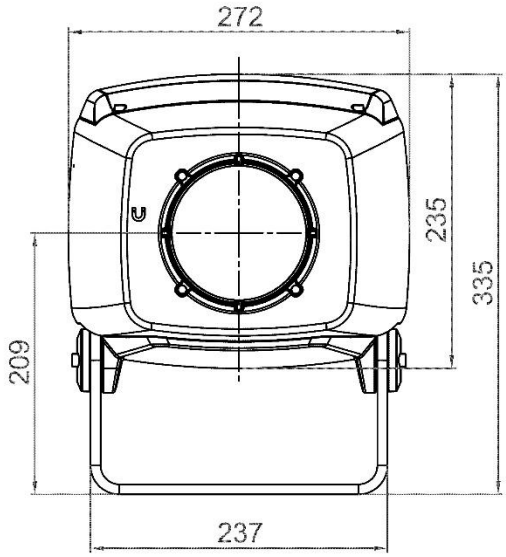
Exterior Projection Pro Compact

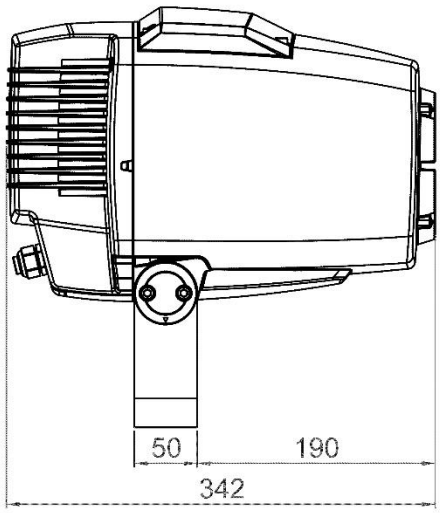
User Manual

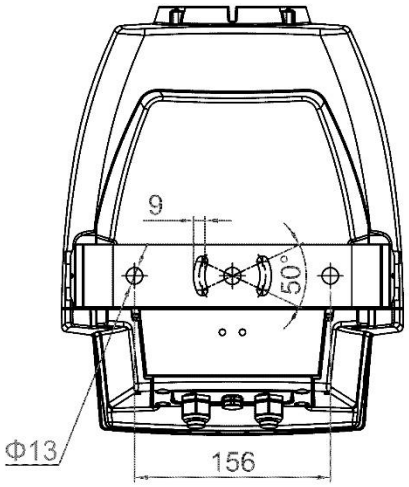
with Safety and Installation Manual

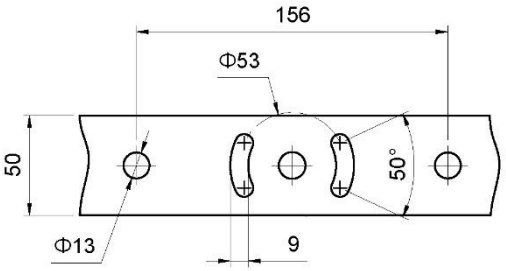
Martin®

Dimensions









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www.martin.com

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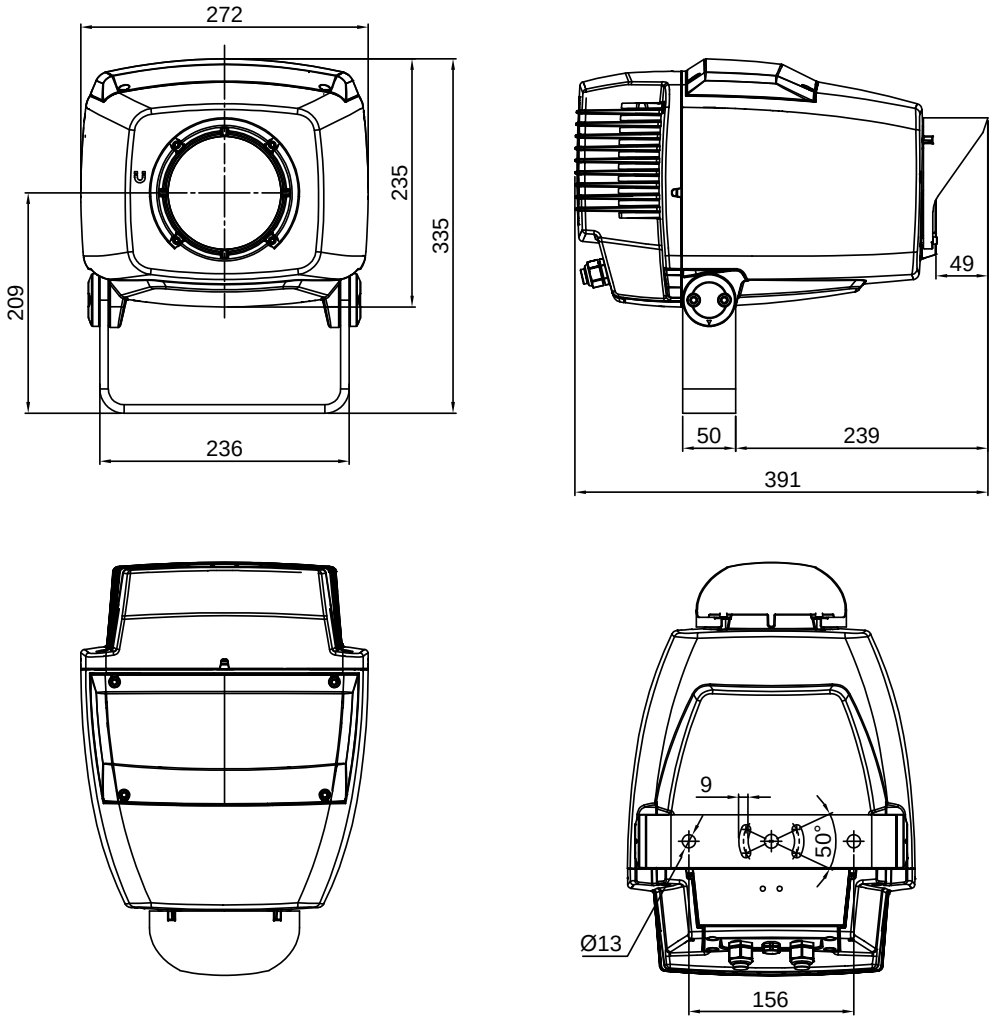
Dimensions with glare shield accessory



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Introduction

The Exterior Projection Pro Compact from Martin® is an image projection fixture that features a powerful 130 W LED engine, advanced dynamic effects and rugged weatherproofing. See www.martin.com for full product specifications including photometric data.

The fixture is supplied with a color wheel that allows five dichroic color filters to be deployed. It also features smooth electronic dimming, strobe effects, remote focusing and remote zoom control.

In addition, the following effects are available as accessories:

- Four-slot rotating gobo module with two dichroic coated gobos and one structured glass gobo
- Single-gobo rotating gobo module with one dichroic coated gobo
- Animation module with continuous rotation, variable speed and direction.
- Four-blade manual framing module with locking mechanism.

The rotating gobos feature gobo indexing and variable rotation. All gobos are interchangeable. Any gobo can be replaced with a custom gobo to project a logo, image, text, etc.

The Exterior Projection Pro Compact 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.

The Exterior Projection Pro Compact can also function without DMX control as a stand-alone projector and run a show with up to twenty dynamic lighting effects that you can pre-program.

Before using the product for the first time

1. Unpack and ensure that there is no transportation damage before using the fixture. Do not attempt to operate a damaged fixture.
2. Check the Exterior Projection Pro Compact area of 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 the ‘Safety Precautions’ chapter of the Safety and Installation Manual included at the end of this User Manual.
4. Ensure that the voltage and frequency of the power supply match the power requirements of the fixture.
5. If the temperature is below -10° C (14° F), the fixture will go into cold start mode when power is applied. It will require time to warm up before normal operation is available.

Precautions to avoid damage

Important! To get the best out of the Exterior Projection Pro Compact and avoid causing damage that is not covered by the product warranty, make sure that everyone who is involved in installing, working on or using the fixture has read and understood this User Manual and the Safety and Installation Manual included at the end of this User Manual.

Effects

Strobe / shutter

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

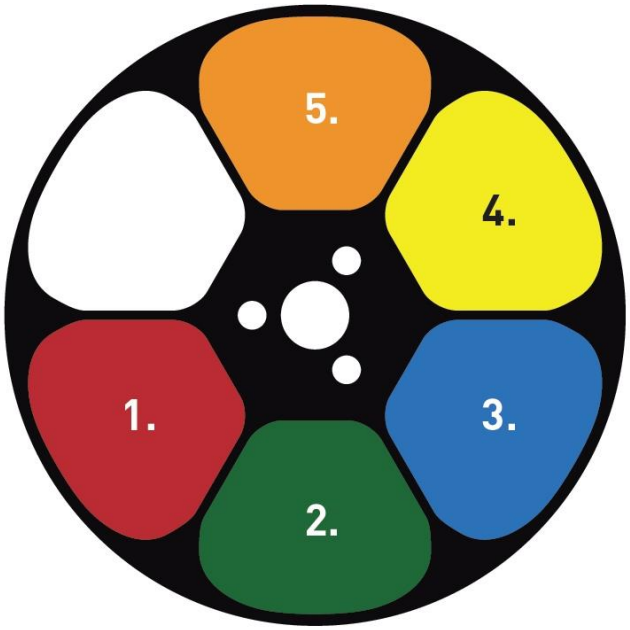
Electronic dimming

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

Color wheel

The color wheel contains the five 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.



Color wheel

Slot 1: Red

Slot 2: Green

Slot 3: Blue

Slot 4: Yellow

Slot 5: Color Temperature Correction 4000 K

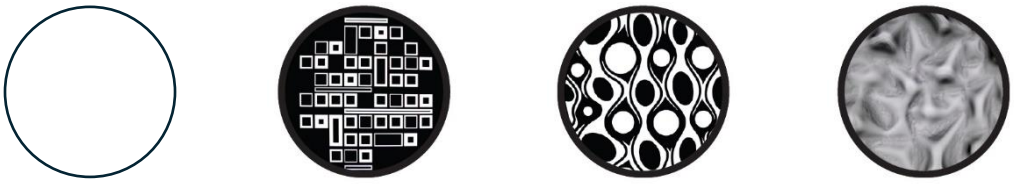
It is possible to have custom color filters made, if required. Martin can supply an empty color wheel and filter specifications. Please consult your Martin supplier if you are interested.

Rotating gobos

A four-slot rotating gobo wheel module and a single-slot rotating gobo module are available as optional accessories for the fixture. You can install either the four-slot wheel or the single-gobo module in the fixture.

Four-slot rotating gobo wheel

The four-slot gobo wheel is supplied configured as shown below, with the three glass gobos shown below installed:



Slot 1	Slot 2	Slot 3	Slot 4
Open	*Sequence It*	*Lava Shimmer*	*Ripple (structured glass)*

Single-slot rotating gobo module

The single-slot gobo module is supplied with the *Sequence It* rotating glass gobo shown below installed:

Single-gobo module: *Sequence It* gobo

When installed, the single gobo is applied constantly.

Gobo effects

Gobos can be set to indexed positions, rotated continuously with variable speed and direction or shaken with variable speed and shake angle. The wider the shake angle, the lower the shake speed.

When a four-slot gobo wheel module is installed, the entire gobo wheel can be rotated, or the wheel can be set to display random gobos, letting you vary the time the fixture waits before changing from one gobo to the next.

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

Custom gobos

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 the Service and Maintenance chapter at the end of this User Manual for details of installing and replacing gobos.

Gobo indexing angles and precise gobo indexing

Mechanical tolerances mean that there can be small changes in the indexing angles (i.e. rotational angles) of gobos when you rotate them or change gobos and then return to the initial indexing angle. To compensate for these mechanical tolerances the fixture always indexes from a clockwise direction (as seen when looking at the projection).

No matter how carefully we engineer and manufacture Martin products, all lighting fixtures are subject to mechanical tolerances. These will often cause very small changes in the indexing angles (i.e. rotational angles) of gobos if you rotate or change gobos and then you return to the initial gobo indexing angle. To reduce the visibility of any change in indexing angle, we recommend that 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.

Note also that slow fading from one gobo indexing angle to another is not always perfectly smooth. You can compensate for this by using short fades or snapping to indexed angles, or you can program a blackout cue prior to the indexed gobo position.

The offsets (changes in rotational angle of the gobo projection) that apply to the Exterior Projection Pro Compact are as follows:

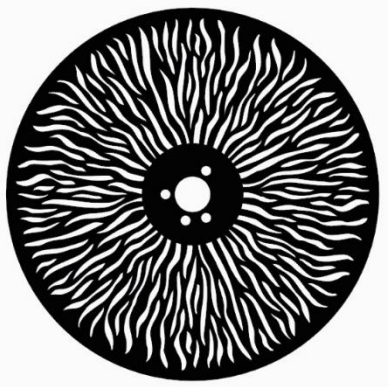
- Maximum offset: 0.02 rad (1.15° or 30 mm offset at a beam diameter of 300 cm)
- Typical offset at individual gobo indexing or after fixture reset < 0.0134 rad (less than 0.77° or 20 mm offset at a beam diameter of 300 cm)
- Typical offset at change between gobos: < 0.0134 rad (less than 0.77° or 20 mm offset at a beam diameter of 300 cm).

Animation wheel

A gobo animation wheel module is available as an optional accessory for the fixture. The ‘Radial Breakup’ animation wheel supplied with the module 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.

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

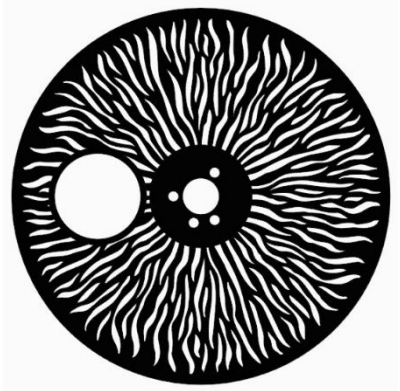
The animation wheel module is supplied with the animation wheel packed separately to protect it from transport damage, so the wheel must be fastened to the hub in the module before use. See the Service and Maintenance chapter at the end of this User Manual for instructions.



‘Radial Breakup’ animation wheel

Once the animation wheel module is installed, the supplied Radial Breakup animation wheel is always present in the fixture’s projection. If you would like to be able to remove the animation wheel from the projection, a ‘Radial Breakup’ animation wheel with an aperture that gives an open slot (see drawing on right) is available as an accessory from Martin by ordering P/N MAR-90560271 ‘Animation wheel w open hole - set of 5’. The wheel with the aperture is supplied in sets of five. It is identical to the supplied wheel, apart from the aperture.

Please use the instructions in the Service and Maintenance chapter at the end of this User Manual as a guide if you install the animation wheel with the aperture.

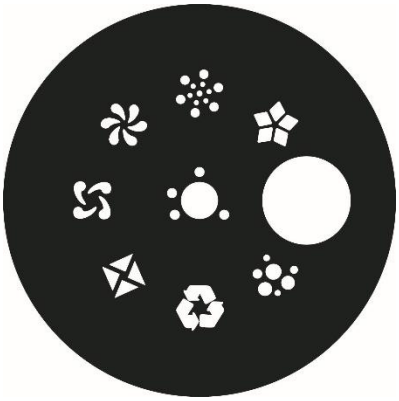


‘Radial Breakup’ animation wheel with aperture

User-supplied animation or gobo wheel

It is possible to have a custom animation wheel or a static gobo wheel produced by an optical component supplier and install this in place of the original Martin animation wheel. Martin can supply the necessary details and specifications to allow a supplier to produce a wheel to your own design.

If you opt for a custom static gobo wheel, it should be designed with eight positions as shown in the example on the right so that DMX values 49152 – 65535 on the Animation Wheel DMX channels can be used to select those eight positions. Position one in the example on the right has been designed as an open slot, but it is of course possible to have a gobo design in this position.



Example of user-supplied static gobo wheel

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.

The minimum distance at which you can obtain sharp focus is approximately 3 m (9.8 ft.).

Zoom

The fixture's motorized zoom effect lets you vary the beam angle from 15° to 45°.

Framing

A four-blade framing module is available as an optional accessory for the fixture. 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. You can restrict the light output to a specific area or target – the façade of a building, for example. You can also use framing to prevent light output from striking neighboring buildings or dazzling road-users and pedestrians at street level.

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.

The Safety and Installation Manual included at the end of this User Manual gives details of framing adjustment.

Fixture setup

Warning! Read ‘Safety information’ in the Safety and Installation Manual included at the end of this User Manual before operating the fixture.

Setup using RDM

The Exterior Projector Pro Compact 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.

Setup using Martin Companion

Martin Companion consists of a hardware USB/DMX interface that is available from Martin suppliers and a Windows application that is available for download free of charge from www.martin.com. To program and manage fixtures, connect a Martin Companion hardware interface to the DMX link, then use a USB cable to connect a PC running the Martin Companion application to the Martin Companion hardware interface.

Martin Companion lets you set up fixtures, program standalone operation and retrieve information from fixtures using an intuitive graphic interface. We recommend the use of Martin Companion because of its user-friendly interface and advanced programming options.

