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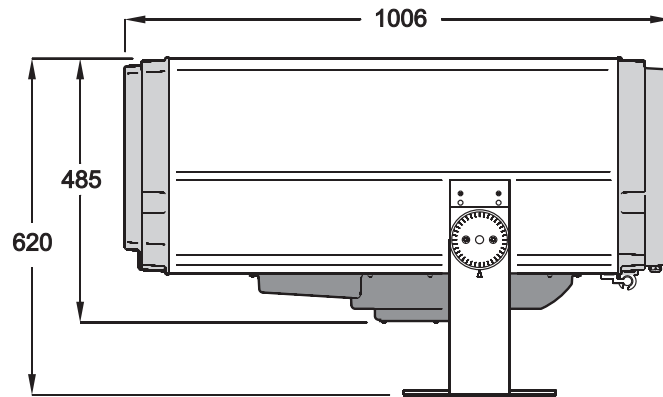
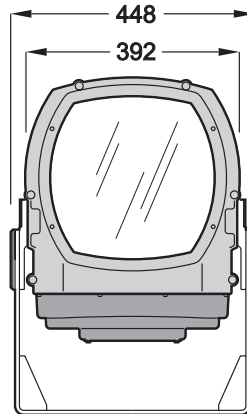
Exterior 1200  
Image Projector  
**user manual**

**Martín**

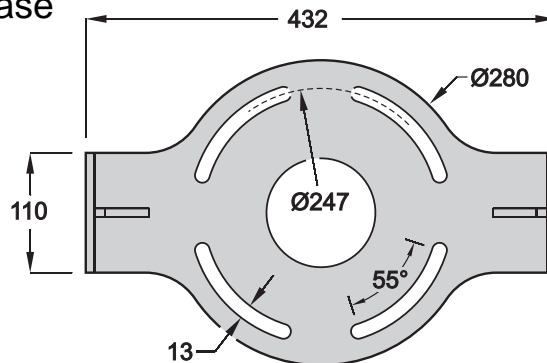
# Dimensions

Measurements are in millimeters

## Luminaire



## Mounting yoke base



**Martin**

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P/N 35000197 Rev. D

# Section 1. Safety

# 1.1 Safety information


 **WARNING!**  
**Read the safety precautions in this section before installing, powering, operating or servicing this product.**


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



---

						
<b>DANGER!</b> Safety hazard. Risk of severe injury or death.	<b>DANGER!</b> Refer to user manual for important safety information.	<b>DANGER!</b> Hazardous voltage. Risk of lethal or severe electric shock.	<b>DANGER!</b> Fire hazard.	<b>Warning!</b> Burn hazard. Hot surface. Do not touch.	<b>Warning!</b> Risk of eye injury. Safety glasses must be worn.	<b>Warning!</b> Risk of hand injury. Safety gloves must be worn.

---

 **DANGER!** This product is for professional use only. It is not for household use. If safety precautions are not followed, it presents risks of injury due to electric shock, heat and ultraviolet radiation burns, lamp explosion, falls, high-intensity light, and fire.

 Read this manual before installing, powering, operating or servicing the luminaire. Follow the safety precautions listed below, and observe all warnings in this manual and on the luminaire. Use the luminaire only as described in this manual and in accordance with local laws and regulations. Refer any operation not described in this manual to a qualified technician.

- Electrical safety**
-  Do not use the luminaire if any cable, component or cover is damaged, cracked or deformed.
  -  Switch the lamp off, allow the luminaire to cool with fans running for 20 minutes, then isolate it from AC power and lock out power before removing or installing the lamp, fuses, or any part.
  - Ensure that the luminaire is correctly configured for the local AC power voltage as described in this manual before applying power for the first time.
  - Always ground (earth) the luminaire electrically.
  - Use only a source of AC power that complies with local building and electrical codes and has both overload and ground fault (earth fault) protection.

- Ensure that the AC power distribution system includes a means of isolating all installed devices from power and locking out power during service.
- Ensure that all components in the AC power distribution circuits (cables, junction boxes, etc.) are protected from water and airborne particles to IP67 or higher, are suitably dimensioned for the current and power requirements of the devices installed, and are of suitable type for the location (including water, pollution, temperature and UV resistance).
- Do not expose any part of the luminaire to a high-pressure water jet.
- Do not expose the heat exchanger to water projections.
- Do not immerse the luminaire in water or any other fluid, or install it in a location where flooding may occur.
- Refer all service not described in this manual to a Martin service technician.

## Lamp safety



- Do not operate the luminaire with missing or damaged covers, shields, lenses or ultraviolet screens: an unshielded discharge lamp emits UV radiation that can cause burns and eye damage.



- Do not stare directly into the light output. Never look at an exposed lamp while it is lit.
- A hot discharge lamp is under pressure and can explode without warning. Allow the luminaire to cool for at least 20 minutes and protect yourself with safety glasses and safety gloves before replacing the lamp or servicing the luminaire internals.



