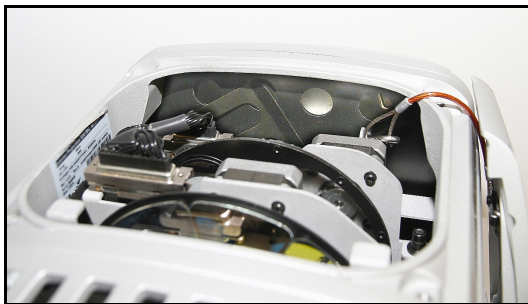
Reinstalling the top cover

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. Do not remove the dessicant bag from its sealed aluminum foil bag until you are ready to install it as described below.
5. Open the Service → Evaporation Mode control menu and select PASSWORD. Scroll to the user 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. Move the top cover to one side again. See illustrations below. Push the bag into position behind the clip provided in the rear of the fixture. Check that the bag is held securely.



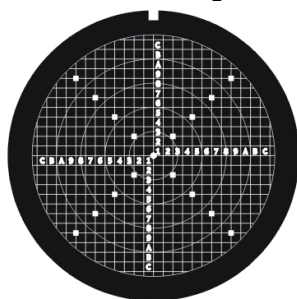
10. Place the top cover back onto the fixture, then reinstall the four top cover screws by first inserting them finger-tight. Then use a torque driver and cross-tighten the screws in a diagonal pattern, increasing torque gradually in stages until you reach a torque of 1.8 Nm.

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, so custom gobos must meet the specifications and quality standards of the Martin gobos supplied with the fixture (see 'Gobos' on page 54), or they can lead to damage that is not covered by the product warranty. Borosilicate glass gobos are recommended for long-term use, but for shorter periods it is possible to use gobos constructed in aluminum 1060.

The dark side of glass gobos and the painted side of aluminum gobos must face away from the LEDs and face towards the front of the fixture.

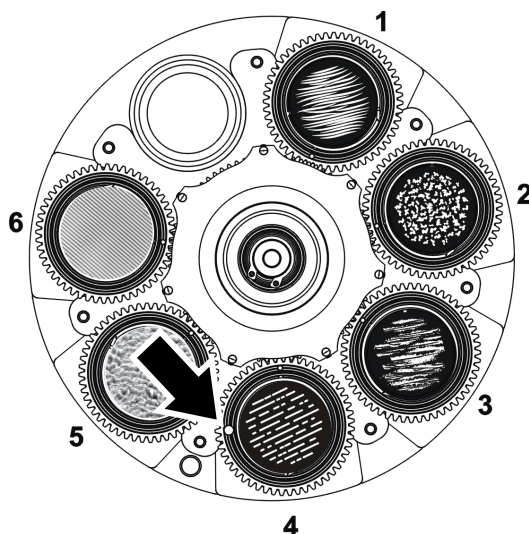
To help with designing custom gobos when projection requirements are very specific, order the Projection Setup Gobo (see below) from Martin and use it to map projection characteristics at the installation site. You can then give precise data to the gobo designer to use as a guide.



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 54. 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.

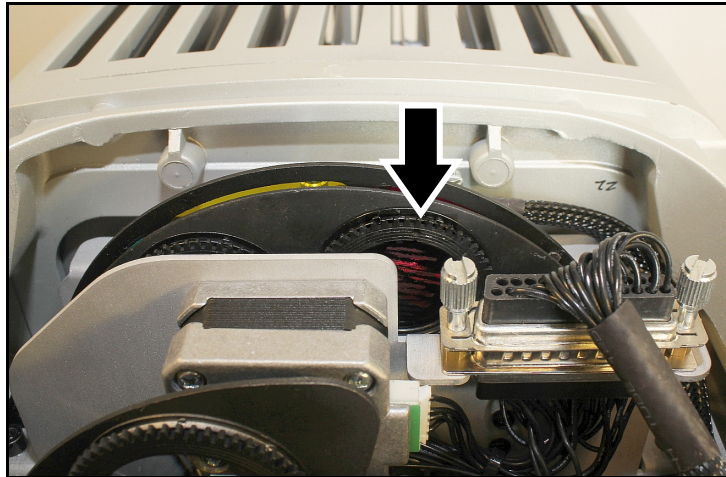
See illustration below. The goboholder in slot 4 has a magnet (arrowed) that the fixture uses to recognize the position of the gobo wheel and gobos. If you replace gobos, make sure that you always install this goboholder in its original position in slot 4.



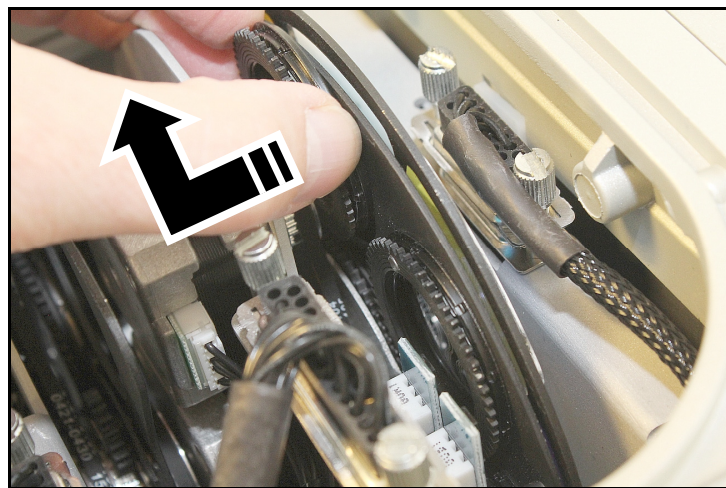
The rotating gobos in the Exterior Projection 500 are installed in goboholders that clip into the rotating gobo wheel.

To replace a gobo:

1. Remove the top cover as described under 'Removing and reinstalling the top cover' on page 32.
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.