Setting a DMX address

Available using RDM and Martin Companion

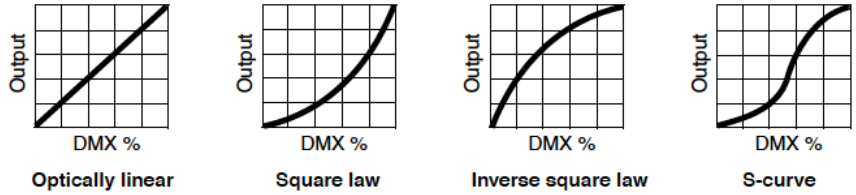
The Exterior Projection Pro Compact fixture receives instructions from a DMX controller using 13 or 14 DMX channels, depending on which DMX mode the fixture is set to. The fixture’s DMX address, also known as the start channel, is the first of these channels. If a fixture that requires 14 DMX channels has its DMX address set to 1, for example, then it uses channels 1 to 14. The next fixture can have its DMX address set to 15, the next fixture to 29 and so on until all the 512 channels in one DMX universe are allocated.

For independent control of fixtures, you must give each fixture its own DMX address so that each fixture has its own control channels. However, if you want a group of fixtures of the same type to always behave identically, you can 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 by sending commands from an RDM-compliant DMX controller.

Dimming curves

Available using RDM, Martin Companion and the Control / Settings DMX channel



Four dimming curves are available:

- **Optically linear**– The increase in light intensity appears to be linear as DMX value is increased.
- **Square law** – (default setting) Light intensity control is finer at low levels and coarser at high levels.
- **Inverse square law** – Light intensity control is coarser at low levels and finer at high levels.
- **S-Curve** – Light intensity control is finer at low levels and high levels and coarser at medium levels.

Parameter shortcuts

Available using RDM, Martin Companion and the Control / Settings DMX channel

The Parameter shortcuts option lets you decide whether the four-slot gobo wheel (if installed) and color wheel should avoid moving past the open position (the default setting) when changing slots or take the shortest route to the next slot, even if this means crossing the open position.

The default Parameter shortcuts setting is ON.

Cooling fan speed

Available using RDM, Martin Companion and the Control / Settings DMX channel

The Fan speed options let you manage cooling fan operation depending on the importance of fan noise or light intensity.

- **Regulated fan speed, fixed intensity** (the default setting) adjusts cooling fan operation to balance the fixture's noise and light output characteristics. Cooling fans are set to the lowest speed possible and then increased as fixture operating temperature rises. If the fixture reaches maximum operating temperature and full-speed fan operation is not enough to control fixture temperature, light output intensity is limited to keep the fixture within its operating temperature range.
- **Full fan speed, regulated intensity** optimizes cooling fan operation for the highest light intensity by setting cooling fans to run constantly at full speed. Light output intensity is kept at its maximum, as the LEDs operate at the coolest temperature possible.
- **Medium fan speed, regulated intensity** sets cooling fans to run constantly at medium speed. Light output intensity is reduced if necessary to prevent the fixture from exceeding its maximum operating temperature during medium speed fan operation.
- **Low fan speed, regulated intensity** sets cooling fans to run constantly at low speed. Light output intensity is reduced if necessary to prevent the fixture from exceeding its maximum operating temperature during low speed fan operation.
- **Ultra-low fan speed, regulated intensity** optimizes cooling fan operation for the lowest possible noise level by setting cooling fans to run constantly at the lowest possible speed. Light output intensity is reduced if necessary to prevent the fixture from exceeding its maximum operating temperature during ultra-low speed fan operation.

Hibernation mode

Available using RDM, Martin Companion and the Control / Settings DMX channel

Activating Hibernation mode puts fixtures into a standby state where power remains applied but at a significantly reduced level.

Drying out function

Available using RDM, Martin Companion and the Control / Settings DMX channel

If you need to eliminate humidity from inside the fixture, use the drying out procedure as follows.

1. Carry out this procedure during dry conditions only. The fixture must be connected to power.
2. Open the effects compartment cover as described later in this User Manual.
3. Activate the Drying out function. The fixture LEDs will light up, the heating plate will activate, the LED cooling fan will shut down and the three internal cooling fans will operate at full speed. Drying out will continue until you turn it off using Martin Companion, RDM or the Control / Settings DMX channel.
4. De-activate the Drying out function (on the Control / Settings DMX channel, send DMX value 210 for one second to stop the function).
5. Install a new anti-humidity sachet in the effects compartment cover and re-install the cover as described later in this User Manual.

Offline mode

Available using RDM and Martin Companion

You can select from four options to decide how the fixture should behave when it is powered on but not receiving a control signal:

- BLACK OUT (default setting): Fixture blacks out if it is not receiving a control signal.
- FULL OUTPUT: Fixture goes to 100% intensity white output, gobo slot 1, if it is not receiving a control signal.
- STANDALONE: Fixture executes a stand-alone show. See ‘Synchronized operation’ and ‘Standalone programming’ below.
- LAST DMX STATE: Fixture stores its last DMX ‘scene’ in internal memory and displays this scene when powered on and not receiving a control signal. If the fixture has never received a DMX signal, it uses the default DMX values for each channel.

Synchronized operation

Available using Martin Companion

You can select from three options that define fixture behavior when the fixture is set to STANDALONE and is not receiving a DMX control signal:

- NORMAL OPERATION: The fixture executes its own programmed stand-alone show and does not send or respond to synchronizing signals.
- SYNC HOST: The fixture executes its own programmed stand-alone show and sends a synchronizing signal to the other fixtures on the DMX link at each time it changes to the next scene in its show. All the fixtures on the DMX link that are set to SYNC CLIENT will change to the next scene in their programmed standalone shows when they receive this synchronizing signal.
- SYNC CLIENT: The fixture executes its programmed stand-alone show, changing scenes in response to synchronizing signals from the HOST fixture.

The synchronized operation setting (NORMAL OPERATION, SYNC HOST or SYNC CLIENT) is only relevant when Offline Mode is set to STANDALONE.

Fixtures are set to SYNC CLIENT by default. You can set any fixture on the DMX link to act as SYNC HOST. Do not set more than one fixture on the link to SYNC HOST.

Standalone programming

Available using Martin Companion

In standalone mode, the Exterior Projection Pro Compact can display a ‘scene’ or a ‘show’ with no DMX control required. A scene consists of a combination of effects such as gobo selection, gobo movement, color, intensity, etc. A show is a sequence of scenes that runs automatically.

You can program a standalone show that contains up to twenty scenes using Martin Companion.

Standalone operation is normally only possible if no DMX signal is present. If you send a DMX signal to fixtures that are running a standalone show, they will stop standalone operation and respond to that signal.

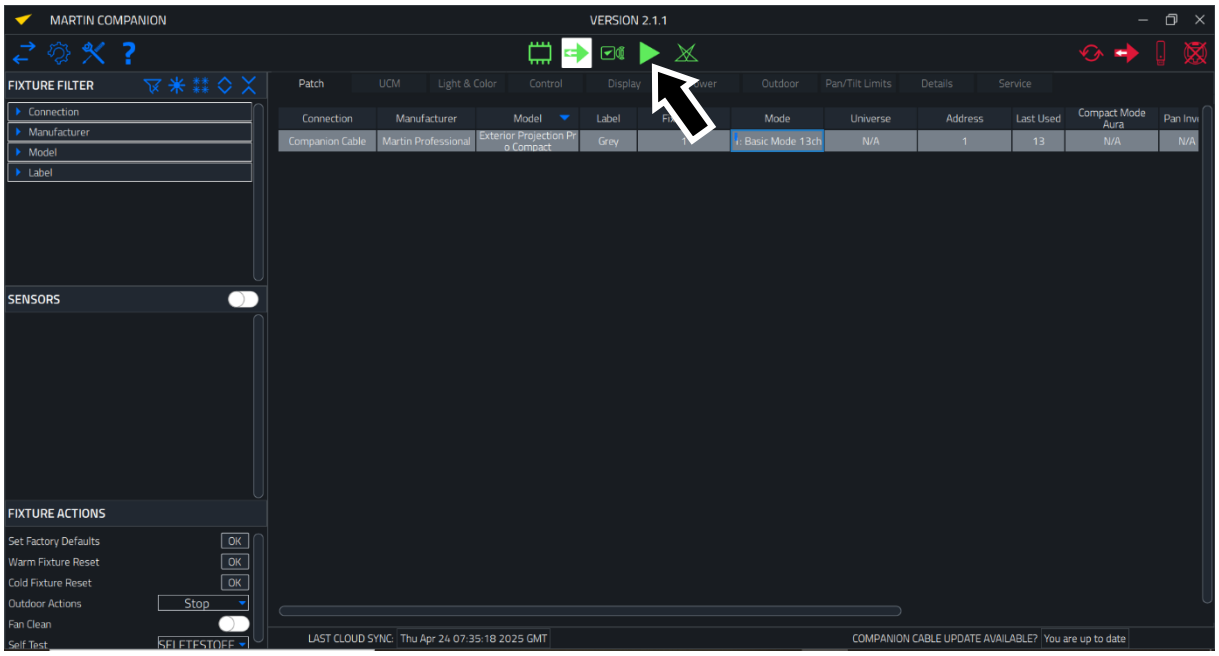
Standalone programming using Martin Companion

Standalone programming using Martin Companion has the following features:

- Standalone show with up to twenty standalone scenes
- Easy programming of multiple fixtures simultaneously
- Standalone shows can be synchronized in different fixtures
- Standalone scenes can be identical or different in different fixtures, with identical or different Fade and Duration times
- Fade times can vary from instant change (snap) to 2 minutes. Duration times can be up to 10 minutes
- Different types of Martin lighting fixture in one standalone show
- Possibility of automatic standalone show start when fixtures are powered on.

To program a standalone show using Martin Companion:

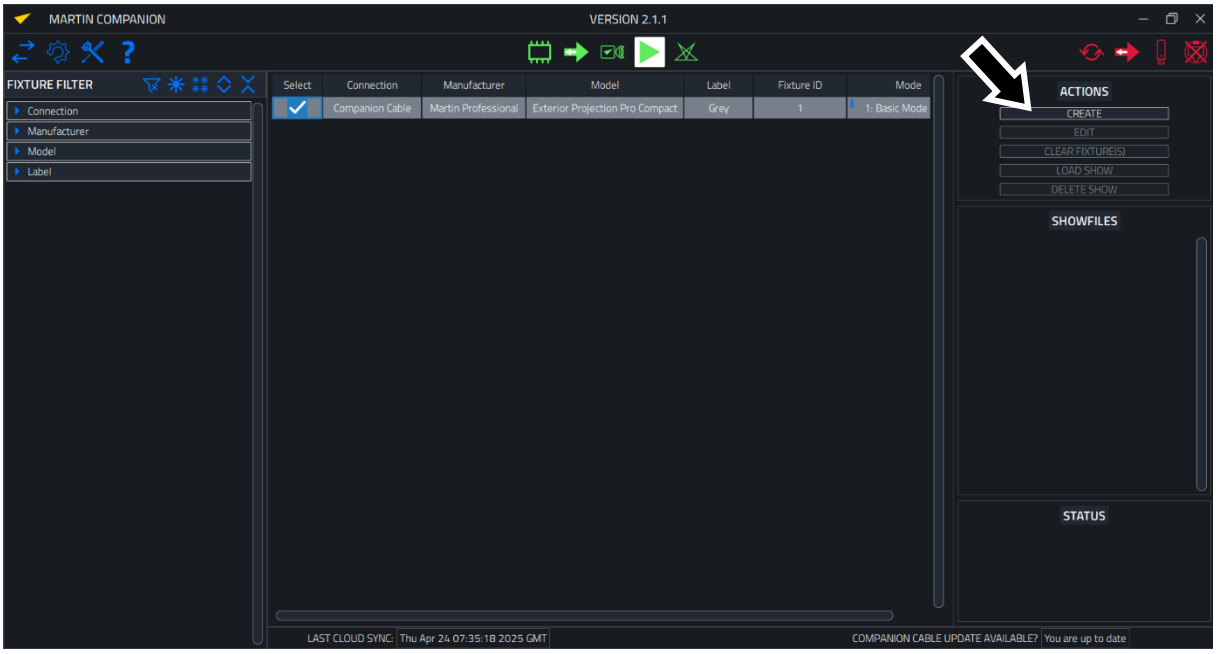
1. Connect a PC running the Martin Companion application to the Art-Net link. Apply power to the fixtures on the link that you want to program.
2. Navigate to the Standalone screen within Martin Companion (click on the ▶button as shown below) and wait for all fixtures to be discovered automatically:



3. Select which fixtures you want to program for standalone operation using the checkboxes in front of them. In the ACTIONS menu you can now:
   - click on CREATE to create a new standalone show for those fixtures, or
   - click on EDIT to modify any existing standalone show that is programmed in the selected fixtures, or
   - click on CLEAR FIXTURE(S) to delete any existing standalone show from the selected fixtures.

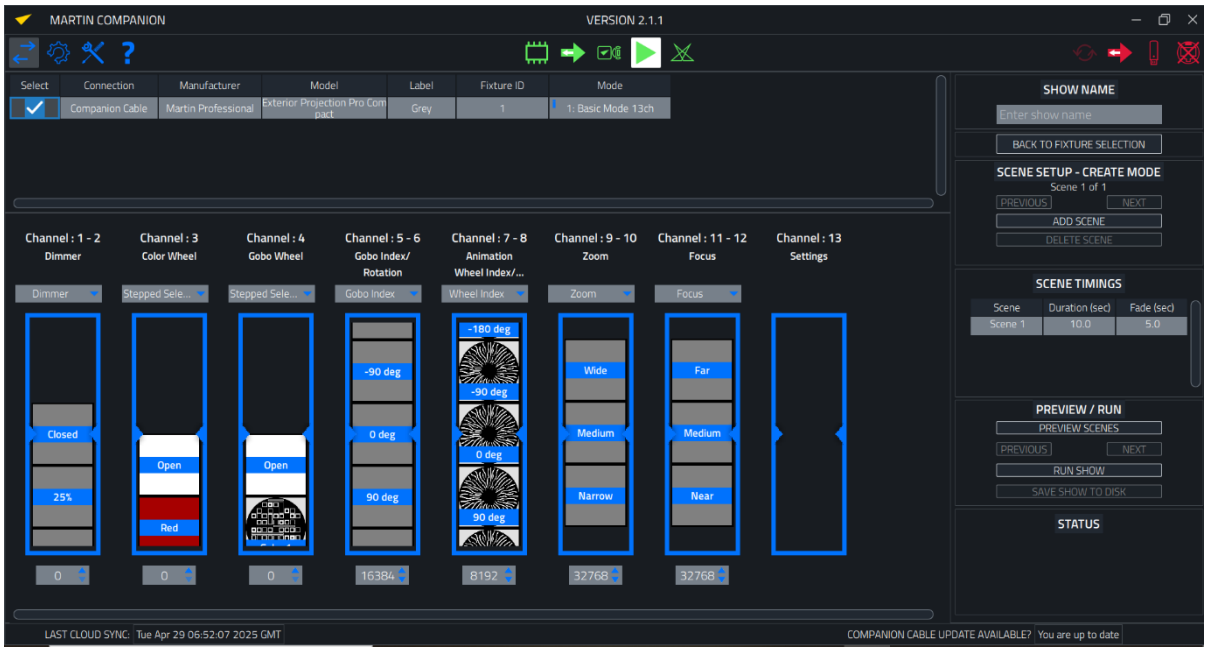
   You can also load a previously created show from a file if you click on LOAD SHOW.

   In this example we click on **Create**:



4. Now select one or multiple fixtures and create a scene using the faders and the SCENE TIMINGS boxes you can enter Duration and Fade times (Fade is the time taken to crossfade to the next scene).

   It is possible to create different scenes in different fixtures if you select them separately (not all fixtures in a Standalone show have to show the same scenes). Martin Companion will automatically elect one fixture to become the Sync Host. Scene changes in all the Client fixtures will be synchronized with the Host.



5. Click on ADD SCENE to create additional scenes. You can create up to 20 scenes.

   You can enter Duration and Fade times for each of the scenes in the SCENE TIMINGS boxes. Duration and Fade times can be different in different fixtures, but scene changes in multiple fixtures that are running in synchronized operation will always take place when the HOST fixture sends a synchronizing signal.

6. Click on PREVIEW SCENES to see all scenes played back with the timings that have been entered for them. You can click on PREVIOUS and NEXT to manually step through the scenes. Click STOP SHOW to end the preview.
7. (Optional) You can give a name to your show in the SHOW NAME box and click on SAVE SHOW TO DISK to store the Standalone show as a file which can be re-used later.
8. Click on RUN SHOW to set the fixtures to run their programmed Standalone show. Once you disconnect the cable between the PC running Martin Companion and the DMX/RDM link, the fixtures will run their Standalone show whenever they are powered on and not receiving a control signal.

Managing the fixture

Status messages

The fixture monitors its own operation and has a self-diagnostic function. If it detects any errors, it stores them as status messages that can be called up to check the fixture's operation. The status message queue can be cleared.

Humidity warning

If the fixture detects excessive internal humidity, it stores a humidity warning in the fixture status message list.