- If the quartz envelope of a discharge lamp is broken, the lamp releases a small quantity of mercury and other toxic gases. If a discharge lamp explodes in a confined area, evacuate the area and ventilate it thoroughly. Wear non-porous safety gloves when handling a broken discharge lamp. Treat broken or used discharge lamps and used safety gloves as hazardous waste and send to a specialist for disposal.
- Replace the lamp if it becomes visually deformed, damaged or in any way defective
- Replace the lamp at the latest when it reaches the limit of its average life as specified in this manual or by the lamp manufacturer.
- Install only an approved lamp.

## Protection from burns and fire



- Do not operate the luminaire if the ambient temperature ( $T_a$ ) exceeds 45° C (113° F).
- The exterior of the luminaire becomes hot, up to 90° C (194° F) during normal operation. Ensure that accidental physical contact with an installed luminaire is impossible.



- Keep flammable materials well away from the luminaire.
- Keep all combustible materials (for example fabric, wood, paper) at least 1 m (40 in.) away from the luminaire.
- Do not illuminate surfaces within 1 m (40 in.) of the luminaire.
- Allow the luminaire to cool for 20 minutes before servicing.
- Do not attempt to bypass thermostatic switches or fuses. Replace defective fuses with ones of the specified type and rating only.
- Do not modify the luminaire in any way not described in this manual.
- Install only genuine Martin parts and approved lamps.
- Provide a minimum clearance of 135 mm (5.5 in.) and ensure unobstructed airflow around the air vents in the heat exchanger cowling.
- Provide a minimum clearance of 150 mm (6 in.) between the top of the luminaire and any part of a building above the luminaire.
- Provide a minimum clearance of 400 mm (16 in.) between the center of the luminaire and any part of a building to the side of the luminaire.

- Provide a minimum center-to-center distance of 800 mm (31.5 in.) between Exterior 1200 Image Projector luminaires.
- Install the luminaire outdoors or in a well ventilated area.
- Do not place filters or other materials over the lens. Use only Martin approved accessories to mask or modify the light beam.



## **Preventing injury due to falls and while lifting**

- Ensure that all external covers, components and installation fittings are securely fastened.
- The luminaire weighs 90 kg (198.4 lbs.). At least two people are required to lift, move and adjust it. Do not attempt to lift the luminaire or adjust the beam angle alone.
- Block access below the work area and work from a stable platform whenever installing, servicing or moving the luminaire.
- Ensure that all supporting structures, surfaces, fasteners and lifting equipment can bear the weight of all the devices they are intended to support plus an adequate safety margin, and that they conform to local building and safety regulations.
- Use a sufficient number of fasteners with sufficient corrosion resistance, dimensions and strength to mount the luminaire safely. Any nuts used must be self-locking. The washers supplied with the luminaire must be installed directly under the fasteners' heads when anchoring the yoke base to the installation surface.
- The four eyebolts supplied are for lifting purposes during installation or service only. Do not expose them to undue stress while lifting, by allowing the luminaire to drop and then catching it again, for example. Do not use the eyebolts for safety attachment.

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## Section 2. Introduction

## 2.1 About this manual

This user manual is organized into sections. Depending on whether you are installing, programming or operating the product, and depending on the method and hardware used to configure and operate the product, you probably do not need to read every section.

The outline below should help you see which sections are relevant to you:

<b>Section</b>	<b>Contents</b>	<b>Who needs to read it</b>
Section 1. Safety, page 3	Vital safety information	All
Section 2. Introduction, page 9	Brief overview of the product	All
Section 3. Installation, page 13	Instructions for: Physical installation Installing AC power Installing a data/DMX link	Installer (physical installer, installation electrician, data/DMX system installer)
Section 4. General, page 27	Main features and functions as well as programming and operating principles	All involved in programming and operating
Section 5. Settings and configuration, page 33	Instructions for carrying out basic configuration	All involved in programming and operating
Section 6: Stand-alone operation, page 39	Instructions for setting up and running stand-alone operation	Programmer and operator, if stand-alone operation used
Section 7. DMX control, page 51	Instructions for setting up and using DMX control	Programmer and operator, if DMX control used
Section 8. Service and accessories, page 57	Service, maintenance and adjustment procedures. Overview of accessories.	Owner, service technician
Section 9. Reference, page 79	Reference diagrams, charts, etc.	All
Exterior 1200 Image Projector specifications, page 86	Product specifications	All

**Table 1: Using this manual**

## 2.2 Introduction to the Exterior 1200 Image Projector

Thank you for selecting the Exterior 1200 Image Projector from Martin Architectural. This automated luminaire combines dynamic architectural lighting effects with extremely bright output in an aluminum housing designed for permanent outdoor installation. The luminaire uses a Philips MSD 1200 metal halide discharge lamp with an average lamp life of 3000 hours. An air/air heat exchanger system ensures effective cooling.