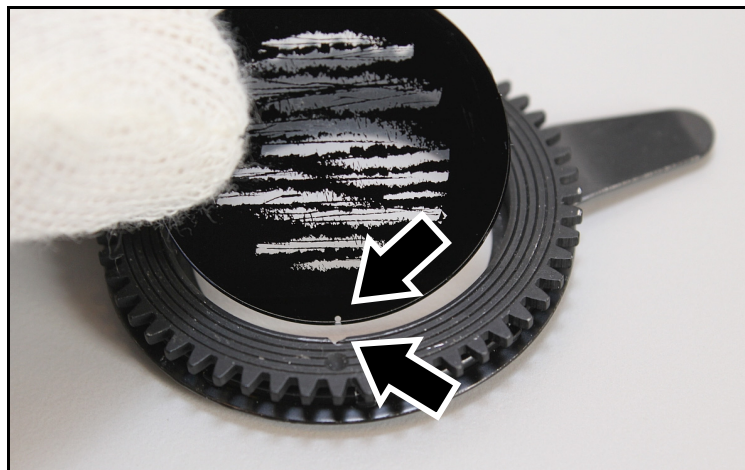
3. See illustration below. Pull the goboholder forwards, away from the wheel, then lift it up out of the wheel.



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.

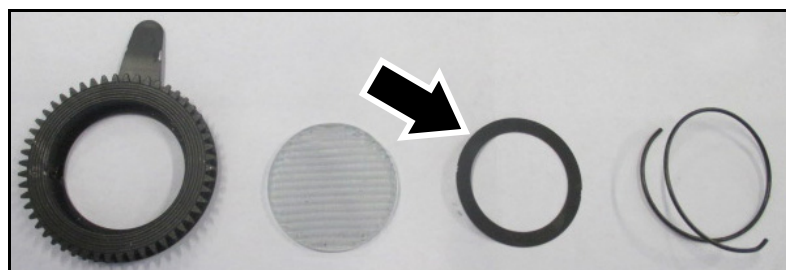


5. See illustration below. Hold the gobo with the dark side (glass gobos) or painted side (user-supplied aluminum gobos) facing upwards towards the teeth in the goboholder. Match up the alignment marks (arrowed) in the gobo and goboholder. Lay the new gobo flat in the goboholder.

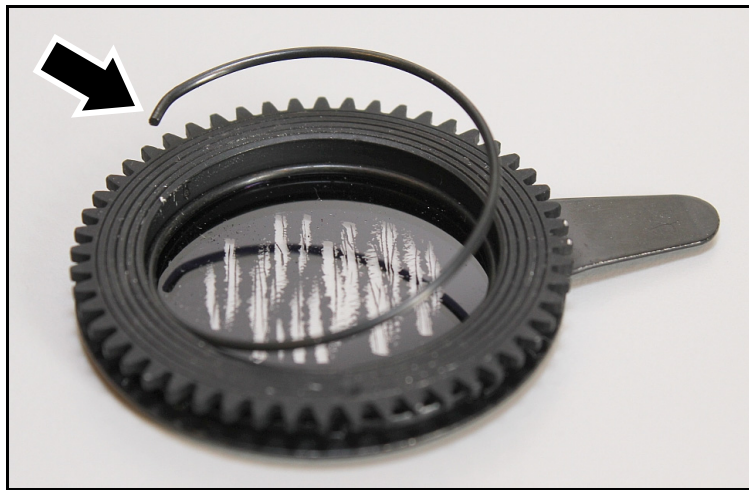


Gobos 5 and 6 only

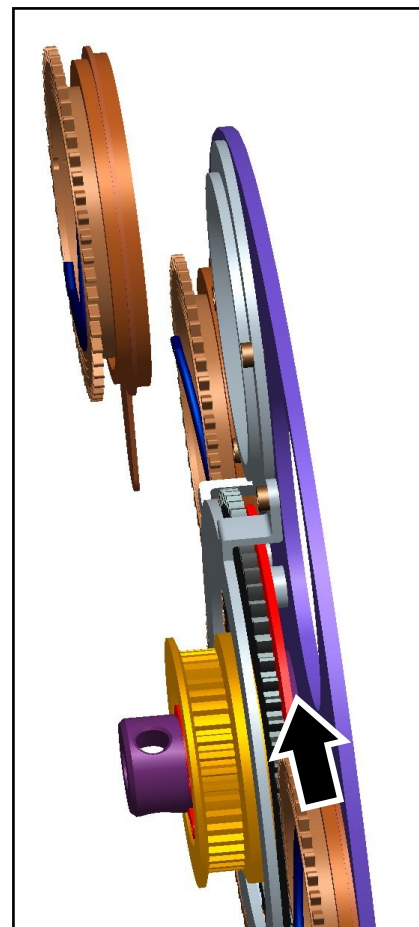
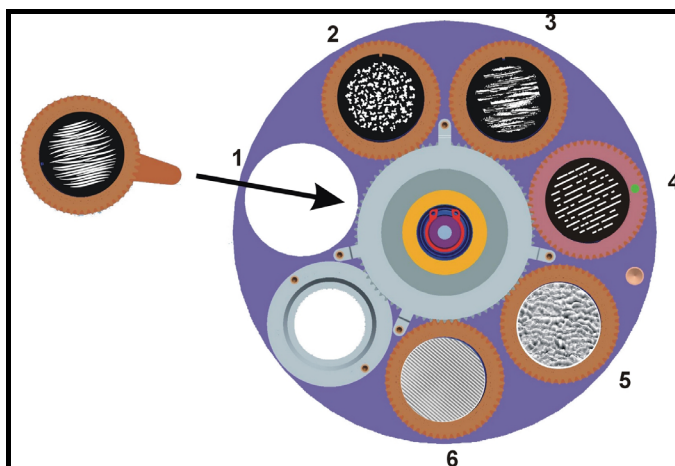
Gobos 5 and 6 are structured glass and require a thrust washer. See illustration below. Place the black thrust washer (arrowed) over the gobo before you go on to the next step.



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 gobo wheel.