Fixture status

You can view the following fixture status information:

- Status messages: any error or warning messages that the fixture has recorded since the status message list was last cleared.
- Readouts from the fixture's temperature sensors.
- Total number of hours the fixture has been in use (non-resettable counter).
- Number of hours the fixture has been in use since last counter reset (resettable counter).
- Total number of hours the LEDs have been powered on (non-resettable counter).
- Number of hours the LEDs have been powered on since last counter reset (resettable counter).
- Total number of power on/off cycles (non-resettable counter).
- Number of power on/off cycles since last counter reset (resettable counter).Resetting the fixture

You can reset (reboot) the fixture with an RDM command. You can do the same thing by cycling power to the fixture off and on.

Self-test

The fixture can run a self-test. Any errors detected during the test are stored as status messages.

Fixture information

The fixture can communicate the following information:

- Basic fixture information
- Current DMX mode
- Manufacture and model names
- User-resettable label
- Software version currently installed in the fixture.

Returning to factory defaults

You can return the fixture to its factory default settings, erasing any settings, stand-alone scenes, etc. stored in the fixture's memory.

RDM

The Exterior Projection Pro Compact features RDM (Remote Device Management) 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.

Parameter IDs

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

RDM DISCOVERY	
0x0001	DISC_UNIQUE_BRANCH
0x0002	DISC_MUTE
0x0003	DISC_UN_MUTE

STATUS INFORMATION		**GET**	**SET**	
0x0020	QUEUED_MESSAGE	✓		Get queued messages
0x0030	STATUS_MESSAGES	✓		Get status/error information
0x0031	STATUS_ID_DESCRIPTION	✓		Status/error description
0x0032	CLEAR_STATUS_ID		✓	Clear status/error queue

RDM INFORMATION		**GET**	**SET**	
0x0050	SUPPORTED_PARAMETERS	✓		List supported PIDs
0x0051	PARAMETER_DESCRIPTION	✓		Supported PIDs description

PRODUCT INFORMATION		**GET**	**SET**	
0x0060	DEVICE_INFO	✓		Get basic info
0x0080	DEVICE_MODEL_DESCRIPTION	✓		Product name
0x0081	MANUFACTURER_LABEL	✓		Manufacturer name
0x0082	DEVICE_LABEL	✓	✓	User- settable label
0x0090	FACTORY_DEFAULTS	✓	✓	Restore factory defaults
0x00C0	SOFTWARE_VERSION_LABEL	✓	✓	Firmware version
0x8700	SERIAL_NUMBER	✓		Factory serial number

DMX SETUP		**GET**	**SET**	
0x00E0	DMX_PERSONALITY	✓	✓	DMX mode
0x00E1	DMX_PERSONALITY_DESCRIPTION	✓		Name of current DMX mode
0x00F0	DMX_START_ADDRESS	✓	✓	DMX address
0x0121	SLOT_DESCRIPTION	✓		DMX channel description

USAGE INFORMATION		GET	SET	
0x0200	SENSOR_DEFINITION	✓		Sensor description
0x0201	SENSOR_VALUE	✓	✓	Sensor readout (resettable with a SET command)
0x8400	DEVICE_HOURS	✓	✓	Counter, number of hours powered on (resettable with a SET command)
0x8401	LAMP_HOURS	✓	✓	Counter, number of hours LEDs powered on (resettable with a SET command)
0x8405	POWER_CYCLES	✓	✓	Counter, number of power cycles (resettable with a SET command)
0x870A	DEVICE_HOURS_TOTAL	✓		Counter, total number of hours powered on (non-resettable)
0x870B	LAMP_HOURS_TOTAL	✓		Counter, total number of hours LEDs powered on (non-resettable)
0x870C	POWER_CYCLES_TOTAL	✓		Counter, total number of power cycles (non-resettable)

CONTROL		GET	SET	
0x1000	IDENTIFY_DEVICE	✓	✓	Highlight device in installation
0x1001	RESET_DEVICE		✓	Warm/cold reset
0x1020	PERFORM_SELFTEST	✓	✓	Perform self-test
0x1021	SELF_TEST_DESCRIPTION	✓		Self-test description

STANDALONE		GET	SET	
0x1030	CAPTURE_PRESET	✓	✓	Capture current DMX scene
0x1031	PRESET_PLAYBACK	✓	✓	Play standalone scene
0x82xx	MANUAL_MODE_OVERRIDE	✓	✓	Gives manual control to create looks in standalone scenes with no need for a DMX controller
0x81xx	PRESET_PLAYBACK_LIMIT	✓	✓	Standalone cue counter
0x8101	SYNCHRONIZED	✓	✓	Sync mode in standalone operation: Normal operation / Sync host / Sync client
0x81xx	OFFLINE_MODE	✓	✓	Behavior when no DMX signal present: Standalone / Blackout / Full output / Last DMX state

DEVICE SETTINGS		GET	SET	
0x8001	DMX_RESET	✓	✓	Allow fixture to be reset via DMX
0x8003	FIXTURE_ID	✓	✓	User-changeable fixture ID number
0x8302	EFFECT_SHORTCUTS_ENABLE	✓	✓	Set effects to take shortest route to next position, even if effect crosses open
0x8310	DIMMER_CURVE	✓	✓	Set dimmer curve
0x8329	HIBERNATION_MODE	✓	✓	Enable/Disable hibernation
0x8603	FAN_CLEAN	✓	✓	High-speed fan operation to dislodge dust
0x8604	FAN_MODE	✓	✓	Cooling mode

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

Fixture discovery

Before you can communicate with fixtures using RDM, you must send a scan command (fixture discovery command) to all the devices on the data link so that the RDM controller can identify them. It does this by retrieving each device's factory-set unique identifier (UID). This process can take some time, depending on the number of devices on the link.

To identify the fixtures on the link:

1. Check that the fixtures are correctly connected to the RDM controller on the data link and that power is applied to all fixtures.
2. Send a discovery command via RDM (Martin Companion does this automatically as soon as the cable is connected).
3. Give the controller time to identify the devices on the link and prepare for communication with the devices.

Errors and warnings

The Exterior Projection Pro Compact also sends warnings and error message codes via RDM (see 'Warning and error messages' on page 28).

Operation

Whenever AC power is applied to the fixture, it reboots its software and resets all effects to their home positions. Reset is available when fixture temperature is above -10° C (14° F).

Operating temperature precautions

Do not operate the fixture in an ambient temperature that exceeds the specified maximum of 45° C (113° F). Fixtures have an internal thermal sensor. If the sensor measures excessive temperature, a thermal protection system reduces light output. If the temperature is dangerously high, a thermal cutout shuts down the fixture. The fixture will not function normally again until the temperature has fallen to a safe level.

Do not operate the fixture in an ambient temperature below -30° C (-22° 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).

Cold starting

If the fixture detects an internal temperature below -10° C (14° F) when it is powered on, it automatically activates Cold Start mode. In this mode, DMX control is disabled but RDM functionality remains normal. The LEDs light up, the heating plate activates, the LED cooling fan is disabled and the three internal cooling fans run at full speed. The color wheel rotates slowly and the zoom and focus motors move back and forth. All motors will reset every 5 minutes.

Once the fixture detects that its internal temperature has risen to above -10° C, it exits Cold Start mode. It performs a full motor reset, and DMX control returns to normal.

Cleaning

Excessive dirt buildup causes overheating and may lead to damage that is not covered by the product warranty. Clean the product at regular intervals (see the Maintenance chapter at the end of this manual).

Condensation and pressure relief valve

A valve with a gas-permeable membrane in the base of the product equalizes pressure by allowing air to pass through it when the product heats up and cools down, but at the same time it acts as a barrier to water in liquid form. This valve requires maintenance – see the Maintenance chapter later in this User Manual for details.

Under certain conditions, condensation may become visible inside the front glass. This is normal and harmless. The fixture gradually expels condensation via its pressure relief valve. If excess condensation is present inside the fixture, we recommend that you open the effects compartment cover in dry conditions, run the fixture to warm it up, replace the anti-humidity bag in the cover and re-install the cover. The procedure for doing this is described in the Safety and Installation Manual included at the end of this User Manual.

DMX protocols

Basic Mode

Basic Mode is the default DMX mode.

Channel	Value	Function	Fade/ Snap	Default value
1	0 - 65335	**Dimmer** 0-100%	Fade	0
2				
3		**Color wheel** ***Stepped selection***	Snap	0
	0 - 3	Open		
	4 - 7	Red		
	8 - 11	Green		
	12 - 15	Blue		
	16 - 19	Yellow		
	20 - 23	CTO 4000 K		
		Wheel Indexing		
	24	Open		
	25 - 40	Open → Red		
	41	Red		
	42 - 57	Red→ Green		
	58	Green		
	59 - 74	Green → Blue		
	75	Blue		
	76 - 91	Blue → Yellow		
	92	Yellow		
	93 - 108	Yellow → CTO 4000 K		
	109	CTO 4000 K		
	110 - 125	CTO 4000 K → Open		
	126	Open		
	127	*No function*		
		Color Shake		
	128 - 137	Shake around Open 360° → 10°		
	138 - 147	Shake around Red 360° → 10°		
	148 - 157	Shake around Green 360° → 10°		
	158 - 167	Shake around Blue 360° → 10°		
	168 - 177	Shake around Yellow 360° → 10°		
	178 - 187	Shake around CTO 4000 K 360° → 10°		
	188 - 191	*No function*		
		Wheel Rotation		
	192 - 214	Rotating CW fast → slow		
	215 - 216	Stop (wheel stops at current position)		
	217 - 239	Rotating CCW slow → fast		
		Random Colors		
	240	Stop (wheel stops at current full color)		
	241 - 255	Random color slow → fast		

4	0 - 5 6 - 11 12 - 17 18 - 23 24 - 127 128 - 143 144 - 159 160 - 175 176 - 191 192 - 215 216 - 239 240 241 - 255	**Gobo selection and movement** *(when gobo wheel installed in fixture)* ***Gobo selection*** *(add indexing or rotation on next channel, single-gobo module offers slot 1 only)* Slot 1 Slot 2 Slot 3 Slot 4 *No function* ***Gobo shake*** *(single-gobo module offers Shake slot 1 only)* Shake slot 1 – 360° → 10° Shake slot 2 – 360° → 10° Shake slot 3 – 360° → 10° Shake slot 4 – 360° → 10° **Gobo wheel rotation** *(available for 4-slot gobo wheel only)* CW rotation fast → slow CCW rotation slow → fast **Random gobo** *(available for 4-slot gobo wheel only)* Stop (wheel stops at current full gobo) Random gobo slow → fast	Snap	0
5 **6**	0 16384 32767 32768 - 49150 49151 - 49152 49153 - 65535	**Gobo indexing angle/rotation** *(select gobo on previous channel)* ***Gobo indexed position*** -180° 0° +180° ***Gobo rotation speed and direction*** CW rotation fast → slow Stop (wheel stops at current position) CCW rotation slow → fast	Fade	32768
7 **8**	0 8192 16383 16384 – 24574 24575 – 24576 24577 – 32767 32768 32769 – 49151 49152 – 51199 51200 – 53247 53248 – 55295 55296 – 57343 57344 – 59391 59392 – 61439 61440 – 63487 63488 – 65535	**Animation wheel** *(when animation wheel installed in fixture)* ***Animation wheel indexing*** -180° 0° +180° ***Animation wheel rotation*** CW rotation fast → slow Stop (wheel stops at current position) CCW rotation slow → fast Stop (wheel stops at current position) ***Animation wheel bounce*** Bounce wheel forward/backward slow → fast ***Custom wheel gobo slot selection*** Slot 1 Slot 2 Slot 3 Slot 4 Slot 5 Slot 6 Slot 7 Slot 8	Fade	8192

9	0 – 65535	**Zoom** Wide → narrow	Fade	32768
10				
11	0 – 65535	**Focus** Infinity → near	Fade	32768
12				
13	***DMX Control / Settings channel – see page 27***			

Extended Mode

Channel	Value	Function	Fade/ Snap	Default value
1		**Shutter / strobe**	Snap	30
	0 - 19	Shutter closed		
	20 - 49	Shutter open		
	50 - 200	Strobe (slow → fast)		
	201 - 210	Shutter open		
	211 - 255	Random strobe (slow → fast)		
2		**Dimmer**	Fade	0
3	0 - 65335	0-100%		
4		**Color wheel**	Snap	0
		Stepped selection		
	0 - 3	Open		
	4 - 7	Red		
	8 - 11	Green		
	12 - 15	Blue		
	16 - 19	Yellow		
	20 - 23	CTO 4000 K		
		Wheel Indexing		
	24	Open		
	25 - 40	Open → Red		
	41	Red		
	42 - 57	Red→ Green		
	58	Green		
	59 - 74	Green → Blue		
	75	Blue		
	76 - 91	Blue → Yellow		
	92	Yellow		
	93 - 108	Yellow → CTO 4000 K		
	109	CTO 4000 K		
	110 - 125	CTO 4000 K → Open		
	126	Open		
	127	*No function*		
		Color Shake		
	128 - 137	Shake around Open 360° → 10°		
	138 - 147	Shake around Red 360° → 10°		
	148 - 157	Shake around Green 360° → 10°		
	158 - 167	Shake around Blue 360° → 10°		
	168 - 177	Shake around Yellow 360° → 10°		
	178 - 187	Shake around CTO 4000 K 360° → 10°		
	188 - 191	*No function*		
		Wheel Rotation		
	192 - 214	Rotating CW fast → slow		
	215 - 216	Stop (wheel stops at current position)		
	217 - 239	Rotating CCW slow → fast		
		Random Colors		
	240	Stop (wheel stops at current full color)		
	241 - 255	Random color slow → fast		

5	0 - 5 6 - 11 12 - 17 18 - 23 24 - 127 128 - 143 144 - 159 160 - 175 176 - 191 192 - 215 216 - 239 240 241 - 255	**Gobo selection and movement** *(when gobo wheel installed in fixture)* ***Gobo selection*** *(add indexing or rotation on next channel, single-gobo module offers slot 1 only)* Slot 1 Slot 2 Slot 3 Slot 4 *No function* ***Gobo shake*** *(single-gobo module offers Shake slot 1 only)* Shake slot 1 – 360° → 10° Shake slot 2 – 360° → 10° Shake slot 3 – 360° → 10° Shake slot 4 – 360° → 10° **Gobo wheel rotation** *(available for 4-slot gobo wheel only)* CW rotation fast → slow CCW rotation slow → fast **Random gobo** *(available for 4-slot gobo wheel only)* Stop (wheel stops at current full gobo) Random gobo slow → fast	Snap	0
6 **7**	0 16384 32767 32768 - 49150 49151 - 49152 49153 - 65535	**Gobo indexing angle/rotation** *(select gobo on previous channel)* ***Gobo indexed position*** -180° 0° +180° ***Gobo rotation speed and direction*** CW rotation fast → slow Stop (wheel stops at current position) CCW rotation slow → fast	Fade	32768
8 **9**	0 8192 16383 16384 – 24574 24575 – 24576 24577 – 32767 32768 32769 – 49151 49152 – 51199 51200 – 53247 53248 – 55295 55296 – 57343 57344 – 59391 59392 – 61439 61440 – 63487 63488 – 65535	**Animation wheel** *(when animation wheel installed in fixture)* ***Animation wheel indexing*** -180° 0° +180° ***Animation wheel rotation*** CW rotation fast → slow Stop (wheel stops at current position) CCW rotation slow → fast Stop (wheel stops at current position) ***Animation wheel bounce*** Bounce wheel forward/backward slow → fast ***Custom wheel gobo slot selection*** Slot 1 Slot 2 Slot 3 Slot 4 Slot 5 Slot 6 Slot 7 Slot 8	Fade	8192

10	0 – 65535	**Zoom** Wide → narrow	Fade	32768
11				
12	0 – 65535	**Focus** Infinity → near	Fade	32768
13				
14	***DMX Control / Settings channel – see page 27***			

Control / Settings DMX channel

		Fixture Control / Settings		
	0 – 9	*No function (exits calibration mode after calibration procedure – 5 sec.)*		
	10 - 14	Reset fixture (5 sec.)		
	15	*No function*		
	16	Reset Color (5 sec.)		
	17	Reset Beam (5 sec.)		
	18 - 22	*No function*		
	23	Linear dimmer curve (1 sec.)		
	24	Square law dimmer curve (default, 1 sec.)		
	25	Inverse square law dimmer curve (1 sec.)		
	26	S-curve dimmer curve (1 sec.)		
	27 - 29	*No function*		
	30	Parameter shortcuts = ON (default, 1 sec.)		
	31	Parameter shortcuts = OFF (1 sec.)		
	32 - 53	*No function*		
	54	Regulated fan speed, fixed intensity (default, 1 sec.)		
	55	Full fan speed, regulated intensity (1 sec.)		
	56	Medium fan speed, regulated intensity (1 sec.)		
	57	Low fan speed, regulated intensity (1 sec.)		
	58	Ultra-low fan speed, regulated intensity (1 sec.)	Snap	0
	59 - 60	*No function*		
	61	Hibernation = ON (1 sec.)		
	62	Hibernation = OFF (default, 1 sec.)		
	63 - 99	No function		
	100	Enable calibration (5 sec.)		
	101	*No function*		
	102	Store dimmer calibration (5 sec.)		
	103 - 107	*No function*		
	108	Store gobo wheel and current slot gobo indexing calibration (5 sec.)		
	109 - 112	*No function*		
	113	Store focus calibration (5 sec.)		
	114	Store zoom calibration (5 sec.)		
	115	Store color wheel calibration (5 sec.)		
	116	Store animation wheel calibration (5 sec.)		
	117 - 209	*No function*		
	210	Drying out – stop drying out function and return to normal operation (1 sec.)		
	211	*No function*		
	212	Drying out – activate drying out function (1 sec.)		
	213-255	*No function*		

Warning and error messages

The Exterior Projection Pro Compact monitors its own operation and is capable of self-diagnosis. If an operating parameter is exceeded or if an error occurs, the fixture stores a warning or error message that you can view with an RDM controller.