All models feature independently variable 0 - 100% cyan, magenta and yellow (CMY) color mixing as well as a color wheel with four positions for filters. A gobo animation wheel and a rotating gobo wheel with interchangeable gobos are also provided. These effects allow a vast range of animated images and patterns to be projected.

All models feature full-range continuous mechanical dimming.

The size of the projected image on all models can be controlled remotely using a motorized zoom feature. Focus can also be controlled remotely, allowing sharp image projections or soft focus animation effects, for example.

The Exterior 1200 Image Projector is available in the following optical configurations (ranges indicate minimum and maximum zoom limits):

<b>Lens option</b>	<b>Cut-off angle</b>
Narrow	12° - 18°
Medium	18° - 36°
Wide	31° - 51°

All dynamic effects can be controlled using industry-standard DMX intelligent lighting control technology or run independent or synchronized stand-alone light shows that do not require external control. Stand-alone light show start and stop times can either be programmed using the luminaire's onboard clock or triggered by ambient light level within programmed times.

A permanent CTC filter is also available as an accessory. The permanent filter allows precise color matching with other luminaires with different lamps.

This advanced product requires regular service and maintenance in order to ensure optimum operation and protect the investment it represents. Installation, on-site service and maintenance can be provided worldwide by the Martin Global Service organization and its authorized agents. Choosing a Martin service contract gives 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.



# Section 3. Installation

## 3.1 Physical installation



**DANGER!** Read "*Safety information*" on page 4 before installing the Exterior 1200 Image Projector.

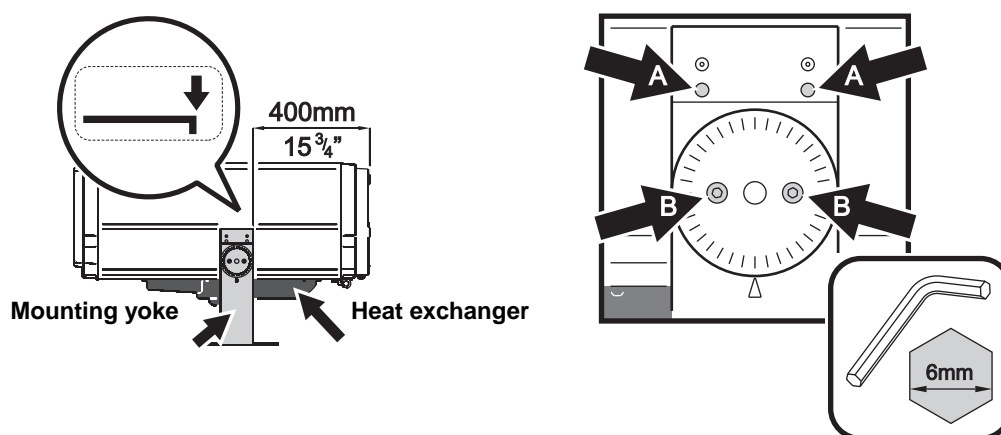
**Warning!** The safety and suitability of lifting equipment, installation location, anchoring method, mounting hardware and electrical installation is the responsibility of the installer. All local safety regulations and legal requirements must be observed when installing and connecting the Exterior 1200 Image Projector. Installation must be carried out by qualified professionals only. Contact your Martin Architectural supplier for assistance if you have any questions about how to install this product safely.

**Important!** Before the product can be used, the supplied lamp must be installed and a protective foam insert must be removed from the CMY module as described in the next section.

### 3.1.1 Unpacking and preparing for use

The Exterior 1200 Image Projector is supplied with the following items:

- A foam block wedged around the CMY flags and a metal bracket on the lens cars (see Figure 2 on page 15) to protect components during transport. The block and bracket must be removed before use!
- Philips MSD 1200 metal halide lamp that must be installed before use.
- Mounting yoke.
- Cable glands for power and control cable entry.
- Blanking plugs (installed) for sealing unused cable entry holes.
- User manual.



**Figure 1: Mounting yoke adjustment**

See Figure 1. The mounting yoke is folded back for shipment. When the luminaire has been unpacked:

1. Supporting the luminaire's weight, rest it on its top (the opposite surface to the heat exchanger) and use an Allen key to loosen the yoke clamp locking screws (**A**) and tilt lock screws (**B**) on each side of the yoke.

2. Fold the yoke around to the bottom of the fixture (the side with the heat exchanger if the luminaire will stand on the yoke, or the side without the heat exchanger if the luminaire will hang from the yoke)
3. Slide the yoke forwards until the edge of the yoke lines up with the mark (arrowed) on the label on the side of the luminaire. In this position, the edge of the yoke is 400 mm (15 ¾ in.) from the end of the luminaire and the luminaire's weight is balanced in the yoke.
4. Tighten the yoke clamp locking screws and tilt lock screws to 16 Nm (11.8 ft.-lbs.).

## Installing the lamp and removing protective packaging

See Figure 2. Before the Exterior 1200 Image Projector can be used, you must open it, remove the shipping bracket (A) from the lenses and protective foam insert (B) from around the CMY flags, and then install the lamp supplied with the product. It will almost certainly be easiest if you do this now, before the luminaire is installed in its final location.