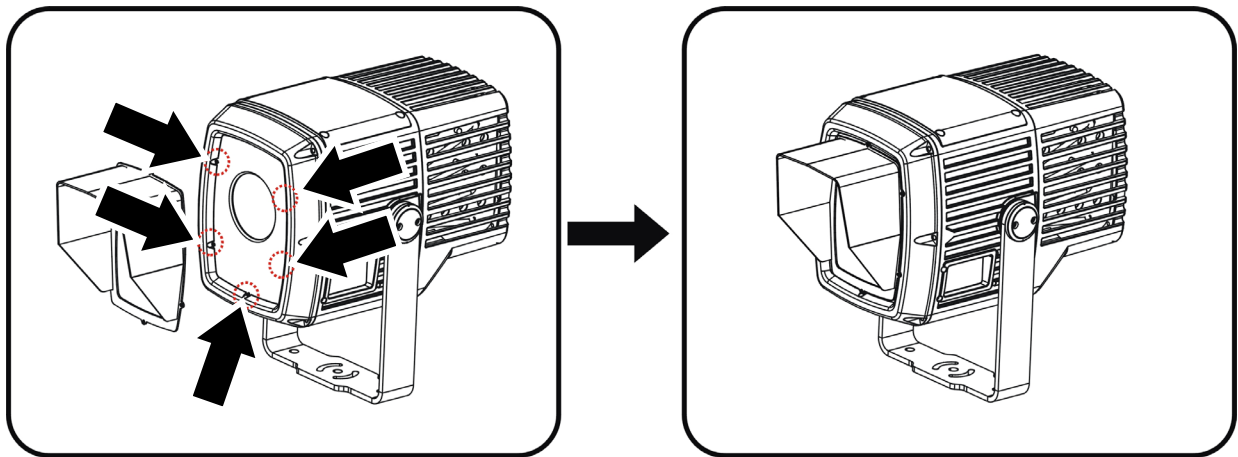
9. Check that the goboholder is held securely. Rotate the whole gob wheel with your finger and check that the goboholder rotates in the wheel while you rotate the gobo wheel. If the goboholder does not rotate, it is not correctly installed and its teeth are probably not engaged correctly in the teeth in the gobo wheel. Lift the goboholder out of the gob wheel and reinstall it correctly.
10. Reinstall the top cover as described under 'Removing and reinstalling the top cover' on page 32.

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.

Installing a framing module

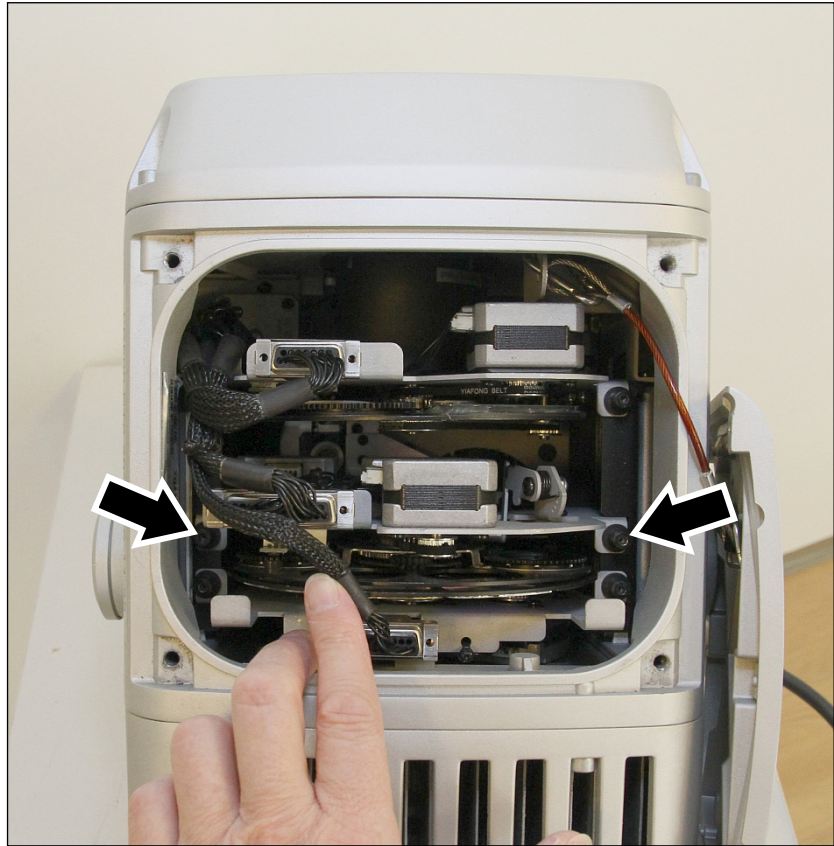
A four-blade manual framing module is available as an optional accessory for the Exterior Projection 500. The framing module can be installed in place of the gobo module (which contains the gobo wheel and the gobo animation wheel).

Each of the four framing blades can be manually adjusted at both ends. The module lets you form the projection into a wide range of shapes and sizes including regular squares, trapezoid rectangles and triangles. This lets you restrict the light output to a specific area or target – the façade of a building, for example. Light output can be prevented from striking neighboring buildings or dazzling pedestrians at street level, for example.