If the fixture displays a warning or error message, it can 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:

Short code	Long code	Notes
ARER	AW ROT ERROR	Animation wheel rotation error
AWRM	AW ROT MISSING	Animation wheel rotation missing
C1ER	COLORWHEEL 1 ERR	Color wheel error
FAN	BASE FAN 1 ERR	PSU Fan error
FAN	HEAD FAN 1 ERR	LED Fan error
FAN	HEAD FAN 2 ERR	Gobo Fan error
FAN	HEAD FAN 3 ERR	Defog Fan error
FOER	FOCUS ERROR	Focus position error
G11M	GOBO 1-1 MISSING	Gobo wheel missing
G1ER	GOBO W 1 ERR	Gobo wheel 1 position error
HTTE	HEATER TEMP SEN ERR	Heating module temperature sensor error
HTW	HEAD TEMP HIGH	Head air temperature high warning
HUME	HEAD HUMIDITY SEN ERR	Head air humidity sensor error
HUMW	HEAD HUMIDITY HIGH	Head air humidity high warning
LDTE	LED TEMP SEN ERR	LED Temperature sensor error
LETW	LED BOARD TEMP HIGH	LED board temperature high warning
PUTE	PSU TEMP SEN ERR	PSU PCB temperature sensor error
PUTW	PSU TEMP HIGH	PSU PCB temperature high warning
R1ER	GOBO W 1 ROT ERR	Gobo wheel 1 rotation error
UITW	UI TEMP HIGH	Mainboard PCB temperature high warning
ZOER	ZOOM ERROR	Zoom position error

Service and maintenance

Warning! Read the ‘Safety precautions’ chapter in the Safety and Installation Manual included at the end of this User Manual before servicing the fixture.

Important! Opening the fixture can allow moisture to enter and cause condensation on the front glass. Read ‘Managing humidity’ below and follow the guidelines in the fixture’s user documentation 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 Pro Compact. 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 Projection Pro Compact fixtures are IP66-rated and are designed to resist water and moisture in environments with widely varying climate, temperature and humidity conditions. But if fixtures are not managed correctly during installation and service, water and moisture can enter, leading to humidity and condensation inside the fixtures. Maximize the performance and service life of your product by following the precautions in this section.

General

- Carry out service during low-humidly weather conditions (or indoors if possible). Check that fixtures are dry and free of moist air before closing them.
- Each time you open the fixture, follow the instructions given in the Safety and Installation Manual included at the end of this User Manual.
- 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).
- Fixtures can withstand rain and water projections, but 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.

Pressure relief valves

A valve with a gas-permeable membrane on the back of the fixture between the two cable glands 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 that 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 pressure relief 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 if a valve requires replacement

Updating firmware

The Exterior Projection Pro Compact accepts firmware (fixture software) updates via the DMX/RDM link if you use 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 Companion Cable, available from Martin suppliers by ordering P/N 91616091.

The Martin Companion application automatically downloads all currently available firmware versions for the Exterior Projection Pro Compact when you run the application on a PC that is connected to the Internet.

Installing a glare shield accessory

A glare shield is available as an optional accessory for the Exterior Projection Pro Compact. 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 or from dirt (caused by birds, for example).

The glare shield can be mounted in four positions around the front glass.

To install a glare shield:

1. See illustration on right. Use a 3 mm Allen key (hex wrench) to remove the four screws (arrowed) from the front of the fixture.
2. Fasten the glare shield securely to the fixture in the position desired re-using the four screws as shown in the illustration. Use a torque driver and tighten to a torque of 0.7 – 1.1 Nm.

Installing optional effects modules

See the Safety and Installation Manual included at the end of this User Manual for details of installing the effects modules that are available as optional accessories for the Exterior Projection Pro Compact:

- Four-slot rotating gobo wheel module
- Single-gobo module with rotating gobo
- Animation wheel module
- Four-blade manual framing module

Removing and reinstalling the top cover

Important! Open the fixture in dry weather conditions only. Use the Drying out procedure and a new anti-humidity sachet to avoid humidity inside the fixture.

Follow the instructions for removing and reinstalling the effects compartment cover in the Safety and Installation Manual included at the end of this User Manual.

Installing an animation wheel in the animation wheel module

The animation wheel module is supplied with the Radial Breakup animation wheel packed separately to avoid transport damage, so you must fasten the wheel into its position in the module before you install the module in the fixture.

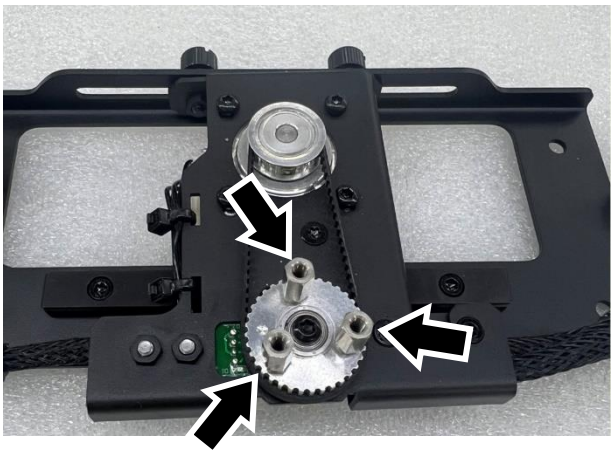
Using standoffs

The animation wheel is supplied with three screws and three standoffs. If a gobo module is not going to be installed in the fixture, fastening the standoffs to the hub and then fastening the animation wheel to the standoffs will move the animation wheel forwards in the fixture and closer to the focal plane. This will allow sharper projections when using the animation wheel together with the framing module.

Fastening the animation wheel

To fasten the animation wheel to the module:

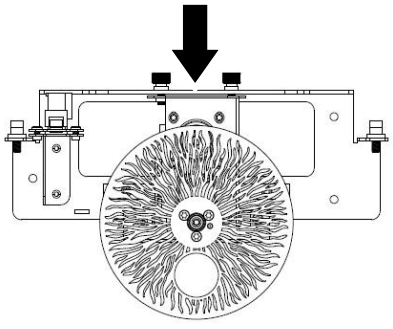
1. For convenience, tighten the two thumbscrews on the top of the animation wheel car to prevent it from sliding while you work. Place the animation wheel module on a clean, flat work surface with the hub side facing upwards,
2. See photo on right. If a gobo module will not be installed and you are going to use the supplied standoffs, apply a small amount of Loctite 222 or similar thread lock compound to the threads of the standoffs and fasten them to the hub as shown. We recommend that you use a torque driver and tighten to 0.5 Nm.



3. See photo on right. Position the animation wheel so that the extra hole in the wheel lines up with the reference mark in the hub (arrowed). Apply a small amount of Loctite 222 or similar thread lock compound to the threads of the three supplied screws, then use them to fasten the wheel to the hub in the center of the module. We recommend that you use a torque driver and tighten to 0.5 Nm.

Centering the animation wheel with aperture

If you install the animation wheel with aperture available from Martin as an accessory, loosen the adjustment thumbscrews in the module, slide the animation wheel to the center of the traverse (the center point is marked with an arrow on the module) and then tighten the thumbscrews. This will ensure that the aperture is aligned so that you can select the open position via DMX.



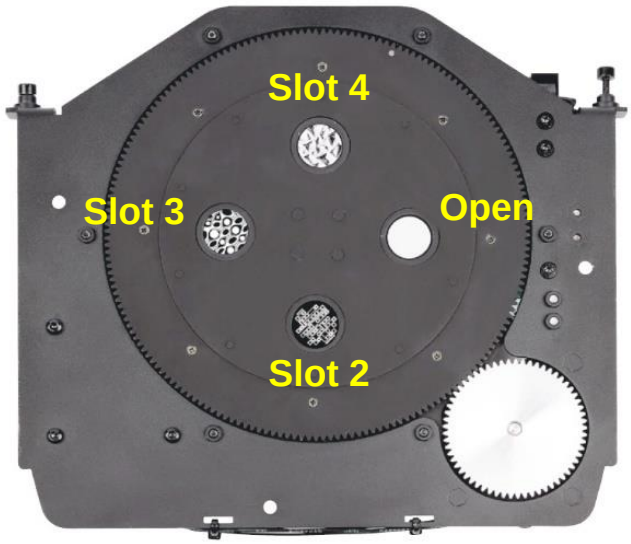
Replacing gobos

The gobos supplied with the 4-slot gobo wheel module and the single-gobo module 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:

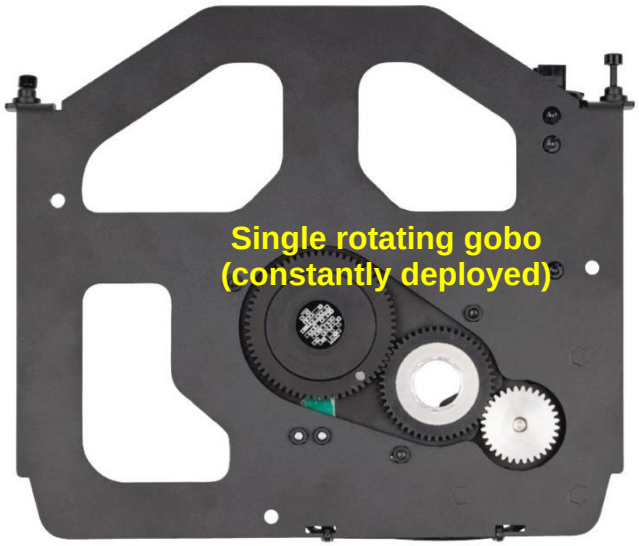
Suitable material	Borosilicate glass, coatings heat-resistant to 450°C (842° F)
Alternative material	Aluminum 1060, paint on front lens side, 450° C (842° F)
Gobo diameter	19.0 mm +0/-0.3 mm (0.74 in. +0/-0.02 in.)
Maximum image diameter	15 mm (0.59 in.)
Glass gobo thickness, minimum	1.1 mm ±0.1 mm (0.045 ±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. ±001 in), high-temperature paint

Sequence It and *Lava Shimmer* are coated glass gobos and share the same specifications, but the *Ripple* gobo is structured glass and is thicker. Note that the two different types of gobo have different retaining springs.

See photo on right. The four-slot gobo wheel module is supplied with the *Sequence It*, *Lava Shimmer* and *Ripple* gobos installed as shown.



See photo on right. The single rotating gobo module is supplied with the *Sequence It* gobo installed as shown.

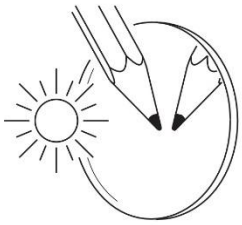


Gobo orientation

It is important to install gobos facing in the correct direction. The orientations shown below are generally correct, but consult your Martin dealer or gobo supplier if you are in any doubt about the orientation of a specific gobo type.

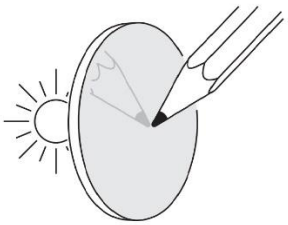
Coated glass gobos

More reflective side towards LEDs



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

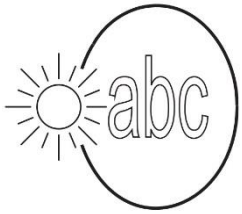
Less reflective side away from LEDs



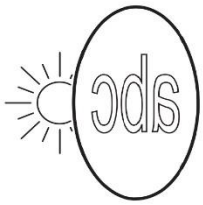
The less reflective side of a coated gobo will be more resistant to heat damage if it faces away from the lamp.

Image/text gobos

True image towards LEDs



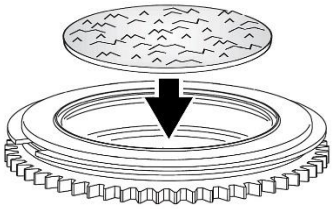
Reversed image away from LEDs



Gobos that have a specific left/right orientation (such as text gobos) will appear correctly in the projection if they appear correctly when viewed from the LED light source side.

Structured glass gobos

Flat side towards goboholder



Textured glass gobos such as the *Ripple* gobo supplied with the 4-slot gobo wheel accessory sit most squarely in a goboholder with the flat side placed down against the goboholder. In the Exterior Projection Pro Compact, the structured side of the gobo must face towards the LEDs. If in doubt, consult your Martin dealer or gobo supplier.

Preparing gobos

Sequence It and *Lava Shimmer* glass gobos have a retaining spring 1 mm (0.039 in.) in diameter. This spring is compatible with metal gobos 0.5 mm (0.020 in.) thick and glass gobos 1.1 mm (0.043 in.) thick.

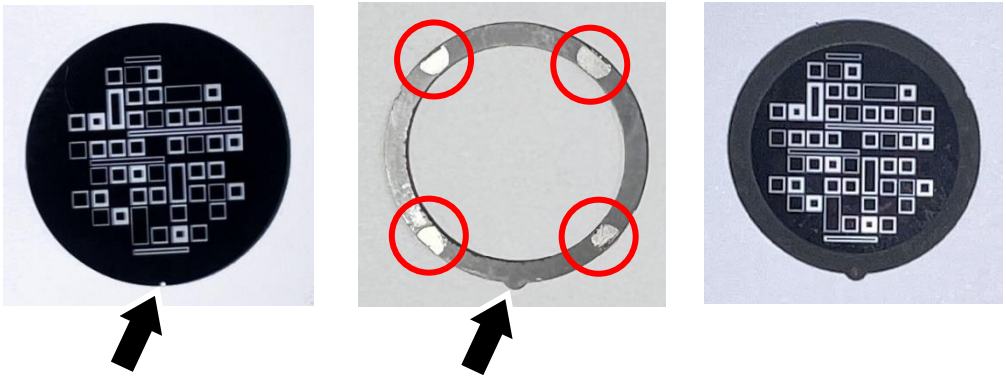
The *Ripple* structured glass gobo has a retaining spring of diameter 0.8 mm (0.031 in.).

If you install a custom gobo with a thickness of 2.8 - 3.0 mm (0.110 – 0.120 in.), you will need to shorten an 0.8 mm diameter retaining spring. See drawing on right. Cut approximately 16 mm off the unbent end of the 0.8 mm diameter spring as shown in the drawing and use that shortened spring with the custom gobo.

Gobo mounting rings

If you replace one of the standard gobos with a custom gobo, we recommend that you glue a gobo mounting ring with a key onto the gobo. The key fits into a keyway in the goboholder and prevents the gobo from moving in the goboholder and losing its correct orientation over time.

You can order gobo mounting rings in sets of 10 rings as an accessory from your Martin supplier. Ask for P/N MAR-90560270.



To glue a gobo to a mounting ring:

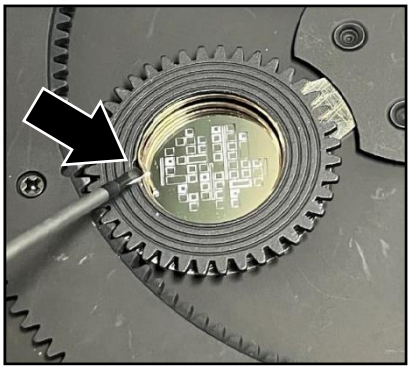
1. Obtain a flame-retardant silicone adhesive sealant that bonds to glass and metals and that is suitable for use in temperatures from -50° to 250° C (-58° to 482° F) continuous operation.
2. See photos above. Line up the reference mark (arrowed) on the gobo with the key (arrowed) in the mounting ring.
3. Check that the gobo and mounting ring are clean and free from grease. Apply a small amount of adhesive to the uncoated surface (circled) of the mounting ring.
4. Stick the side of the mounting ring with adhesive onto the coated side of the gobo. If you are using the mounting ring on a structured glass gobo, stick the side of the mounting ring with adhesive onto the flat side of the gobo.
5. Allow the adhesive to dry before moving the gobo and ring.

Replacing a rotating gobo

Rotating gobos in the Exterior Projection Pro Compact are installed in goboholders in the gobo modules.