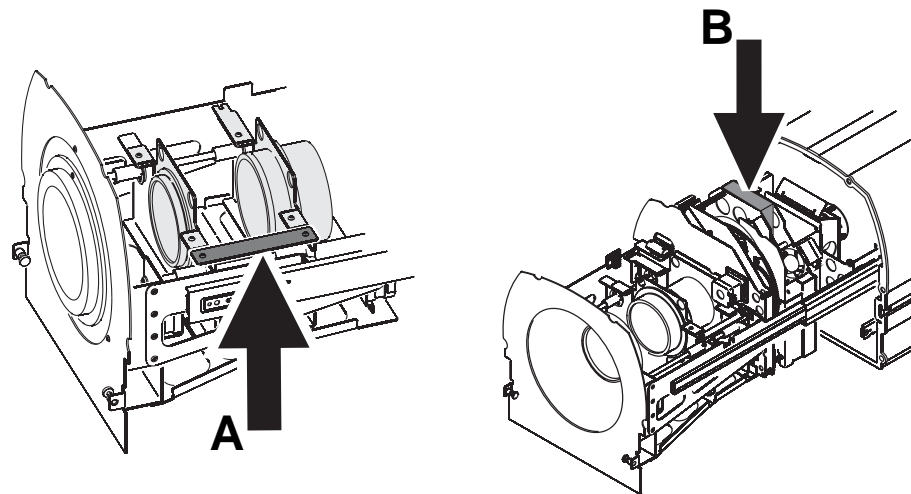


Figure 2: Protective packaging – remove before use!

**Important! Keep the shipping bracket and foam insert for future use and install them if you ever need to transport the luminaire.**

See "8.5.3: *Installing the lamp*" on page 64 for instructions on opening the luminaire and installing the lamp.

### 3.1.2 Location and mounting

#### Lifting



**DANGER! Use only the lifting eyebolts provided to lift the luminaire. Eyebolts must be securely installed with washers at all four corners of the luminaire as illustrated below.**

See Figure 3. The Exterior 1200 Image Projector is supplied with four eyebolts for lifting purposes during installation or service. Do not use any other method to lift the luminaire. The eyebolts screw into blocks in the yoke slider channels on each side of the fixture. Use the supplied washers to avoid damage to the luminaire housing. Make sure that eyebolts

are firmly screwed in and will not slide in the channels before attempting to lift the luminaire.

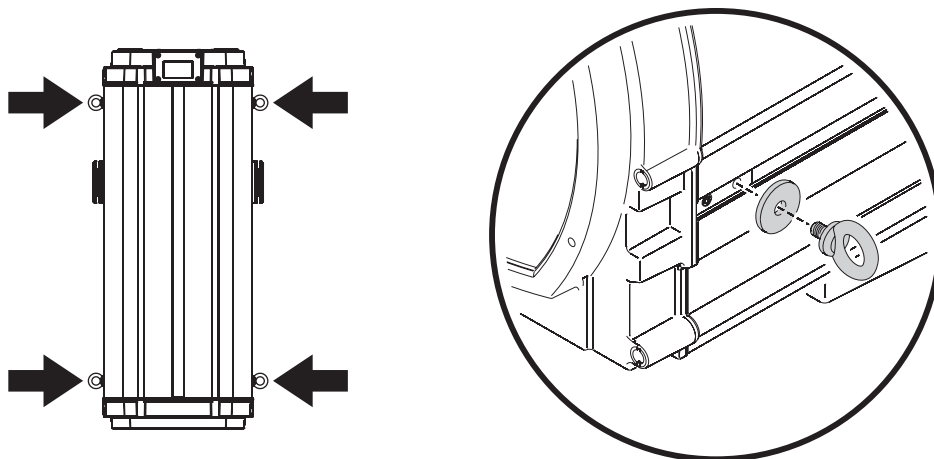


Figure 3: Lifting eyebolts

Do not expose the eyebolts to undue stress while lifting, by allowing the luminaire to drop and then catching it again, for example. Do not use the eyebolts for safety attachment.

### Location and orientation



**DANGER!** The Exterior 1200 Image Projector mounting yoke base must be securely anchored to a suitable flat surface. Ensure that the supporting structure can bear the weight of all installed devices plus an adequate safety margin.

Consult a qualified engineer to determine a suitable anchoring method and to verify that the structure can safely bear the luminaire's weight.

The Exterior 1200 Image Projector is rated UL Wet Location. When choosing a location for installation, consider that the main housing has an ingress protection (IP) rating of 65, but that the heat exchanger unit must be protected from rain or direct water projections that might fill the heat exchanger with water and cause overheating. The luminaire may therefore be installed in any orientation, but it must be positioned so that the heat exchanger is on the lower side of the luminaire (see Figure 4). If necessary, loosen the yoke tilt lock screws (**B** in Figure 1) and reposition the yoke.