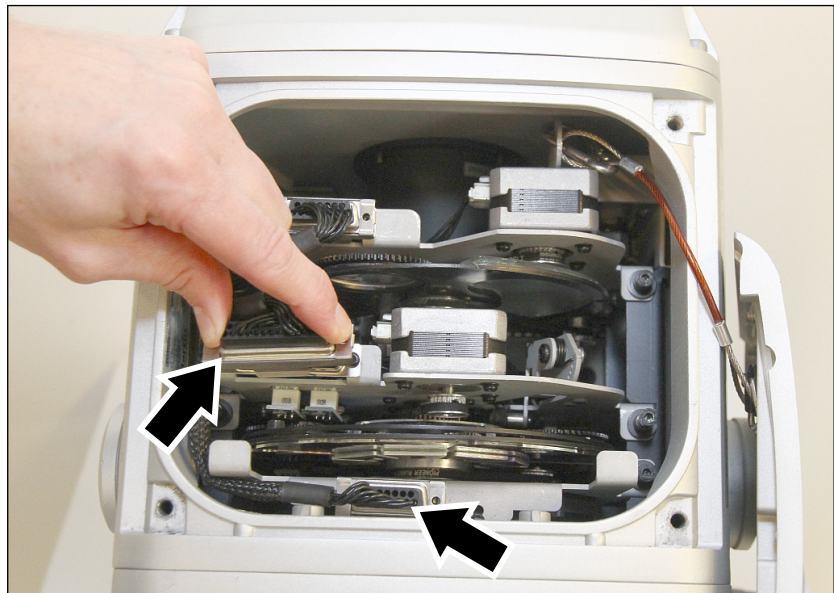
The framing effect is not intended to mask areas with sharp edges: it is not possible to obtain sharp focus on all four framing blades simultaneously.

To install a framing module:

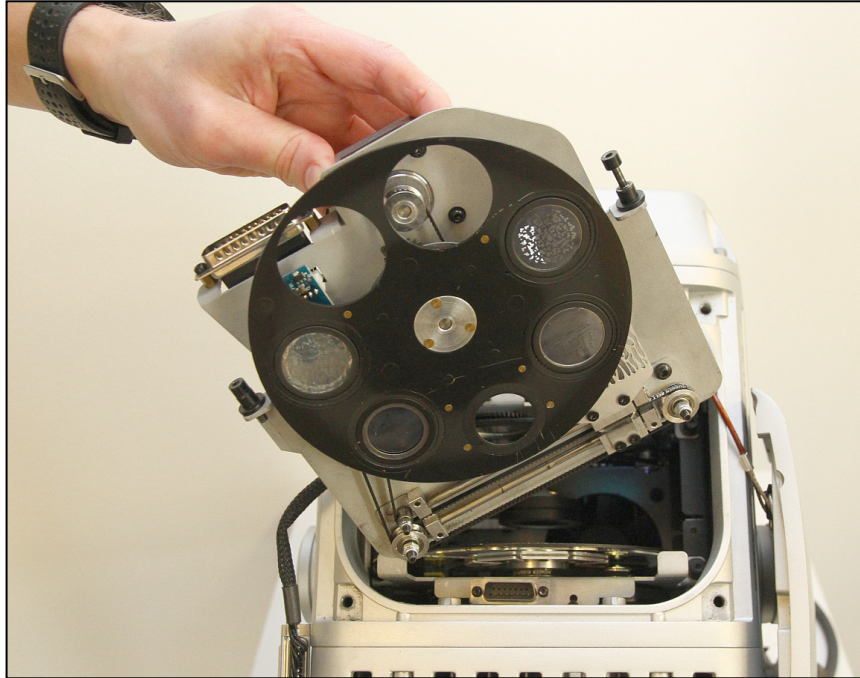
1. Open the fixture's top cover as described in 'Removing and reinstalling the top cover' on page 32.
2. See illustration on right. Remove the two Allen (hex) head gobo module retaining screws (arrowed).



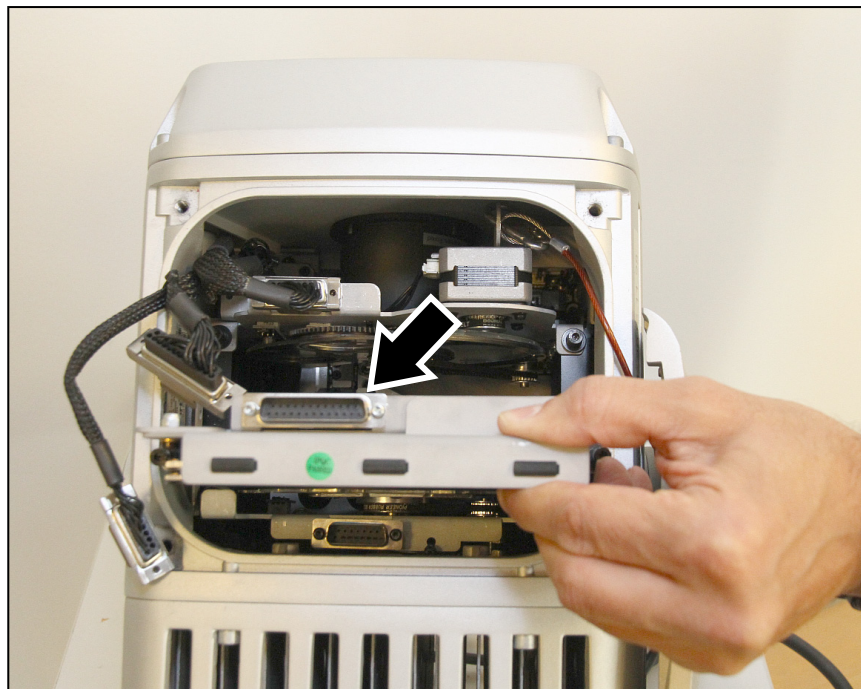
3. See illustration on right. Unplug the two multi-connectors (arrowed) and move the wiresets out of the way to give yourself space to remove the gobo module.