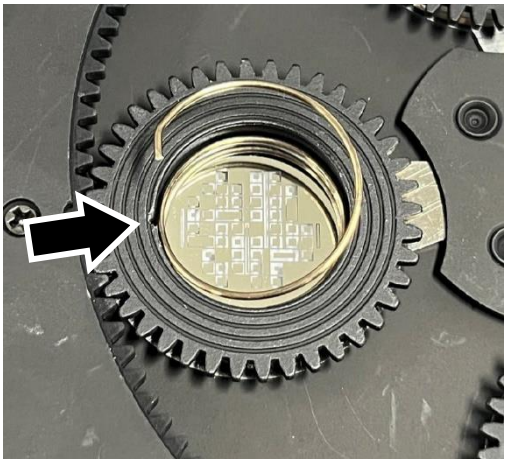
To replace a gobo:

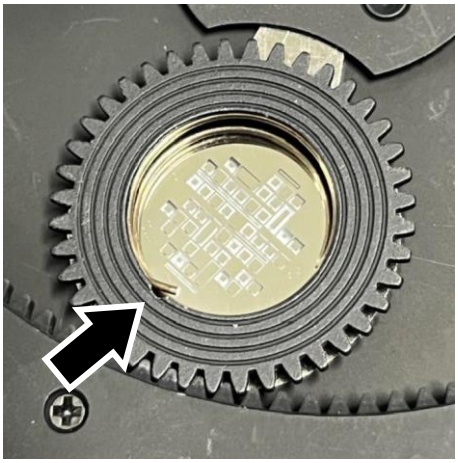
1. Remove the effects compartment cover as described in the Safety and Installation Manual included at the end of this User Manual. If a gobo module is already installed in the fixture, remove it, using the Safety and Installation Manual as a guide and place the module on a clean, flat work surface with the goboholder teeth facing upwards.
2. See photos below. Each gobo is held in place in the goboholder by a retaining spring. Taking care to avoid scratching or applying pressure to the gobo, lever the bent end of the spring towards the center and then upwards with a 1.5 mm flat-bladed screwdriver or similar precision tool. Remove the spring and lift the gobo out of the goboholder.



3. See photo below. Hold the new gobo with the more reflective side (or the true, unreversed, side in the case of a text/image gobo) 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.

4. See photos below. Place the spring over the gobo with the bent end of the spring upwards. Arrange the spring so that the bend in the end of the spring lines up with the notch (arrowed) in the goboholder. This will give enough space to insert a small screwdriver and make future removal of the gobo much easier.





5. Push the spring into the goboholder, using the bent end of the spring to twist the spring counter-clockwise slightly, which will reduce the diameter of the spring. Allow the spring coils to expand and engage completely in the groove in the goboholder. Check that the spring and gobo are now secure and that the gobo is sitting flat in the goboholder.
6. Reinstall the gobo module in the fixture and reinstall the effects compartment cover as described in the Safety and Installation Manual included at the end of this User Manual.

Gobo care

Gobos are delicate and highly stressed components. To get the best performance:

- Store all gobos in a dust-free environment with approx. 50% humidity.
- Wear clean, lint-free cotton gloves when handling gobos.
- Avoid scratching coated and uncoated sides.
- Do not place a gobo with the coated side face-down on any surface.
- Avoid touching other gobos: the sharp edge of one gobo can scratch the others.
- Keep gobos perfectly clean to reduce the risk of heat damage.
- Clean the coated side of gobos with dust-free and oil-free compressed air only.
- Clean the uncoated side of gobos with photographic quality lens-cleaner and optics cleaning tissues. Use a repeated dabbing action rather than a rubbing action.

Calibrating the fixture

It is possible to calibrate the fixture's effects using the Control / Settings DMX channel. You can calibrate fixtures one at a time or calibrate multiple fixtures if you can see and compare their projections.

Important! Any calibration adjustments that you make will permanently overwrite the factory calibration values.

To adjust calibration settings:

1. Apply power to the fixture(s).
2. Select 'Enable calibration' on the Control/Settings DMX channel and hold for 5 seconds to activate. The fixture now registers the current positions of all effects and holds them there. To select an effect to adjust, you must first release it from its hold position by changing the value on its DMX channel by +/- 10%. The effect then returns to its hold position. The effect's DMX channel now represents the full calibration range. The range can vary . Take +/- 5% for instance, in this case you can adjust the effect's position using that effect's DMX channel as follows:
   - DMX value 0 = -5%
   - DMX value 127= 0%
   - DMX value 255= +5%.
3. Adjust the effect until it is in the required position.
4. Send a 'Store XXX calibration' command on the Control/Settings channel for each effect that you adjust and hold that command for 5 seconds to activate. The new calibration offset is now stored in memory.
5. When you have finished adjusting calibration offsets, send value 0 on the Control/Settings channel and hold for 5 seconds to exit the DMX calibration procedure and return to normal DMX control.

Troubleshooting

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

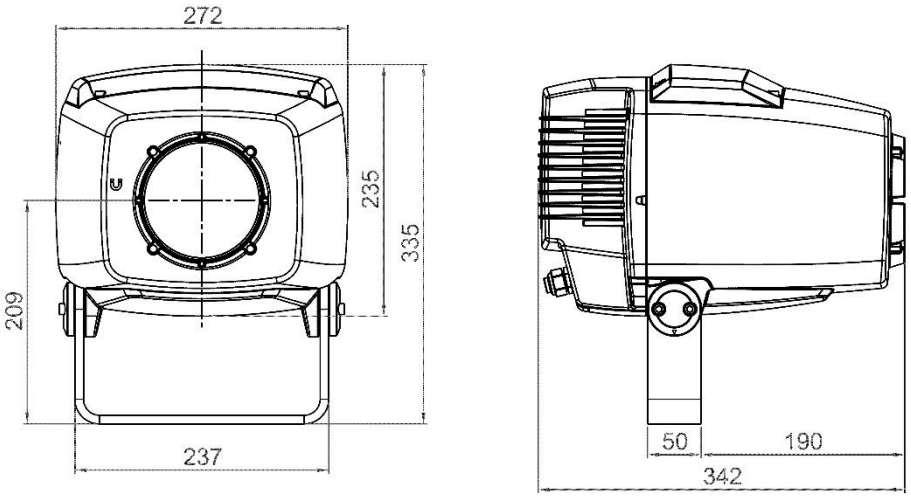
Symptom	Potential cause	Remedies
No light from fixture.	Power supply issue such as faulty connector or damaged cable.	Ensure that the mains supply is connected and supplying power to the fixture. Check all power connections and cables.
Fixture does not respond correctly to DMX control.	Incorrect DMX setup.	Ensure that fixture's DMX address matches address set on DMX control device.
	Fault in the DMX network due to connector or cable damage or potential interference from proximity to a high voltage installation.	Check that fixture's status LED shows that it is receiving DMX. If not, check all DMX cables and connections. Ensure that DMX link is terminated. Check that all components on DMX link use standard DMX polarity. Attempt to control the fixture with another DMX control device. Move or shield the DMX link if it is close to an unshielded high-voltage installation.
	Internal fault.	Contact your Martin authorized distributor or Martin Global Service for assistance.
Condensation visible on inside of front glass.	Humidity inside fixture.	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. If required, you can remove excessive humidity by following the directions given in the section on removing and re-installing the effects compartment cover in the Safety and Installation Manual.
Unexpected behavior in standalone operation	More than one fixture set to SYNC HOST. Standalone shows in different fixtures do not contain the same number of scenes	Set only one fixture to SYNC HOST, set all others to SYNC CLIENT. For perfect standalone show synchronization, check that all fixtures have the same number of scenes in their standalone shows.

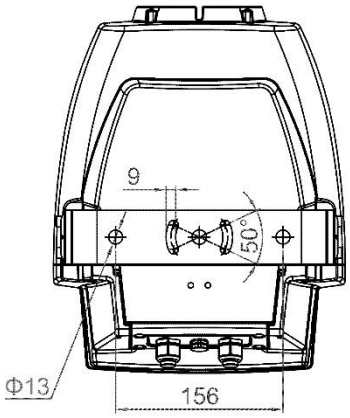
Exterior Projection Pro Compact

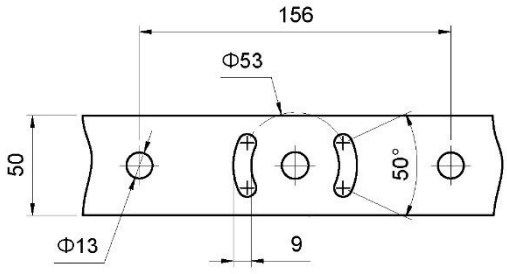
Safety and Installation Manual

Martin®

Dimensions







All dimensions are in millimeters

HARMAN PROFESSIONAL DENMARK ApS, Olof Palmes Allé 44, 8200 Aarhus N, Denmark
HARMAN PROFESSIONAL, INC., 8500 Balboa Blvd., Northridge CA 91325, USA

www.martin.com

Table of contents

Safety information

WARNING!

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

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

Warning!

Safety hazard. Risk of severe injury or death.

Warning!

Hazardous voltage. Risk of lethal or severe electric shock.

Warning!

Fire hazard.

Warning!

Burn hazard. Hot surface. Do not touch.

Warning!

Intense light emission.

Warning!

See user documentation.

Warning! Risk Group 2 product according to IEC/TR 62778. Possibly hazardous radiation emitted from this product. May be harmful to the eyes. Do not stare directly into the light output from the product. Position the product so that prolonged staring into the product at a distance closer than 1.2 m (4 ft.) is not expected. Do not view the light output with optical instruments or any device that may concentrate the beam.

This fixture presents risks of severe injury or death due to burn and fire hazards, electric shock and falls if the safety precautions in this manual are not followed.

Read this Safety and Installation Manual before installing, powering. operating or servicing the fixture. Follow the safety precautions and observe all warnings in this manual, in the fixture's User Manual, and printed on the fixture. Respect all locally applicable laws, codes and regulations.

The fixture is for professional use and must be installed by a qualified technician. It is not for household use.

The safety and suitability of lifting equipment, installation location, anchoring method, mounting hardware and electrical installation are the responsibility of the installer.

Users may carry out external cleaning and install accessories available from Martin for the fixture, but any service operation not described in this manual or in the fixture's User Manual must be referred to an authorized Martin service agent. The light source contained in the fixture may be replaced by Martin or an authorized Martin service agent only.

Power cable for connection to AC mains power is not included. Suitable power cable must be supplied by the installer.

The fixture is suitable for mounting at any height, including less than 1.2 m (3.9 ft.) and more than 5 m (16.4 ft.) above ground or floor level.

Do not operate the fixture at an altitude of more than 2000 m (6570 ft.) above sea level.

Technical Support

If you have any questions about how to install or operate the fixture safely, please contact Harman Professional Technical support.

For technical support in North America, please contact
HProTechSupportUSA@harman.com
Phone: (844) 776-4899

For technical support outside North America, please contact your national distributor.

Read this manual before installing, powering or servicing the fixture. Follow the safety precautions and observe all warnings in this manual and printed on the fixture.

The latest version of this manual is available for download from the Exterior Projection Compact Pro pages of www.martin.com. Before you install, operate or service an Exterior Projection Pro Compact fixture, check the Martin website and make sure that you have the latest user documentation for the fixture. Document revisions are indicated at the bottom of page 2.

Install, operate and service Martin products only as directed in their manuals, or you may create a safety hazard or cause damage that is not covered by product warranties. Keep this manual for future use.

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. Ensure sufficient drainage to cope with the heaviest rainfall. Make sure that water can drain away from the installation area at least as fast as it can enter it.

Do not allow water to collect on or near the pressure equalization valve located on the rear of the fixture between the cable entries. Do not install a fixture with the valve membrane horizontal so that water can pool on it. Do not cover, immerse or block the valve. Check the valve periodically. If it appears dirty, it may be becoming blocked. Contact an authorized Martin service agent for possible replacement.

Do not install the fixture with the front glass facing upwards at more than 70° from the horizontal, or water may collect on the front glass and cause damage if it freezes.

Arrange cables so that they arrive at connectors from below. Create a ‘drip loop’ if necessary. With this arrangement, gravity will cause any condensation or water droplets to run away from connectors.

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 IP66 or higher.
- Fill junction boxes with potting compound to seal the ends of cables against moisture and to protect connections from corrosion.

Support the weight of cable runs. Do not allow a length of cable to hang from a cable gland or connector.

This fixture is a Class I product according to IEC 61140. Ensure that the fixture is electrically connected to ground (earth) via the fixture’s mains power cable.

The fixture's DMX transceiver is isolated/SELV to prevent ground loops and for safety reasons.

This fixture accepts AC mains power within the ranges 100-120 V~ and 200-277 V~ nominal at 50 or 60 Hz only. Do not connect it to power at any other voltage or frequency. 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 fixture is supplied without power and data cables. To connect the fixture to mains power you must use either a PD hybrid (power and data) cable available from Martin for the fixture, or separate power cable that is minimum 16 AWG or 1.5 mm^2 and rated minimum 11 A. The cable must be suitable for the installation environment (with regard to UV and pollution resistance, weatherproofing, temperature rating etc.). In the USA and Canada, the cable must be UL-listed, type SJTW or equivalent. In the EU, the cable must be type H05RN-F or equivalent. In India, the cable must be BIS/ISI certified with IS 694. The mains power cable must have an external diameter of 8-12 mm (0.32-0.47 in.).

When fastening wires into the spring-loaded terminals inside the fixture, make sure that there is no exposed uninsulated wire outside the terminals and that there are no loose braids of wire anywhere in the connections compartment.

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 IP66 or higher and are of suitable type for the location.

Disconnect the fixture from AC mains power when not in use.

The fixture draws a maximum total current of:

- 2.0 A when connected to mains power at 100–120 V~, 60 Hz
- 1.0 A when connected to mains power at 200-240 V~, 50 Hz
- 0.8 A when connected to mains power at 277 V~, 60 Hz

If you connect the fixture to AC mains power over a daisy-chained link, do not exceed the following safety limits, or you may cause excessive current draw with a risk of overheating, fire and electric shock:

Mains power input voltage	**Maximum number of fixtures connected to mains power in one daisy chain**
90 V, 50 Hz	**4**
100 V, 60 Hz	**5**
120 V, 60 Hz	**6**
190 V, 60 Hz	**11**
208 V, 60 Hz	**12**
230 V, 50 Hz	**13**
240 V, 50 Hz	**14**
277 V, 50 Hz	**15**

Each time you reach the maximum permitted number of fixtures on one daisy-chained mains power link, you must start a new link that takes power from its own circuit breaker at the power distribution board.

The fixture draws a typical half-cycle RMS inrush current of 8.5 A for the first approximately 10 milliseconds when mains power is first applied to the fixture at 230 V~, 50 Hz.

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.

Carry out any work that involves opening the connections compartment on the back of the fixture in dry conditions only.

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

You may install accessories as described in this manual, but refer any service operation not described in this manual to an authorized Martin Service agent.

Protection from burns and fire

Do not operate the fixture if the ambient temperature (T_a) exceeds 45° C (113° F). Above this temperature, the fixture regulates output to protect from overheating.

The surface of the fixture casing can reach up to 60° C (140° 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.

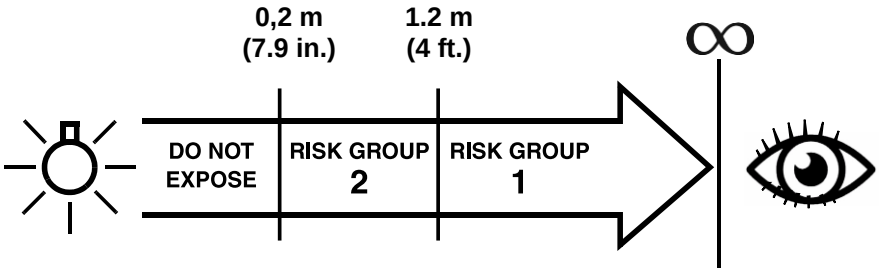
Do not illuminate surfaces within 0.5 m (1.6 ft.) of the front glass.

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

This fixture is a Risk Group 2 product according to IEC/TR 62778. It emits possibly hazardous optical radiation. It falls into the Risk Group categories shown below according to IEC/TR 62778 under worst-case conditions:



The Risk Group distances indicated 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 more appropriate safety recommendations.

At a distance of less than 0,2 m (7.9 in.) 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 0,2 m (7.9 in.), potential eye and skin injury hazards from the light output are normally prevented by natural aversion reflexes.

Position the fixture so that persons cannot be exposed to the fixture's light output at a distance of less than 0,2 m (7.9 in.) from the fixture and so that prolonged staring into the light output at less than 1.2 m (4 ft.) is not expected.

Do not look directly into the fixture’s light output.

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

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

Disconnect the fixture from power at all times when the fixture is not in use.

Provide well-lit conditions to reduce the pupil diameter of anyone working on or near the fixture.

Protection from injury

Fasten the fixture securely to a fixed surface or structure using a minimum of three securely anchored bolts, screwbolts or similar fasteners. The fixture is not portable when installed.

To reduce the risk of strangulation, the flexible wiring connected to this fixture shall be effectively fixed to the wall if the wiring is within arm's reach.

The weight of the fixture varies depending on configuration, but the fixture weighs a maximum of 14.1 kg (31.1 lb.) including mounting yoke and with a maximum of accessories (glare shield, framing module, 4-gobo wheel and animation wheel) installed.

Ensure that any supporting structure and/or hardware used can hold at least six (6) times (or more if required by local regulations) 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.

The safety and suitability of lifting equipment, installation location, anchoring method, mounting hardware and electrical installation are the responsibility of the installer.

All fasteners used to mount fixtures must be suitable for the application, corrosion resistant and strong enough to mount the fixture safely.

Block access below the work area and work from a stable platform whenever installing, setting, adjusting, or cleaning the fixture.

After installation or service, check that the fixture is securely fastened.