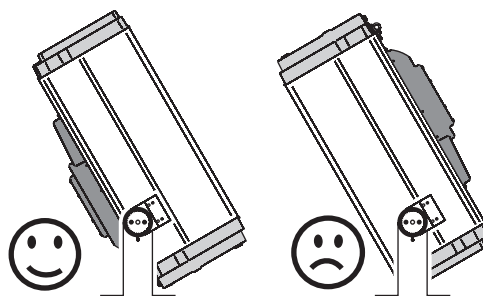


Figure 4: Heat exchanger position

Allow for service access to the front and rear of the luminaire.

The Exterior 1200 Image Projector can be installed outdoors but:

- Do not expose it to high-pressure water jets from any direction
- Do not immerse it in water (or any other fluid)
- Do not install it in a location where flooding may occur.

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.



The Exterior 1200 Image Projector requires free and unobstructed airflow around the heat exchanger to ensure adequate cooling:

- Do not bury the luminaire or locate it in an unventilated space
- Allow 135 mm (5.5 in.) free space around the heat exchanger
- Make sure that leaves, litter or other debris cannot be sucked into the heat exchanger, as blockages may cause overheating and result in damage that is not covered by the product warranty.

Install the luminaire at least 1 m (40 in.) away from the surface to be illuminated and any combustible materials (wood, paper, etc.) and well away from any flammable materials.

The aluminum housing reaches temperatures up to 90° C (194° F). Restrict public access or locate the luminaire so that it cannot accidentally be touched.

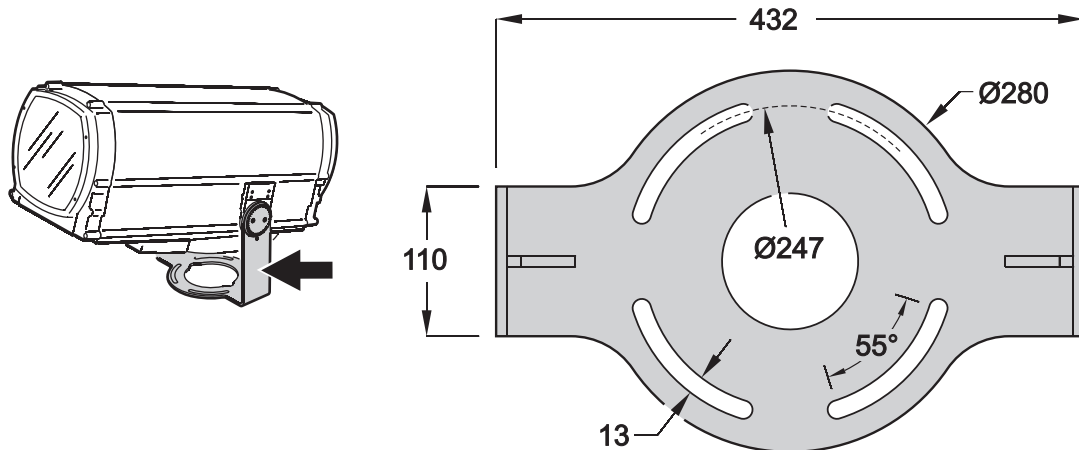
## Mounting fasteners



**DANGER! All fasteners used to mount the Exterior 1200 Image Projector must be corrosion-resistant and strong enough to mount the luminaire safely. The washers supplied with the luminaire must be installed directly under the fasteners' heads when anchoring the yoke base to the installation surface.**

The mounting yoke allows the luminaire to be manually panned (i.e. rotated horizontally) and tilted for beam aiming adjustment. The yoke base must be safely anchored to a horizontal surface. The number and type of fasteners used will depend on the installation, but use at least four high-strength corrosion-resistant fasteners (recommended minimum properties: A4-70 grade according to ISO 3506 or grade 8.8 according to ISO 898-1) evenly distributed around the yoke base. Any nuts used must be self-locking. The washers supplied with the luminaire must be installed between the head of each fastener and the yoke base.

To mount the luminaire, evenly space 12 mm (1/2 inch) thread diameter bolts at 90° intervals on a 123.5 mm (4.86 inch) radius from the center of the mounting location, so that one bolt passes through each curved slot in the yoke base (see Figure 5). Install the washers supplied with the luminaire under the heads of bolts. If additional bolts are required to mount the luminaire safely, pan adjustment range will be reduced.



**Figure 5: Mounting yoke attachment points**

### 3.1.3 Power and DMX data cable layout

Figure 6 gives an overview of a suitable cable layout. The dotted lines represent AC power circuits. The solid lines represent the data link.