4. See illustration on right. Lift the gobo module out of the fixture.



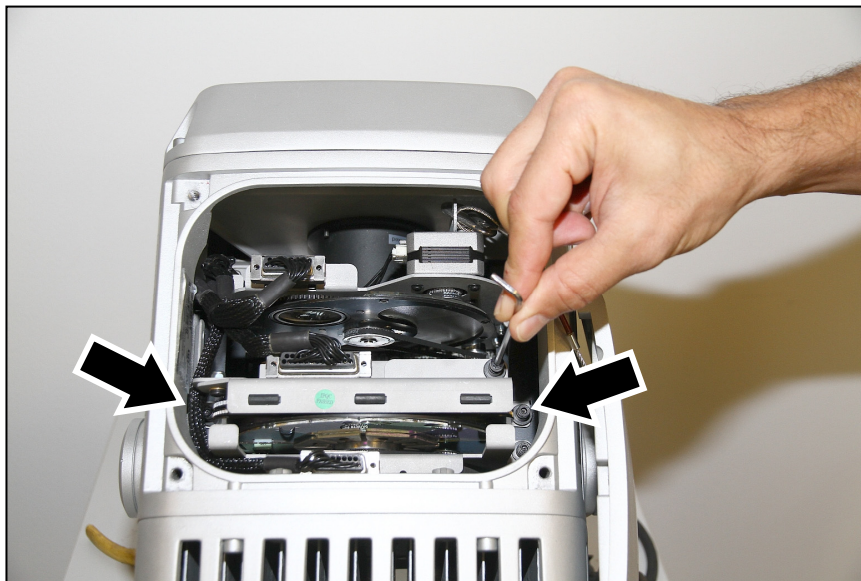
5. See illustration on right. Slide the framing module into the fixture in the place of the gobo module. Make sure that the framing module multi-connector (arrowed) faces as shown.



6. See illustration on right. Carefully cut the cable tie on the gobo module wireset to give more free length in the wireset.
7. Plug the large multi-connector into the framing module and the smaller multi-connector into the color wheel module.



8. See illustration below. Route the wireset around the left-hand side of the framing module, and then fasten the framing module into the fixture with the two Allen (hex) screws (arrowed) that were used to fasten the gobo module into the fixture. The illustration below shows the framing module cover being opened with an Allen key / hex wrench, but the screws that hold the framing module into the fixture are indicated with arrows.

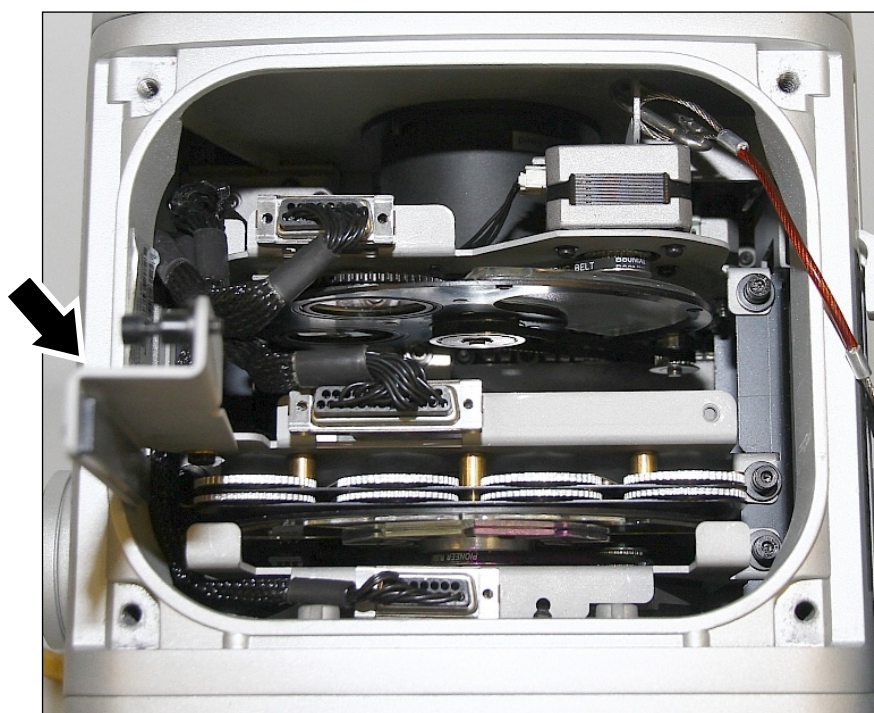


9. If you are not going to adjust framing immediately, close the fixture as described in 'Removing and reinstalling the top cover' on page 32. If you are going to adjust framing, continue to the next section below.

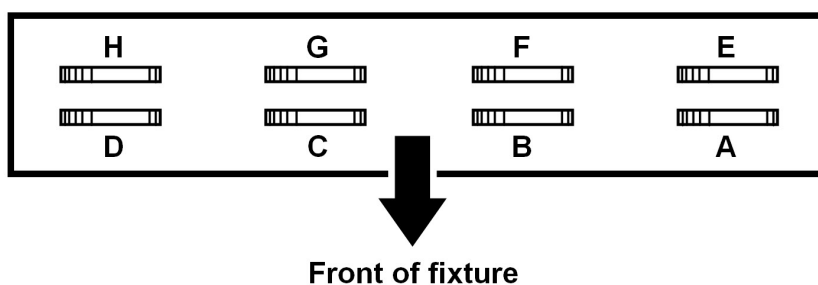
Framing adjustment

You can adjust the framing with the framing module installed if the fixture is installed in its final position and aimed at the target to be illuminated. Carry out adjustment in dry weather conditions only.

1. Apply power to the fixture, then remove the top cover as described in 'Removing and reinstalling the top cover' on page 32. Do not disconnect the safety cable if there is any danger of the cover falling and causing injury or damage.
2. See illustration below. Opened the framing module cover (arrowed) for access to the framing adjustment wheels in the top of the framing module. The wheels let you adjust the position of each framing blade by moving the ends of the blade.



3. The illustration below shows which wheels adjust which blade. Turning wheels **A** and **D** adjusts the top framing blade, for example.