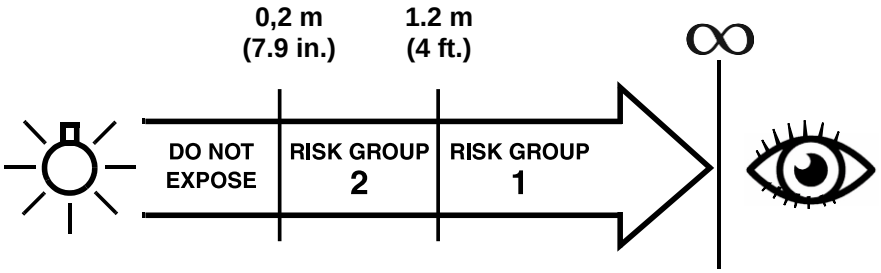
In the event of an operating problem, stop using the fixture immediately and disconnect it from power. Do not attempt to use a fixture that is obviously damaged.

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

The fixture has an Effective Projected Area (EPA) of 0.1 m^2.

Protección frente a daños oculares

Este dispositivo es un producto del Grupo de Riesgo 2 según la norma IEC/TR 62778. Emite radiación óptica potencialmente peligrosa. En las peores condiciones, se incluye en las categorías de Grupo de Riesgo que se indican a continuación según la norma IEC/TR 62778:



Las distancias indicadas para el Grupo de Riesgo se aplican a la potencia luminosa de un solo dispositivo. Si se pueden utilizar varios dispositivos simultáneamente, la intensidad luminosa puede aumentar, por lo que se recomienda consultar a un profesional de la iluminación para obtener recomendaciones de seguridad más adecuadas.

A una distancia inferior a 0,2 m del dispositivo, la emisión de luz puede causar lesiones oculares o cutáneas, antes de que las respuestas naturales de aversión de la persona expuesta (reflejo de parpadeo y reacción a la incomodidad cutánea) puedan protegerla. A distancias superiores a 0,2 m, los posibles riesgos de lesiones oculares y cutáneas causados por la emisión de luz suelen prevenirse mediante los reflejos naturales de aversión.

Coloque el dispositivo de manera que las personas no puedan estar expuestas a la salida de luz del dispositivo a una distancia de menos de 0,2 m del dispositivo y de manera que no se espere una mirada prolongada a la salida de luz a menos de 1,2 m.

No mire directamente a la salida de luz del artefacto.

No mire la salida de luz con lupas, telescopios, binoculares o instrumentos ópticos similares que puedan concentrar la salida de luz.

Asegúrese de que nadie mire directamente al frente del dispositivo cuando este se encienda repentinamente. Esto puede ocurrir al conectarlo a la corriente, al recibir una señal de control o al seleccionar ciertas opciones del menú de control.

Cuando no esté en uso, desconecte siempre el dispositivo de la alimentación.

Proporcione condiciones de buena iluminación para reducir el diámetro de la pupila de cualquier persona que trabaje en el dispositivo o cerca de él.

Protección contra lesiones

Fije el dispositivo firmemente a una superficie o estructura fija con al menos tres pernos, tornillos o fijaciones similares firmemente ancladas. El dispositivo no es portátil una vez instalado.

Para reducir el riesgo de estrangulamiento, el cableado flexible conectado a este dispositivo deberá fijarse eficazmente a la pared, si el cableado está al alcance de la mano.

El peso del dispositivo varía según la configuración, pero pesa un máximo de 14,1 kg, incluido el yugo de montaje y con un máximo de accesorios (protector antideslumbrante, módulo de encuadre, rueda de 4 gobos y rueda de animación) instalados.

Asegúrese de que cualquier estructura de soporte y/o hardware utilizado pueda soportar al menos seis (6) veces (o más si así lo exigen las regulaciones locales) el peso de todos los dispositivos que soporta.

Compruebe que todas las cubiertas externas y los herrajes de instalación estén bien fijados.

No opere el dispositivo si las cubiertas, protectores o cualquier componente óptico no está o se encuentra dañado.

Siempre que instale, repare o mueva el dispositivo, bloquee el acceso debajo del área de trabajo y trabaje desde una plataforma estable.

La seguridad e idoneidad del equipo de elevación, la ubicación de la instalación, el método de anclaje, el hardware de montaje y la instalación eléctrica son responsabilidad del instalador.

Todos las sujeciones utilizadas para montar los dispositivos deben ser adecuados para la aplicación, resistentes a la corrosión y lo suficientemente fuertes para montar el equipo de manera segura.

Bloquee el acceso debajo del área de trabajo y trabaje desde una plataforma estable siempre que instale, configure, ajuste o limpie el dispositivo.

Después de la instalación o el servicio, verifique que el dispositivo esté bien fijado.

En caso de un problema de funcionamiento, deje de usar el aparato inmediatamente y desconéctelo de la corriente. No intente utilizar un aparato que presente daños visibles.

No modifique el dispositivo ni instale piezas que no sean originales de Martin.

El accesorio tiene un Área Proyectada Efectiva (Effective Projected Area, EPA) de 0,1 m^2.

Introduction

The Exterior Projection Pro Compact from Martin® is an image projection fixture that features a powerful 130 W LED engine, advanced dynamic effects and rugged weatherproofing. See www.martin.com for full product specifications including photometric data.

The fixture is supplied with a color wheel with five dichroic color filters. It also has smooth electronic dimming, strobe effects, remote focusing and remote zoom control.

In addition, the following effects are available as accessories:

- Gobo module with 1 or 4 gobo slots, with gobo indexing and variable rotation.
- Animation module with continuous rotation, variable speed and direction.
- Four-blade manual framing module with locking mechanism.

The Exterior Projection Pro Compact 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.

The Exterior Projection Pro Compact can also function without DMX control as a stand-alone projector and run a show with up to twenty dynamic lighting effects that you can program using the free Martin Companion fixture management Windows software suite.

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 Exterior Projection Pro Compact area of www.martin.com and make sure that you have read the latest user documentation and technical information about the fixture. Martin user manual revisions are identified by the revision letter at the bottom of the inside cover.
3. Read ‘Safety information’ on page 4 of this user manual.
4. Ensure that the voltage and frequency of the power supply match the power requirements of the fixture.
5. If the temperature is below -10° C (14° F), apply power to the fixture but be prepared to wait until the fixture has performed a warm-up procedure and has reached operating temperature. During the warm-up procedure, the light source, an internal heating system and effects are activated. DMX control is disabled but RDM communication is available.

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 -10° C (14° F).

For instant wake-up with no warm-up mode, leave power applied constantly in ambient temperatures below 0° C (32° F)

Precautions to avoid damage

Important! To get the best out of the Exterior Projection Pro Compact and avoid causing damage that is not covered by the product warranty, make sure that everyone who is involved in installing, working on or using the fixture has read and understood the following information.

Cleaning

Excessive dirt buildup causes overheating and may lead to damage that is not covered by the product warranty. Clean the product at regular intervals (see ‘Cleaning’ on page 24).

Operating temperature precautions

Do not operate the fixture in an ambient temperature that exceeds the specified maximum of 45° C (113° F). Fixtures have an internal thermal sensor. If the sensor measures excessive temperature, a thermal protection system reduces output. If the temperature is dangerously high, a thermal cutout

shuts down the fixture. The fixture will not function normally again until the temperature has fallen to a safe level.

Do not operate the fixture in an ambient temperature below -30° C (-22° F).

Maintaining IP66 protection

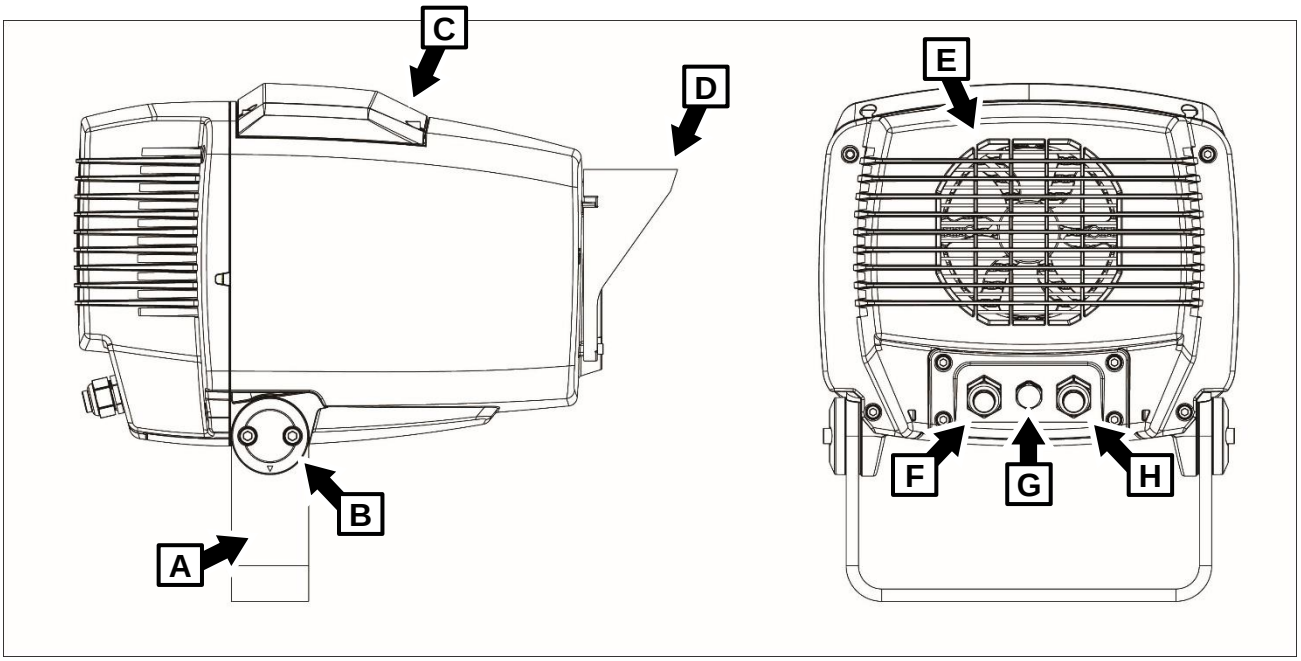
The fixture is supplied as a sealed unit. It may be opened for the purposes of changing effects modules or installing power and data cables by a qualified technician in a dry, dust-free environment.

Condensation and pressure relief valve

A valve with a gas-permeable membrane in the base of the product equalizes pressure by allowing air to pass through it when the product heats up and cools down, but at the same time it acts as a barrier to water in liquid form. This valve requires maintenance – see ‘Pressure relief valve’ on page 26 for details.

Under certain conditions, condensation may become visible under optical components. This is normal and harmless. The fixture gradually expels condensation via its pressure relief valve.

Fixture overview



A – Adjustable mounting yoke

B – Tilt adjustment plate

C – Effects compartment cover (service lid)

D – Glare shield (optional accessory)

E – Cooling vent

F – Cable gland for AC mains power input cable or PD cable

G – Pressure relief valve

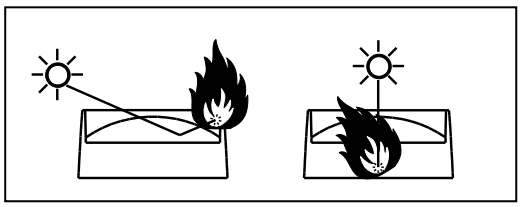
H – Cable gland for DMX/RDM data input cable or PD cable

Physical installation

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

Protection from the sun

Important! The fixture's optical system can focus rays from the sun inside the fixture, causing internal damage and presenting a fire hazard. Damage can be caused whether the rays come from directly in front or from the side of the front glass (see drawing on right). Make sure that the sun will not shine into the front of the fixture at any time.



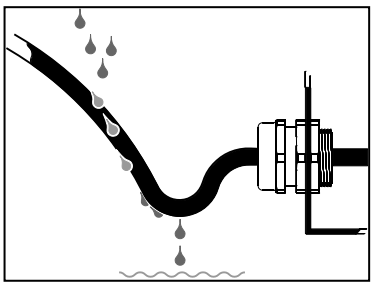
Cooling

The Exterior Projection Pro Compact 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 and an external IP-rated cooling fan. Ensure sufficient ventilation and free airflow around the fixture, especially around the grill on the back of the fixture, to minimize any reduction in LED output due to high temperatures.

Protection from moisture

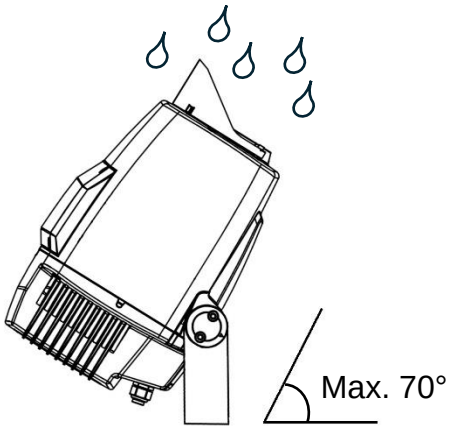
If there is a break or cut at any point in a cable (for example at a connection point), and if this is exposed to water, moisture can be drawn up the inside of the cable due to the vacuum effect of temperature fluctuations during operation. Ensure that the fixture is protected from the entry of water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

Important! See illustration on right. Do not mount the fixture with the front glass angled at more than 70° from horizontal in any location where rain or dripping water may be present. At angles greater than 70°, water can collect on the front glass, causing damage if it freezes and interfering with projections.



The fixture can be mounted at any angle (apart from the 70° limit described above) and the yoke can be fastened to a vertical, horizontal or angled surface. Do not stand the fixture freely on a surface or leave it where it can be moved or fall over.

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 15.

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 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.

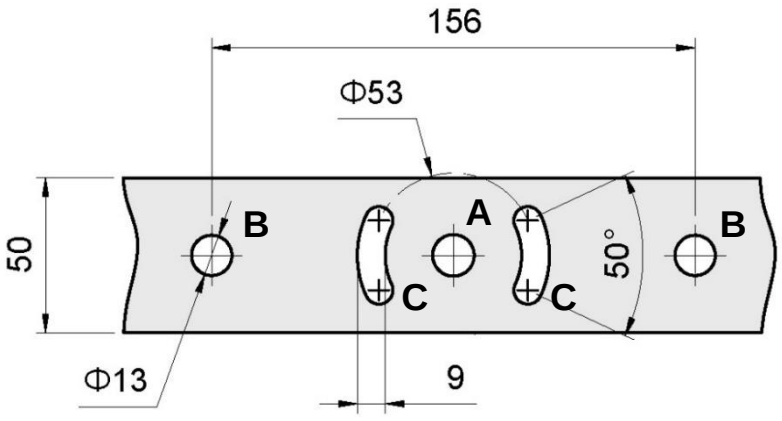
Install washers between the head of each fastener and the yoke base. If you use nuts, use self-locking type only and install washers under the nuts.

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:

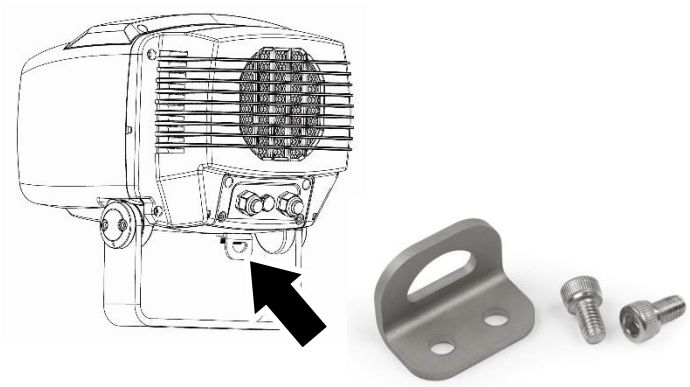
1. See illustration on next page. Fasten a 12 mm (1/2 inch) shaft diameter bolt to the surface through the center hole **A** in the mounting yoke.
2. Fasten two bolts with 8 mm (5/16 inch) shaft diameter to the surface with one bolt passing through each of the curved slots **C** to anchor the fixture.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



Mounting yoke base

Secondary attachment

If a secondary attachment is required for reasons of safety (in entertainment venues, onboard marine vessels or in temporary installations, for example), you must obtain a Safety Cable Attachment Bracket accessory from Martin by ordering P/N MAR-90590050 and install it on the fixture, then install a safety cable that is approved for the weight of the fixture using the bracket:



1. See illustration on right. Fasten the Safety Cable Attachment Bracket to the bottom of the fixture in the location shown (see arrow) using the supplied Torx screws.
2. Fasten a safety cable that is approved for the weight of the fixture to the Safety Cable Attachment Bracket and to a secure anchoring point so that the cable will catch the fixture if the primary method of attachment fails. Remove as much slack as possible from the safety cable (by looping it more than once around the anchoring point, for example). Make sure that if the primary method of attachment fails, it will be impossible for the fixture to drop any significant distance before the safety cable catches it.

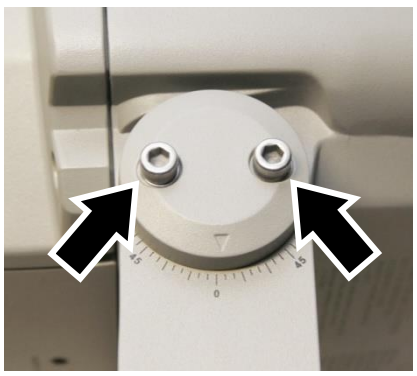
Adjusting aiming (pan and tilt)

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.