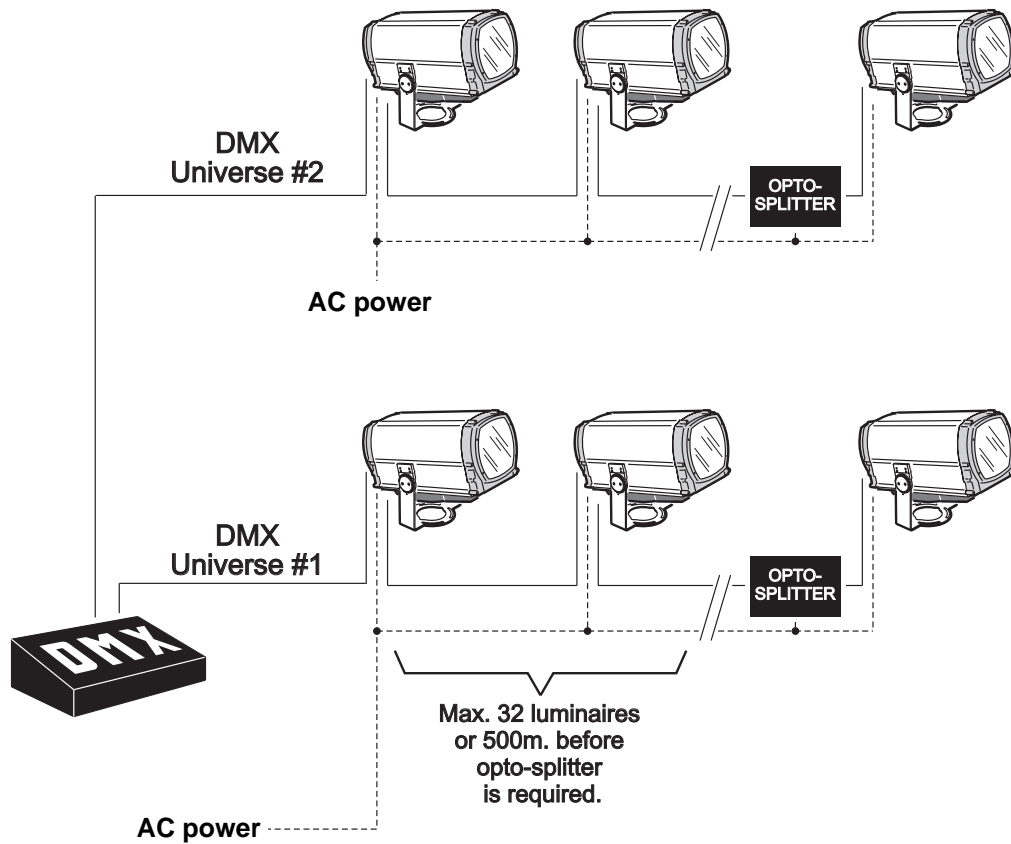


Figure 6: Schematic cable layout diagram

### 3.1.4 Connections compartment access

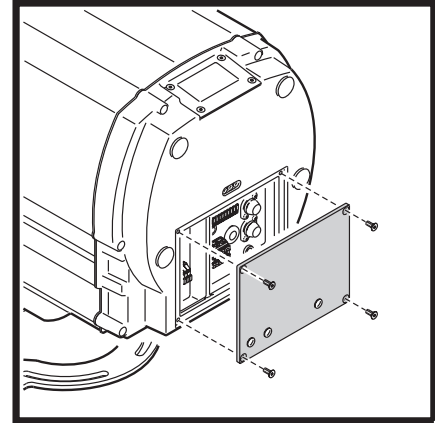
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**DANGER!** Fuseholders remain live even if the MAINS switch is set to off. Cut power to the luminaire before changing a fuse.

To gain access to the connections compartment:

1. If the luminaire has been in use, allow it to cool completely.
2. If you intend to open a main fuseholder, cut AC power to the luminaire and ensure that power cannot be reapplied accidentally by locking it out.
3. See Figure 7. Loosen the screws in the rear cover plate and carefully remove the plate and seal.
4. If you intend to alter any connections, shut down AC power by setting the MAINS switch to **0** (off). Before you touch any connectors, use a tester to check that they are not live.



**Figure 7: Connections compartment cover plate**

After access to the connections compartment:

1. Check the condition of the rear cover seal. Replace with a new item if the seal is torn, cracked or brittle.
2. Hold the rear cover plate and seal firmly against the luminaire housing. Adjust the sides of the seal so that the seal sticks out a little, just enough so that you can feel the seal when you run a finger across the joint.
3. Cross-tighten the cover plate screws gradually and evenly to 2 Nm (1.5 ft.-lbs.). At this torque, the seal will be compressed by about one-third and will offer protection to IP65.

## 3.2 Installing AC power



**DANGER!** Read "*Safety information*" on page 4 before attempting to install this product.

**Electrical installation must be carried out by qualified professionals only.**

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

**Important! Do not connect the Exterior 1200 Image Projector to an electrical dimmer system. Doing so can damage the electronics.**

See Figure 6 on page 18 for a schematic diagram of cable layout.

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 luminaire is protected from the entry of water via the power cable by using IP65-rated connectors or junction boxes, or by protecting connectors with weatherproof housings.