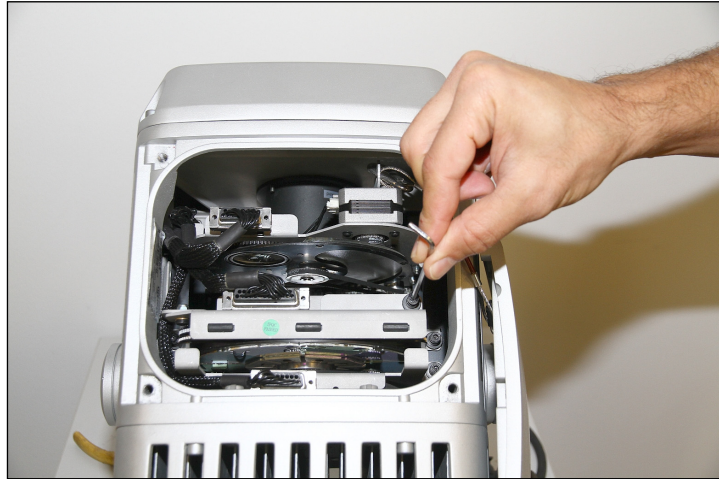


Framing blade adjustment wheels:

A + D = Top
B + C = Bottom

E + F = Right
G + H = Left

4. Rotate the wheels to adjust the blades until they frame the area to be illuminated and mask the area around it.
5. See illustration on right. Close the framing module cover and fasten it closed with its Allen screw / hex key. Check that wiresets are routed around the left-hand side of the module when you view the fixture from the front, as shown in the illustration.
6. Close the fixture as described in 'Removing and reinstalling the top cover' on page 32.



Updating firmware

The Exterior Projection 500 accepts firmware (fixture software) updates via the DMX/RDM link if using an uploader tool such as the Martin Companion application running on a Windows PC. Connect the PC to the DMX/RDM link via a suitable USB-to-DMX hardware interface such as the Martin M-DMX. See the Martin website at www.martin.com for details of the firmware upload options available.

You can download all currently available firmware versions from the Exterior Projection 500's Tech Support pages at www.martin.com.

Setting beam angles when updating firmware

In firmware versions 1.4.x and earlier, the fixture's beam angle is set to **Medium** by default. If you update firmware *to versions 1.4.x and earlier* in a fixture with a Narrow, Wide or Very Wide beam angle, you must enter the fixture's onboard control panel, open **Service → Select Beam Angle** and change the beam angle setting from **Medium** to **Other**.

If you update the firmware from version 1.4.x or earlier *to version 1.5.x* in a Narrow, Wide or Very Wide fixture, you also need to change the beam angle setting in the fixture's control panel, but you only need to do it once. After this, any future firmware updates will automatically recognize the fixture's beam angle.

If you update the firmware from version 1.4.x or earlier *to version 1.6.0 or later* in a Narrow, Wide or Very Wide fixture, you can set the fixture's beam angle using the control panel but you can also set it via RDM. This means that from firmware version 1.6.0 you do not need physical access to the fixture's control panel in order to set the beam angle correctly in Narrow, Wide or Very Wide fixtures. After you have set the fixture's beam angle once, any future firmware updates will automatically recognize the beam angle.

To update the beam angle in firmware version 1.6.0 or later via RDM:

1. Establish communication between the RDM controller and the fixture that you want to update
2. Open the fixture's **Personality** settings and change **Beam Angle** from **Medium** to **Other**.
3. Save your change and exit the **Personality** settings.

Bear in mind that different RDM controllers may have slightly different names for menu items and may use slightly different procedures.

Remote Device Management (RDM)

The Exterior Projection 500 features Remote Device Management (RDM) capability. RDM lets you get information from the fixture and change settings in the fixture remotely over the DMX data link using an RDM-compatible DMX controller.

Setting beam angles in new firmware

If you update the fixture's firmware to version 1.6.0 or later, you can use RDM to set the correct beam angle in Narrow, Wide and Very Wide beam angle fixtures without needing physical access to the fixture (see 'Setting beam angles when updating firmware' on page 43).

Parameter IDs

RDM commands are normally referred to as Parameter IDs or PIDs. The Exterior Projection 500 responds to the following Parameter IDs:

Device discovery

Parameter ID
DISC_UNIQUE_BRANCH
DISC_MUTE
DISC_UN_MUTE

Device management

Parameter ID	GET	SET
COMMS_STATUS		✓
QUEUED_MESSAGE	✓	
STATUS_MESSAGES	✓	
STATUS_ID_DESCRIPTION		✓
CLEAR_STATUS_ID		✓
SUPPORTED_PARAMETERS	✓	
PARAMETER_DESCRIPTION	✓	
DEVICE_INFO	✓	
DEVICE_MODEL_DESCRIPTION	✓	
MANUFACTURER_LABEL	✓	
DEVICE_LABEL	✓	✓
FACTORY_DEFAULTS	✓	✓
SOFTWARE_VERSION_LABEL	✓	
DMX_PERSONALITY	✓	✓
DMX_PERSONALITY_DESCRIPTION	✓	
DMX_START_ADDRESS	✓	✓
SLOT_DESCRIPTION	✓	

SENSOR_DEFINITION	✓	
SENSOR_VALUE	✓	✓
DEVICE_HOURS	✓	✓
LAMP_HOURS	✓	✓
DEVICE_POWER_CYCLES	✓	✓
IDENTIFY_DEVICE	✓	✓
RESET_DEVICE		✓

The commands that execute the PIDs in the table above are likely to be displayed differently on different RDM controllers.

Errors and warnings

The Exterior Projection 500 also sends warnings and error message codes via RDM (see 'Warning and error messages' on page 51).

DMX protocol

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

5	0 – 4 5 – 9 10 – 14 15 – 19 20 – 24 25 – 29 30 – 34	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
	35 – 39 40 – 44 45 – 49 50 – 54 55 – 59 60 – 64 65-209 210 – 232 233 – 255			
6	0 – 65535	Gobo indexing angle/rotation movement (select gobo on previous channel) Gobo indexing angle Indexed position (0° Index at 32768) Gobo rotation speed and direction No rotation CW rotation fast → CW slow No rotation CCW rotation slow → CCW fast No rotation	Fade	32768
7	0 – 600 601 – 32130 32131 – 32895 32896 – 64425 64426 – 65535			
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		Fixture settings	Snap	0
	0-9	<i>No function</i>		
	10-14	Reset fixture		
	15-29	<i>No function</i>		
	30-34	Precise gobo indexing ON		
	35-39	Precise gobo indexing OFF (default)		
	40-44	Parameter shortcuts = ON (default)		
	45-49	Parameter shortcuts = OFF		
	50-54	Auto-blackout = On		
	55-59	Auto-blackout = OFF (default)		
	60-64	Illuminate display on fixture		
	65-69	Turn off display on fixture		
	70-255	<i>No function</i>		