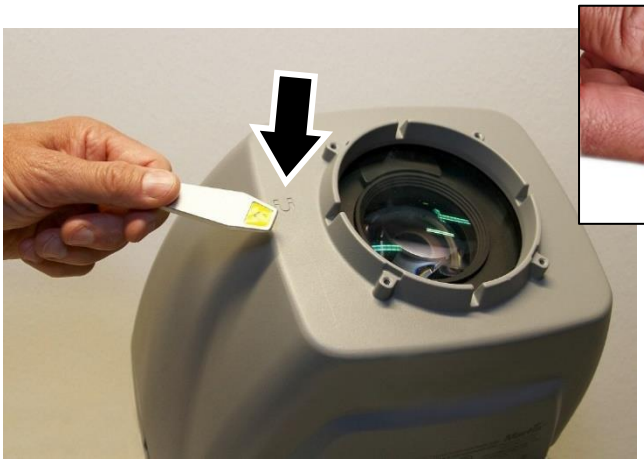
To adjust the aim of the fixture:

1. Note the 70° limit for mounting the fixture in wet conditions given under ‘Mounting the fixture’ on page 13.
2. If possible, set the fixture to project a gobo with a sharply defined pattern.
3. Put on heat-resistant gloves.
4. See ‘Anchoring to a surface or structure’ on page 14. Loosen the bolts in the center hole **A** and curved slots **C** of the fixture’s yoke slightly, just enough to let you rotate the fixture.
5. See illustration on right. Loosen the tilt lock Allen (hex) screws (arrowed) on both sides of the yoke slightly, just enough to let you tilt the fixture in the yoke.
6. Pan and tilt the fixture until it is aimed correctly.
7. Use a torque driver and tighten the tilt adjustment screws on both sides of the yoke to a torque of 9 – 10 Nm.
8. See ‘Anchoring to a surface or structure’ on page 14. On the fixture’s yoke, 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.



Magnetic switch for testing and status

See photos on right and below. The fixture has a magnetic switch on the front of the head indicated by a magnet icon (arrowed). You activate the switch by ‘swiping’ past it with a magnet such as the Martin Magnetic Multi-Tool accessory.



The switch lets you check fixture status and focus the fixture without needing a controller connected.

Swiping has the functions shown in the table below when the fixture is connected to DMX:

Swipe	Function
Swipe 1	Fixture displays status by lighting up blue or green: • **Blue** = Power applied but fixture not receiving DMX. • **Green** = Power applied and fixture receiving DMX.
Swipe 2	Fixture goes to open white, narrow zoom, focus set to 15 m projection distance.
Swipe 3	Fixture goes to open white, medium zoom, focus set to 8 m projection distance.
Swipe 4	Fixture goes to open white, wide zoom, focus set to 5 m projection distance.
Swipe 5	Fixture goes to blackout. If you swipe again within 30 seconds, the fixture returns to Swipe 1 and restarts the sequence of swipes.

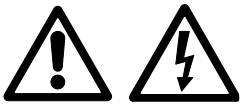
Swiping when connected to DMX

If at any point you do not swipe for 30 seconds, the fixture returns to normal DMX operation.

If the fixture is not connected to DMX there is no 30 second timeout in Swipes 1 to 4 – you need to swipe until Swipe 5 or cycle power off/on to exit the status/test sequence.

If the fixture is not connected to DMX when you begin swiping but you connect it to DMX while swiping is active, the fixture immediately starts normal DMX operation.

Connecting to power and data



Warning! Read “Safety Information” on page 4 before installing the fixture. Lock out power to the entire installation before working on cables and connections.

The Exterior Projection Pro Compact accepts AC mains 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 Pro Compact to either of the following mains power distribution systems:

- Single-phase three-wire (Live, Neutral, Ground/Earth) system.
- Three-phase four-wire system with each fixture using one phase only.

Do not try to connect the fixture to a three-phase, three-wire (three phases, no Neutral) system.

There is no power on/off switch. Power is applied to an Exterior Projection Pro Compact 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.

Using power and data terminals

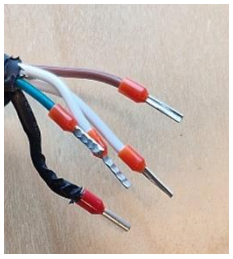
See photo on right. The Exterior Projection Pro Compact has two-piece terminal blocks inside the fixture for making connections to power and data. The terminal blocks have two parts: a terminal base and a detachable terminal block.

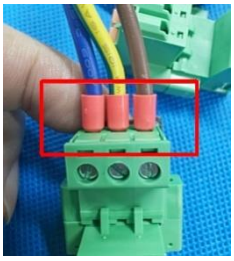
- The terminal base stays inside the fixture.
- The detachable terminal block can be unscrewed and removed from the base for convenient access when connecting wires. When you have connected wires, you re-insert the detachable terminal block back its base and fasten it in place with its two screws. The detachable terminal block can only be plugged into its base in one orientation (*poka yoke* design).

The terminals are spring-loaded, automatic gripping type.

To fasten wires into terminals:

1. Strip approximately 50 mm (2 inches) of outer jacket from the power or data cable to free the wires inside the cable.
2. Strip approximately 12 mm (half an inch) of insulation from each wire, then crimp an insulated ferrule onto the end of each wire. See photos on right. The ferrules must be long enough to pass fully into the terminals but no exposed metal must be visible outside the terminals.





3. Push the ferrule on each wire firmly into the correct terminal in the detachable part of the terminal block following the instructions in this chapter. Pull on the wire to check that the ferrule is held securely in the terminal. If you need to remove a wire from a terminal, insert a small electrician’s screwdriver into the hole on the front of the terminal and push on the spring inside the terminal to release the wire.

The power terminal block has two sets of three terminals. Use one set of terminals for power IN and one set of terminals for power THRU. It does not matter which set you use for power IN and which for power THRU.

Likewise, the data terminal block has two sets of three terminals. Use one set of terminals for data IN and one set of terminals for data THRU. It does not matter which set of terminals you use for data IN and which set for data THRU.

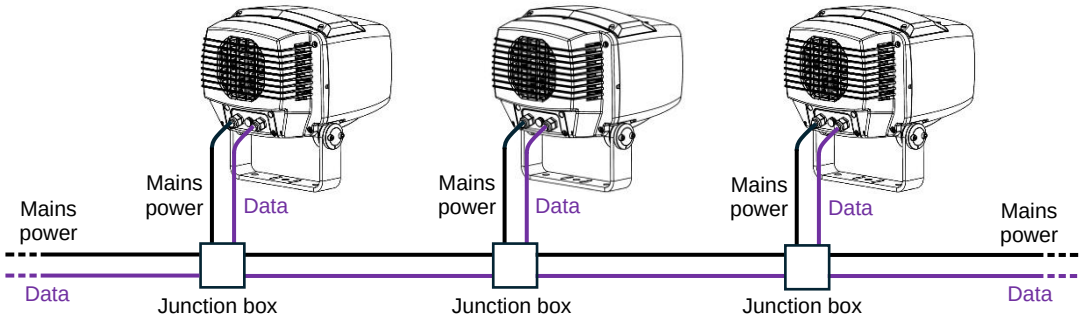
If you are relaying data to the next fixture in the daisy-chain using an external junction box, you do not need to make data THRU connections inside the fixture.

Installation layout options

There are two options for connecting the Exterior Projection Pro Compact to power and data:

1. Separate mains power and data links

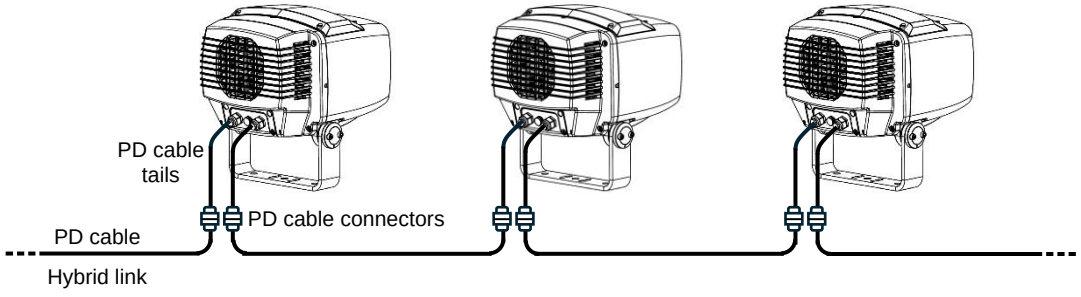
In this configuration, you connect fixtures to separate AC mains power and DMX/RDM data links via one power input cable and one data input cable. Each cable is passed through its own cable gland on the rear of the fixture. If you need to connect fixtures to power and data in a daisy-chain, you must split the power and data links inside junction boxes as shown below (you can of course also use separate junction boxes for power and for data):



For instructions on connecting fixtures in this configuration, see ‘Connecting via separate power and data cables’ on page 19.

2. Hybrid (power and data) link via Martin PD cable

In this configuration, you connect fixtures to one hybrid (combined power and data) link via two cable tails, one for power and data IN and one for power and data THRU. All cable and connectors are PD type, available from Martin. PD connectors are IP67-rated. Each cable tail is passed through its own cable gland on the rear of the fixture. PD cable tails are connected to a hybrid (power and data) link using PD cable connectors as shown below:



PD cable tails that are suitable for the Exterior Projection Pro Compact are available from Martin as accessories:

- PD Cable Tails Set, 0.5 m, Black, EU, P/N MAR-91700020
- PD Cable Tails Set, 0.5 m, White, EU, P/N MAR-91700022

Each set consists of 1 x IN and 1 x THRU cable tail with PD connectors installed on one end of each cable.

Martin can also supply loose PD connectors and lengths of PD cable.

For instructions on connecting fixtures in this configuration, see ‘Connecting via PD-type hybrid cables’ on page 21.

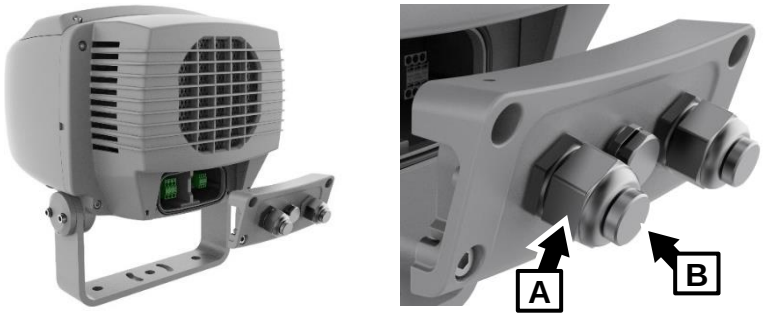
Connecting via separate power and data cables

Connecting to power

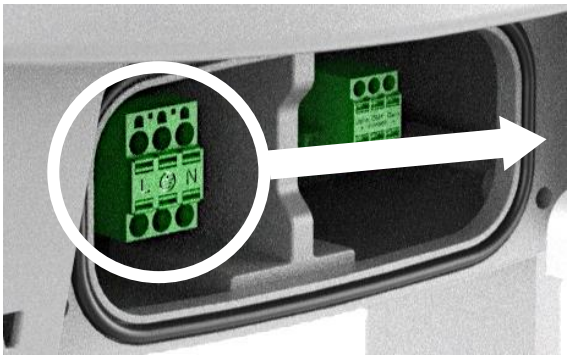
To connect the fixture to AC mains power you must use correctly dimensioned cable that is suitable for the installation environment (with regard to UV resistance, weatherproofing, temperature rating etc.) and that has an external diameter of 8–12 mm (0.32–0.47 in.).

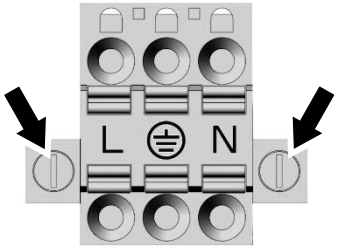
To connect to AC mains power in a single-phase system or using one phase of a three-phase, four-wire system:

1. Lock out power to the installation.
2. Strip approximately 50 mm (2 inches) of the power cable’s outer jacket. Strip approximately 12 mm (half an inch) of insulation from each of the three wires in the cable. Crimp a ferrule onto the end of each wire. The ferrules must be long enough to pass fully into the terminals but there must be no exposed metal outside the terminals.
3. See illustration below. Release the four Allen screws in the connections compartment cover on the back of the fixture and remove the cover. Loosen the compression nut **A** on the cable gland shown and remove the sealing plug **B** from the gland. Pass the power cable through the cable gland.



4. See illustration on right:
   a) Loosen the two screws (arrowed) in the detachable mains power terminal block and remove the block from its base inside the fixture.
   b) Fasten the green wire (US system) or yellow/green wire (EU system) into the terminal marked ⏚ (ground / earth).
   c) Fasten the white wire (US system) or blue wire (EU system) into the terminal marked **N** (neutral).
   d) Fasten the black wire (US system) or brown wire (EU system) into the terminal marked **L** (live or one phase of a three-phase system).
   e) Re-insert the detachable mains power terminal block into its base and fasten it in place with its two screws.





5. Either continue installation work by connecting the data cable as described later in this chapter or re-install the connections compartment cover, checking that the seal in the back of the fixture is clean, dry and in perfect condition.

6. 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 (cord cap) on the power cable (power cord) 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 ⏚
US system	Black	White	Green
EU system	Brown	Blue	Yellow/green

Power plug connections

Connecting to data

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

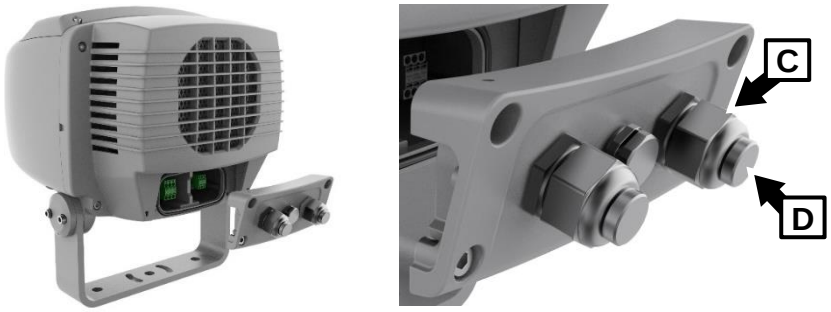
To connect the fixture to control data you must use DMX512-compatible data cable that is suitable for the installation environment (with regard to UV resistance, weatherproofing, temperature rating etc.) and that has an external diameter of 8–12 mm (0.32–0.47 in.).

Important! Connect the DMX/RDM data link in a daisy-chain only. If you split the data link into branches you will probably cause data signal integrity problems.

The Exterior Projection Pro Compact uses the common/shield conductor and the first data pair in a standard DMX512A data cable. The second data pair in a five-conductor DMX cable is not used.

Connect the fixture to data as follows:

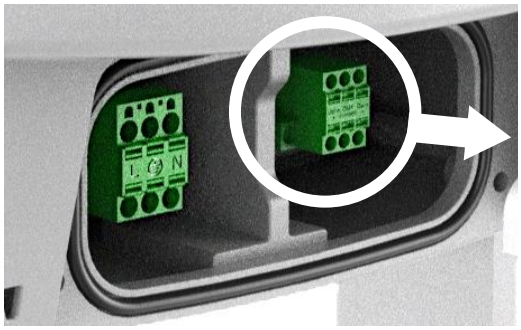
1. Lock out power to the installation.
2. See illustration below. If the connections compartment is not already open. release the four Allen screws in the connections compartment cover on the back of the fixture and remove the cover. Loosen the compression nut **C** on the cable gland shown and remove the sealing plug **D** from the gland. pass the data input cable through the cable gland.

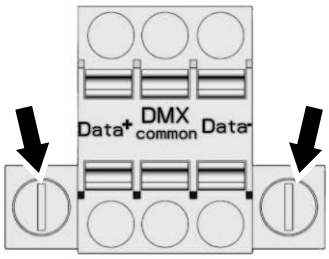


3. Strip approximately 50 mm (2 inches) of the data cable's outer jacket. Strip approximately 12 mm (half an inch) of insulation from each of the three wires in the cable. Crimp a ferrule onto the end of each wire. The ferrules must be long enough to pass fully into the terminals but there must be no exposed metal outside the terminals.

4. Connect the conductors in the data cable to the data terminals inside the connections compartment as follows:

   a) See illustration on right. Loosen the screws (arrowed) in the detachable data terminal block and remove it from its base inside the fixture.





   b) Fasten the data positive wire into the terminal marked **Data +**.

   c) Fasten the data negative wire into the terminal marked **Data –**.

   d) Fasten the data shield/common wire into the terminal marked **DMX common**.

   e) Re-insert the detachable data terminal block into its base and fasten it in place with its two screws.

5. If you have finished making connections, re-install the connections compartment cover, checking that the seal in the back of the fixture is clean, dry and in perfect condition.

6. Check that all installation work is completed and carry out appropriate tests and safety checks before applying power.

Connecting via PD-type hybrid cables

You can connect the fixture to power and data using the PD cable accessories available from Martin (consult your Martin supplier or see the Exterior Projection Pro Compact area of the Martin website for ordering details). PD cable tails are supplied with a PD connector at one end and bare ends at the other end. The cable tails use the EU mains power wire color-coding system.