The Exterior 1200 Image Projector must be supplied with power via an electrical cable that is adequately dimensioned for the current requirements and suitable for the installation environment, particularly with regard to water, pollution, thermal and UV resistance. Use Hypalon or neoprene rubber-jacket cable rated to 90° C (194° F) minimum. The conductor size must be 1.5 mm<sup>2</sup> (16 AWG) minimum. Check that all power cables are in perfect condition.

See "*Exterior 1200 Image Projector specifications*" on page 86 for details of fuse rating and typical current. If you require help in planning or dimensioning the power distribution system, please contact your Martin Architectural supplier for assistance.

Electrical power installation consists of two steps:

1. Configuring for local AC power
2. Connecting to AC power.

### 3.2.1 *Configuring for local AC power*

---

Before AC power is applied to the Exterior 1200 Image Projector for the first time (or if the AC power voltage or frequency changes), the luminaire must be configured to accept the local power voltage and frequency as described in this section.

The Exterior 1200 Image Projector can accept the following AC voltages at 50 or 60 Hz:

- 200 V
- 208 V
- 220 V
- 230 V
- 240 V
- 250 V
- 277 V

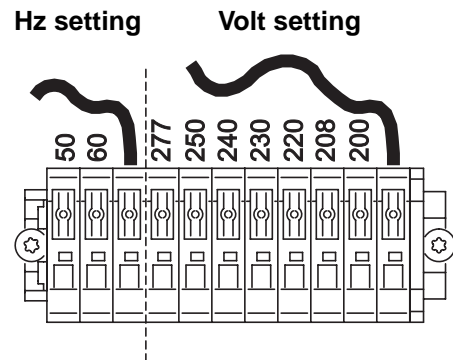
Operating at the incorrect power setting can result in overheating and damage to the luminaire and lamp. If your local power voltage differs from the voltage settings listed here and in the luminaire, contact your Martin Architectural supplier for assistance.

The luminaire must be configured to accept the local AC power frequency and voltage by connecting the free ends of two jumper leads. The fixed end of each lead sits in an orange terminal. The free end of each lead must be connected to the appropriate terminal on the terminal block. Terminals are labelled.

The terminals are spring-loaded, and a lead can be inserted and released by pressing on its terminal tab with a flat-head screwdriver.

To configure the luminaire for local AC power:

1. Make sure that the luminaire is isolated from AC power and cannot be accidentally connected throughout the procedure.
2. Open the connections compartment as described in "3.1.4: Connections compartment access" on page 19.
3. See Figure 8. Connect the free end of the frequency setting jumper lead (in the section marked **Hz setting**) to the terminal labeled with the local AC power frequency.
4. Connect the free end of the voltage setting jumper lead (in the section marked **Volt setting**) to the terminal labeled with the local AC power voltage.



**Figure 8: Frequency and voltage settings**

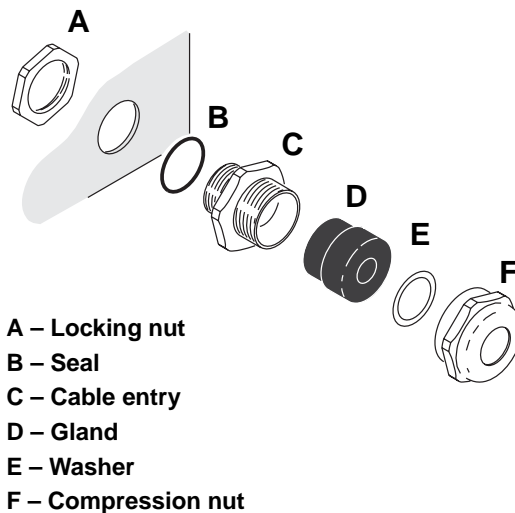
### 3.2.2 Connecting to AC power

Power cable must enter the luminaire through an M20 x 1.5 cable gland that accepts 8 - 13 mm (0.32 - 0.5 in.) external diameter cables. A gland is supplied with the luminaire. The cable gland must be replaced if the power cable diameter is not within this range (see "8.4.2: Cable glands" on page 61).

One of two cable entry points can be used: either on the cover plate at the rear of the luminaire, or through the bottom of the connections/power compartment. Using the bottom of the connections/power compartment is recommended, as cables installed here will not be disturbed or flexed when the rear cover plate is removed for service. All cable entry/exit holes that are not used must be sealed with blanking plugs.

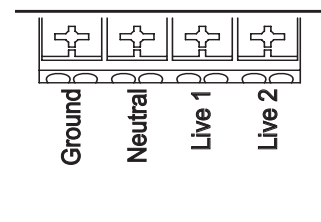
1. Make sure that the power cable is isolated from power and that power cannot be applied accidentally. If the luminaire has been in use, allow it to cool for at least 20 minutes.
2. If necessary, remove the rear cover plate as described in "3.1.4: Connections compartment access" on page 19
3. Check that the jumper leads are correctly connected to match the local AC power voltage and frequency (see "3.2.1: Configuring for local AC power" on page 20).