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	
			etc...	
	Set show times	Set fade time	0~120s	Default = 4.0 seconds
		Set hold time	0~600s	Default = 0.0 seconds
Manual Mode	Manual test	Strobe	0-255	Manually control all fixture's effects
		Intensity	0-100%	
		Color	0-255	
		etc...	etc...	
	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		Invert readout in display panel
	Display Auto Off	No / Yes (1 minute)		Display panel sleeps after 1 minute
	Intensity	0%- 100%		Adjust display panel intensity
	Display lock	On / Off		Hold Menu key pressed for 3 seconds, then enter user password (default = 123) or service password (111) to unlock display

Fixture Config	Master/Slave	Master		Set fixture to act as master or slave
		Slave		
	Offline mode	Run show		If fixture is set to master and no DMX signal is present, it runs standalone show
		DMX last state		If fixture is set to master and no DMX signal is present, it displays the last effect it was displaying before the DMX signal stopped
Black out		When no DMX signal is present, fixture blacks out		
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
		LED Hours	XXXX (Hours)	Number of hours light output has been activated since manufacture.
		Software Version	V x.x.x	Currently installed software (firmware) version
	Password	0...999		Set user password (factory default password is set to 123 but you can set a new password here)
	Select variant	EP500-MG		Match software to fixture variant: select MG for Exterior 500 Projection Multigobo, select FR for Exterior 500 Projection Framing
		EP500-FR		
	Select Beam Angle	Medium		Match software to fixture variant: select MEDIUM in Medium beam angle fixtures, select OTHER in Narrow, Wide and Very Wide fixtures.
		Other		
	Fixture Offset	Password	0...999	Note: For use by Martin Service! Enter user password (default = 123) or service password (111) for access to effect offsets. Then set an offset in each effect's home position.
		Color	-128~127	
		Gobo	-128~127	
		etc...	etc...	
	Evaporation Mode	Password	0...999	Enter user password (default = 123) or service password (111) for access to Evaporation Mode. To clear humidity, open top cover slightly, then press Enter. When message to close cover appears in display, close top cover and press Enter.

Default settings are shown in **bold**.

Warning and error messages

The Exterior Projection 500 monitors its own operation and is capable of self-diagnosis. If an operating parameter such as ambient temperature is exceeded or if an error occurs, the fixture displays a warning or error message in its onboard LCD display.

If the fixture displays a warning or error message, it can also send a four-character code to an RDM controller. Depending on which controller you are using, these codes may be displayed automatically or you may need to send a command to get the codes from the fixture.

The following table explains the warning and error message codes in RDM:

Message in display	RDM code	Notes
Err Gobo Wheel	9017	Gobo wheel error
Err Gobo ind/rot	9018	Gobo indexing/rotation error
Err 3_Facet_Prism	9028	3-facet prism error
Err Line Prism	9062	Linear prism error
Err Prism Rot	9029	Prism rotation error
PSU Fan	9059	Internal PSU fan error
Err Color wheel	9015	Color wheel error
Err Animation	901B	Animation system error
Err Focus	901D	Focus error
Environment temp out of range	8003	Ambient temperature exceeded