Prepare cables as follows:

- For the PD IN cable, allow 7 cm of wire from the input cable gland to the power terminal block and 10 cm of wire from the input cable gland to the data terminal block.
- For the PD THRU cable, if used, allow 10 cm of wire from the output cable gland to the power terminal block and 7 cm of wire from the output cable gland to the data terminal block.

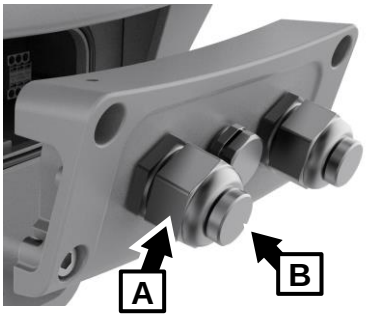
Connecting a power and data IN PD cable

The cable tail with the male PD connector is intended for use as power and data input.

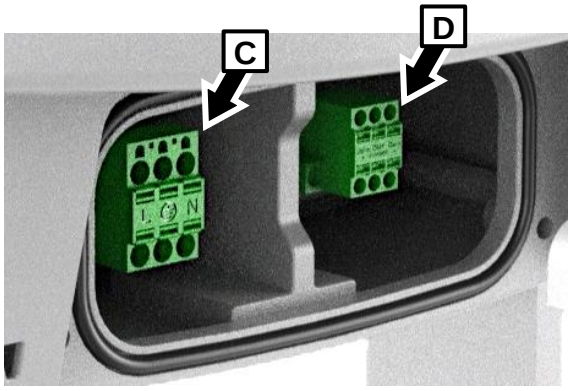
To connect to AC mains power and DMX/RDM data using the PD input cable tail:

1. Lock out power to the installation.

2. See illustration below. Release the four Allen screws in the connections compartment cover on the back of the fixture and remove the cover. Loosen the compression nut **A** on the input cable gland and remove the sealing plug **B** from the gland. Pass the PD input cable through the cable gland.



3. Strip 10 cm (4 in.) of outer cable jacket. Trim the power wires so that you are left with 7 cm (2¾ in.) of power wires and 10 cm of data wires.
4. Strip approximately 12 mm (1/2 inch) of insulation from the end of each power and data wire. Crimp a ferrule onto the end of each wire. The ferrules must be long enough to pass fully into the terminals without leaving any exposed metal outside the terminals.
5. Fasten the power wires in the PD cable into the spring-loaded power terminals inside the connections compartment as follows:

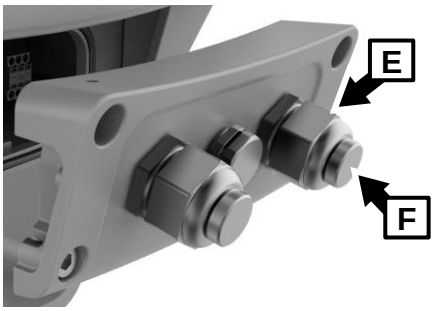


   a) See illustration on right. Unscrew and remove the detachable mains power terminal block **C** from its base.
   b) Fasten the yellow/green wire into the terminal marked ⏚ (ground / earth).
   c) Fasten the blue wire into the terminal marked **N** (neutral).
   d) Fasten the brown wire into the terminal marked **L** (live).
   e) If you are going to connect a THRU PD cable, go to the next step below. Otherwise, re-insert the detachable mains power terminal block into its base and fasten it in place with its two screws.
6. Fasten the data wires in the PD cable into the spring-loaded data terminals as follows:
   a) See illustration above. Unscrew and remove the detachable data terminal block **D** from its base.
   a) Fasten the red wire into the terminal marked **Data +**.
   b) Fasten the grey wire into the terminal marked **Data –**.
   c) Fasten the bare copper braided shield into the terminal marked **DMX common**.
7. If you are going to connect a PD THRU cable, go to the next section. Otherwise, re-insert the detachable data terminal block into its base and fasten it in place with its two screws and tighten compression nut **A** in the input cable gland.
8. If you have finished making connections, re-install the connections compartment cover, checking that the seal in the back of the fixture is clean, dry and in perfect condition. Check that all installation work is completed and carry out appropriate tests and safety checks before applying power.

Connecting a power and data THRU PD cable

To install a PD cable to relay mains power and data to the next fixture on a daisy-chained link:

1. Check that power to the installation is shut down and cannot be applied.
2. See illustration below. If the fixture is not already open, release the four Allen screws in the connections compartment cover on the back of the fixture and remove the cover. Loosen the compression nut **E** on the output cable gland and remove the sealing plug **F** from the gland. Pass the PD THRU cable through the cable gland.



3. Strip 10 cm (4 in.) of outer cable jacket. Trim the data wires so that you are left with 10 cm of power wires and 7 cm (2¾ in.) of data wires.
4. Strip approximately 12 mm (1/2 inch) of insulation from the end of each power and data wire. Crimp a ferrule onto the end of each wire. The ferrules must be long enough to pass fully into the terminals without leaving any exposed metal outside the terminals.
5. Fasten the power and data wires in the PD THRU cable into the power and data terminals inside the connections compartment as described for the PD IN cable in the previous section, but fastening the wires into the unused terminals.
6. Tighten compression nut **E** in the output cable gland.
7. Re-install the connections compartment cover, checking that the seal in the back of the fixture is clean, dry and in perfect condition. Check that all installation work is completed and carry out appropriate tests and safety checks before applying power.

The fixture with two PD cable tails installed should look as shown in the photo on the right.

Service and maintenance

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

Important! Opening the fixture can allow moisture to enter and cause condensation on the front glass. Read 'Managing humidity' below 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 Pro Compact. 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 Projection Pro Compact 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.

Anti-humidity bag

The fixture is supplied with an anti-humidity bag installed inside it to absorb moisture. Each time the fixture is opened, this bag must be removed and a new bag from Martin installed in its place.

To install a new bag, see photo on right. Open the clip on the bag holder in the effects compartment cover, replace the anti-humidity bag with a new item and close the clip over the new bag.

Drying off function

A small amount of condensation behind the front glass is normal under certain temperature conditions, but excess moisture can be cleared using the fixture's drying off function.

Important! Carry out the following operation with the fixture in dry conditions only.

To run the drying off sequence:

1. Open the effects compartment cover as described in 'Opening and closing the fixture' later in this chapter.
2. Replace the anti-humidity bag in the cover with a new bag (see instructions above).
3. Enable the **Dry off** function via RDM or the DMX Control / Settings channel, leaving the effects compartment cover open so that air can circulate.
4. Allow the procedure to run for approximately 15 minutes, then stop the **Dry off** function.
5. Re-install the effects compartment cover as described later in this chapter.

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.

Pressure relief valve

A valve with a gas-permeable membrane between the power and data cable glands on the back of the fixture (see ‘Fixture overview’ on page 12) 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 that the fixture is correctly sealed.

Pressure relief valves become blocked over time as the micropores in their membranes 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 the pressure relief valve. Do not install a fixture with the valve membrane horizontal so that water can pool on it.
- Replace the valve with a new item if it shows any signs of contamination or is not in perfect condition.
- Replace the valve 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 if a valve requires replacement

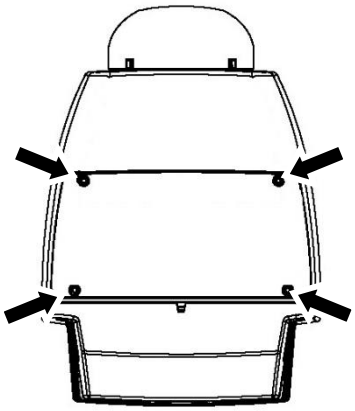
Installing a glare shield accessory

To install the glare shield that is available as an optional accessory from Martin, see photo on right. Hold the glare shield up to the front of the fixture and fasten it in position using the four supplied screws.

Opening and closing the fixture

To open the fixture for access to the effects:

1. Open the fixture in dry conditions only.
2. Shut down power to the fixture and make sure that it cannot be reapplied during service work.
3. See illustration on right. Remove the four Allen (hex) screws (arrowed) from the effects compartment cover and let the cover hang on its safety wire.



To close the fixture:

1. Replace the anti-humidity bag with a new item as described earlier in this chapter. Bags are available from Martin as accessories.
2. Check that the compartment cover seal is perfectly clean, dry and in perfect condition. Do not apply liquid gasket or any kind of grease to the seal. If the seal shows any signs of damage, contact your Martin supplier for a replacement.
3. Reinstall the cover with its four screws. Use a torque driver to tighten the screws to 2 Nm.

Installing lighting effects

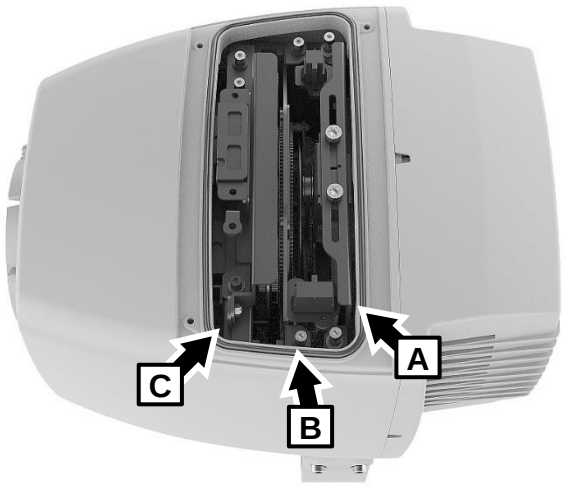
Important! Effects do not support hot-plugging and will be damaged if you try to install them with power applied. Shut down power before installing effects modules.

Effects can be installed inside the fixture in the combinations shown below:

Animation wheel	Single gobo module	4-gobo wheel	Framing module
X			
	X		
		X	
			X
X	X		
X		X	
X			X
	X		X
		X	X
X	X		X
X		X	X

See photo on right. Spaces are provided for effects modules in the following order, from the back to the front of the fixture:

1. Animation wheel module **A** (optional accessory).
2. Either single rotating gobo or four rotating gobo wheel module **B** (optional accessories).
3. Manual four-blade framing module **C** (optional accessory).

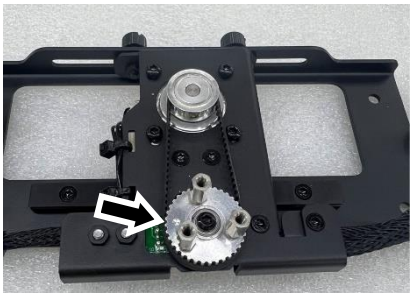


Important! To avoid damaging modules, install them as indicated below:

- Install the gobo module (4-gobo or single-gobo module) **B** first; install the animation wheel **A** second.
- Remove the animation wheel **A** first; remove the gobo module **B** second.
- No special installation and disassembly order is necessary for the framing module.

Installing an animation wheel

The animation wheel module fits into the fixture at the back of the effects compartment (closest to the color wheel). The module must be installed with the wheel facing towards the front of the fixture. The module is supplied as:

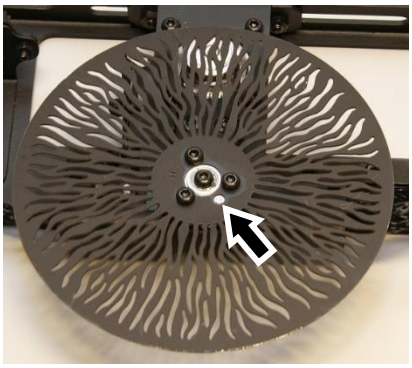


- Frame, sliding car and motor assembly
- 3 x screws and 3 x standoffs (pillar bolts)
- Radial Breakup animation wheel

If you are not going to install a single-gobo or 4-gobo module, we recommend that you use the supplied standoffs between the wheel and its mounting hub. The standoffs bring the wheel closer to the plane of focus of the framing module.

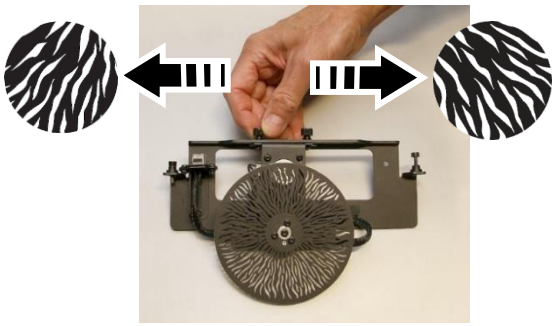
Important! If a gobo module is – or will be – installed, do not use the standoffs.

To install the wheel:



1. See photo above right. If you are not going to install a gobo module, apply a small amount of threadlocker (Loctite 222 recommended) to the threads of the three supplied standoffs and fasten them to the hub. Use a torque driver to tighten the standoffs to 0.5 Nm.
2. See photo on right. Note the position of the orientation hole in the wheel and line it up with the mark on the hub (see arrows in photos). Apply a small amount of threadlocker (Loctite 222 recommended) to the threads of the three supplied screws, then use them to fasten the animation wheel onto the hub (or the standoffs, if installed). Use a torque driver to tighten the screws to 0.5 Nm.

See photo on right. The angle of the shapes in the animation effect can be adjusted manually by loosening the two screws on top of the module, sliding the wheel assembly sideways and re-tightening the screws:



- With the wheel assembly centered in the module, the animated shapes in the projection will be vertical.
- With the wheel assembly moved *to the left*, looking *from the front* of the fixture, the animated shapes in the projection will be angled to the *right*.
- With the wheel assembly moved *to the right*, looking *from the front* of the fixture, the animated shapes will be angled to the *left*.

Animation wheel module viewed from the front of the fixture

To install the animation wheel:

1. Check that power to the fixture is shut down. See photo on right. With the wheel facing towards the front of the fixture, slide the animation wheel module vertically down into the rearmost module slot, just in front of the color wheel. Take care not to damage the color wheel or animation wheel while sliding the module into position.
2. When the module is correctly located in the head, fasten it into position with its two Allen (hex) head mounting screws. Use a torque driver to tighten the screws to a torque of 2 Nm.

Installing an animation wheel module

3. Fasten the male multi-connector (arrowed in photo) on the right-hand side of the fixture (looking towards the front of the fixture) into the female connector on the top of the animation wheel module. Note the position of the connector locking clip – the connector can be installed in one orientation only.

Installing a 4-gobo or single-gobo module

The gobo module has a larger connector than the animation wheel module.

The procedure for installing an optional gobo wheel module with 4 gobo slots or one single gobo is the same. To install a gobo wheel:

1. Check that power to the fixture is shut down. See photo on right (4-gobo module shown). The gobo wheel module can only fit into the effects compartment in one position. Holding the module as shown, lower it vertically down into position in the middle slot.
2. Fasten the module into place with its two captive Allen (hex) screws (circled). Use a torque driver to tighten the screws to a torque of 2 Nm.
3. Plug the male connector (arrowed) on the short wireset on the left-hand side of the fixture into the female connector on the module. Note the position of the connector locking clip – the connector can only be installed in one orientation.

Installing a gobo wheel module

Installing a manual framing module

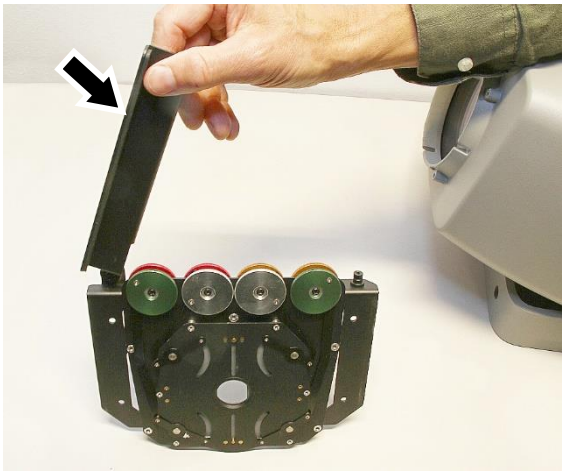
To install a manual framing module:

1. Check that power to the fixture is shut down. Lower the module vertically down into position closest to the front of the fixture.
2. Fasten the module into place with its two captive Allen (hex) screws. Use a torque driver to tighten the screws to a torque of 2 Nm.

The manual framing module has no electrical connections.

See photo on right. You can adjust framing with the effects compartment cover open in dry conditions and with the fixture powered on and correctly aimed. Lift the flap (arrowed) and turn the thumbwheels as follows:

- The two green thumbwheels adjust the angle and insertion of the bottom blade in the projection.
- The two silver thumbwheels adjust the angle and insertion of the top blade in the projection.
- The two red thumbwheels adjust the angle and insertion of the left-hand blade in the projection.
- The two gold thumbwheels adjust the angle and insertion of the right-hand blade in the projection.



Specifications and compliance

For product specifications, please see the Exterior Projection Pro Compact area of www.martin.com.

FCC compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC supplier's declaration of conformity declaration

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

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

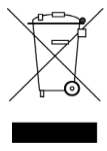
This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. *Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le Matériel Brouilleur du Canada.*

CAN ICES (B) / NMB (B)

EU Declaration of Conformity

An EU Declaration of Conformity covering this product is available for download from the Exterior Projection Pro Compact area of the Martin website at www.martin.com.

Disposing of the 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