Troubleshooting

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

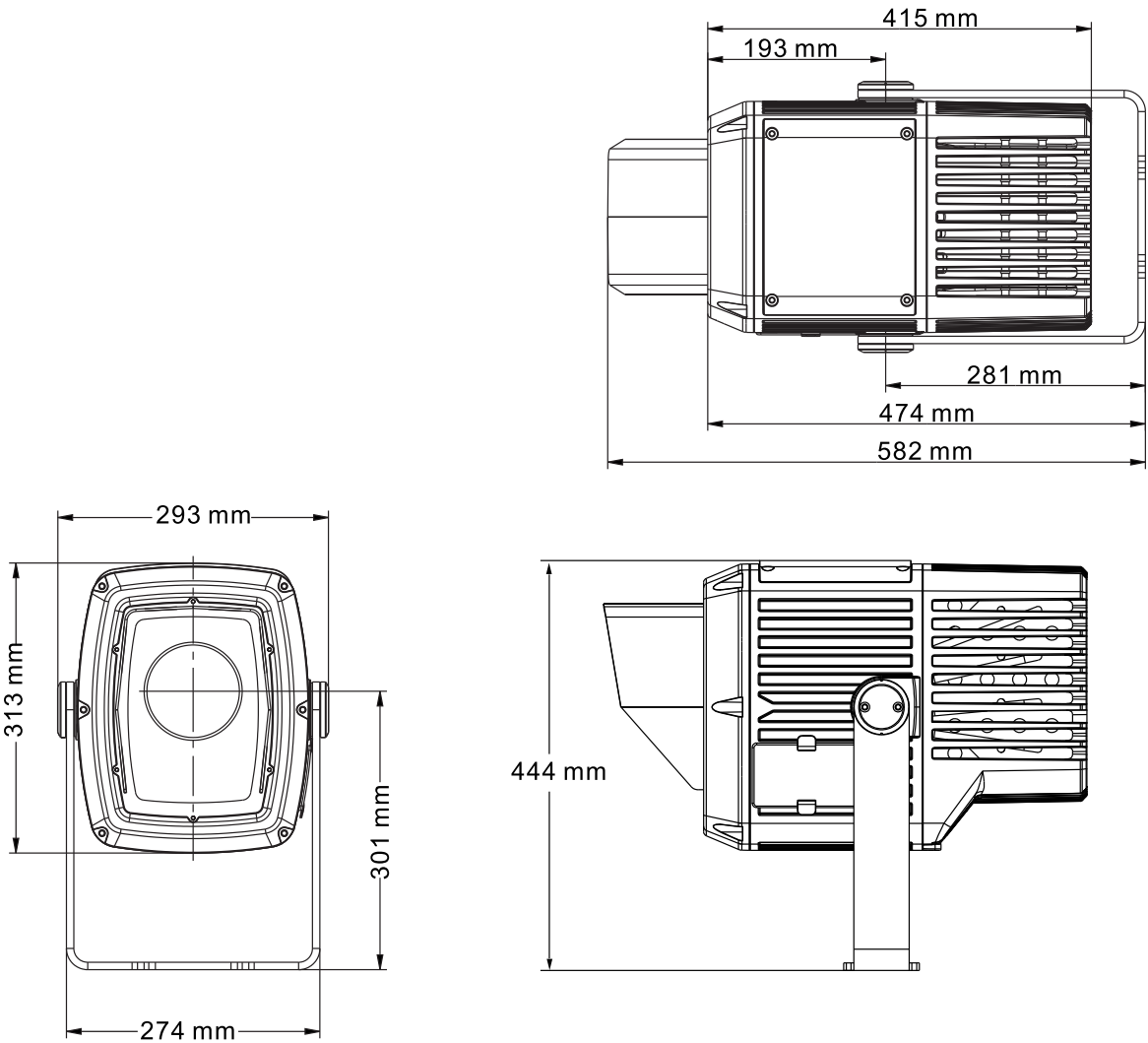
Symptom	Potential cause	Remedies
No light from fixture.	Power supply issue such as faulty connector or damaged cable.	Ensure that the mains supply is connected and supplying power to the fixture. Check all power connections and cables.
Fixture does not respond correctly to DMX control.	<p>Incorrect DMX setup.</p> <p>Fault in the DMX network due to connector or cable damage or potential interference from proximity to a high voltage installation.</p> <p>Internal fault.</p>	<p>Ensure that fixture's DMX address matches address set on DMX control device.</p> <p>Check that fixture's status LED shows that it is receiving DMX. If not, check all DMX cables and connections.</p> <p>Ensure that DMX link is terminated.</p> <p>Check that all components on DMX link use standard DMX polarity.</p> <p>Attempt to control the fixture with another DMX control device.</p> <p>Move or shield the DMX link if it is close to an unshielded high-voltage installation.</p> <p>Contact your Martin authorized distributor or Martin Global Service for assistance.</p>
Condensation visible on inside of front glass.	Humidity inside fixture.	<p>Condensation inside the fixture is normal in some atmospheric conditions. The fixture will gradually expel humidity via its Gore-Tex pressure relief valve as it cycles on and off.</p> <p>If required, you can remove excessive humidity by following the directions given in 'Removing and reinstalling the top cover' starting on page 32.</p>

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

Rotating gobos 6 rotating gobos plus open, indexing, variable rotation
Gobo animation Variable speed linear animation effect
Color wheel 8 colors plus open
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

Control systems	DMX, RDM
DMX channels.....	13
Interface	Control panel with backlit LCD display
Control resolution.....	8-bit DMX control of each color; 16-bit DMX control of intensity, focus and gobo rotation / indexing angle
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	8300 K (±200 K)
LED lifetime.....	20 000 hours (to >70% luminous output)*

*Figure obtained under manufacturer's test conditions

Photometric Data

Model	Cut-off angle	Total output	Center peak
Narrow	12°	5000 lumens	203 000 cd
Medium	22°	6100 lumens	77 000 cd
Wide	37°	5700 lumens	28 000 cd
Very Wide	51°	3400 lumens	11 000 cd

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

Recommended material.....	Borosilicate glass, coatings heat-resistant to 450°C (842° F)
Alternative material	Aluminum 1060, paint on front lens side, 450° C (842° F) HT paint
Gobo diameter	30 mm, +0/-0.2 mm (1.18 in., +0/-0.008 in.)
Max. image diameter	23 mm (0.91 in.)
Glass gobo thickness, minimum	1.1 mm ±0.1 mm (0.045 ±0.004 in.)
Glass gobo thickness, maximum	3.0 mm ±0.3 mm (0.12in. ±0.012 in.)
Aluminum gobo thickness	0.5 mm ± 0.02 mm (0.020 in. ± 0.001 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. -0.004/+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.	

Connections

Power cable entry	IP68 cable gland
Power connection	1.8 m (5.9 ft.) cable tail with bare ends
Power cable type	EU models: H07RN-F 450/700 V, Ø 10 mm US models: SJTW 14AWG, 300 V, Ø 9.3 mm
Data cable entry	IP68 cable gland
Data connection	1.8 m (5.9 ft.) combined input + output cable tail with bare ends

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
Surge protection	4 kV

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
Total heat dissipation (calculated)	1100 BTU/hr.
Maximum ambient temperature (T _a max.)	45° C (113° F)
Minimum ambient temperature (T _a min)	-30° C (-22° F)*

** For instant wake-up with no warm-up mode, leave power applied constantly 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	CFR 47 Part 15 Class A
Canadian safety	CSA C22.2 No. 166
Canadian EMC	ICES-003 Class A
Australia/NZ	RCM

Included Items

Silica gel desiccant bag in sealed foil pack	P/N 37220000
Two long-type gobo retaining springs	

Accessories

Exterior Projection 500 Glare Shield	P/N 91611767
Exterior Projection 500 Projection Setup Gobo 'Line It Up'	P/N 91616068
Exterior Projection 500 Manual Framing Module	P/N 91611842

Related Items

Martin® RDM 5.5 Splitter	P/N 90758150
Martin® Companion Windows application	Free download from www.martin.com
Martin® Companion Cable USB/DMX hardware interface	P/N 91616091

Spare Parts

Silica gel desiccant bag in sealed foil pack.....	P/N 37220000
Goboholder with magnet incl. washer, short spring & long spring	P/N 50481990
Goboholder without magnet incl. washer, short spring & long spring	P/N 50481992


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
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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 dangereuses. Ne pas regarder le faisceau en fonctionnement. Risque de lésions oculaires.



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