4. See Figure 9. Ensure that there is a rubber seal **B** on the locking nut end of the cable entry **C**, and push this end through the hole provided in the housing so that the seal faces the outer surface of the housing.
5. Screw the locking nut **A** onto the cable entry from inside the housing. Prevent the cable entry from turning, and tighten the locking nut until the seal makes a water-resistant seal against the outer surface of the housing. Do not over-tighten, as this may damage the seal or housing.



**Figure 9: Cable gland assembly**


6. Thread the cable through the compression nut **F**, washer **E**, gland **D**, and cable entry **C** into the housing.
7. Allow enough cable slack inside the housing to make connections. Prevent the cable entry from turning and tighten the compression nut sufficiently to make a water-resistant seal. Do not over-tighten, as this may damage the gland. Check that the cable is firmly gripped in the rubber gland.
8. See Figure 10. The power terminals block has four spring-loaded terminals labelled **Ground**, **Neutral**, **Live 1** and **Live 2**. Connect the power cable as follows:



**Figure 10: Power terminals**

- Connect the power cable's ground (earth) wire to the terminal marked **Ground**.
- If using a single-phase system, connect the power cable's neutral wire to the terminal marked **Neutral** and connect the power cable's live wire to the terminal marked **Live 1**. **Important!** Do not connect the live wire to the terminal marked **Live 2** as there is internal continuity between this terminal and the **Neutral** terminal via one of the main fuses.
- If using two phases of a three-phase system to obtain 200 - 240 V between two phases, connect one phase to **Live 1** and the other phase to **Live 2**. Do not connect anything to the neutral terminal.
- If using a single-phase three-wire earthed mid-point system (used in certain regions of the USA) to obtain 200 - 240 V between two live conductors, connect one live wire to **Live 1** and the other live wire to **Live 2**. Do not connect anything to the neutral terminal.

Some common wire color codes are listed in Table 2:

Wire (EU)	Wire (US)	Pin	Marking	Screw (US)
brown	black	live	"L"	yellow or brass
blue	white	neutral	"N"	silver
yellow/green	green	ground		green

**Table 2: Common wire color codes**

9. If you are also connecting data cables, connect these now, referring to the next section in this manual. Otherwise replace the rear cover plate as described in "3.1.4: *Connections compartment access*" on page 19.

## 3.3 Installing a data link

Exterior 1200 Image Projector luminaires must be connected via a serial data link for DMX controller operation and for synchronized stand-alone operation of multiple luminaires. The data link is used to transmit DMX commands or synchronization data.

See Figure 6 on page 18 for a schematic diagram of cable layout.

### 3.3.1 *Planning the data link*

---

The following considerations must be taken into account when planning the data link:

- RS-485 data cable designed for exterior use is required. RS-485 cable has low capacitance and a characteristic impedance of 85 to 150 Ohms. It is electrically shielded and has at least 1 twisted pair of conductors. The minimum recommended wire size is 0.25 mm<sup>2</sup> (24 AWG) for runs up to 300 meters (1000 ft.) and 0.32 mm<sup>2</sup> (22 AWG) for runs up to 500 meters (1640 ft.).
- The maximum permitted control data cable length before a control signal amplifier is required is 500 meters (1640 ft.).
- Luminaires must be 'daisy-chained', i.e. the data cable must be connected in one single chain of luminaires.
- Each daisy-chained link may connect a maximum of 32 fixtures.
- An optically isolated amplifier-splitter such as the Martin RS-485 Opto-Splitter (P/N 90758060) must be used to:
  - extend a link beyond 500 meters (1640 ft.)
  - extend the link to include a further maximum 32 luminaires, or
  - branch the link into further single chains, each containing 32 luminaires. The Martin Opto-Splitter allows a link to be branched into four new chains.
- Each chain on the link must be terminated by placing a resistance across the hot (+) and cold (-) conductors of the data link in the last device on the chain. This is achieved by setting jumpers as described on page 26.
- Long parallel runs of AC power and control data cables may cause interference on the data link and must be avoided. Even if not required by law, separate conduits are recommended for power and data cables.
- One DMX universe has 512 DMX control channels available. In an installation containing multiple luminaires that each use 17 DMX channels like the Exterior 1200 Image Projector, one DMX universe will be required for every 30 luminaires ( $512 \div 17 = 30$  with two channels unused).

### 3.3.2 *Building the data link*

---

Data cable must enter and exit the luminaire through M16 x 1.5 cable glands that accept 5.5 - 10 mm (0.22 - 0.39 in.) diameter cables. Two glands are supplied with the luminaire. The glands must be replaced if the data cable external diameter is not within this range (see "8.4.2: Cable glands" on page 61).

One of two cable entry points can be used: either on the cover plate at the rear of the luminaire, or through the bottom of the connections/power compartment. Using the bottom of the connections/power compartment is recommended, as cables installed here will not



be disturbed or flexed when the rear cover plate is removed for service. All cable entry/exit holes that are not used must be sealed with blanking plugs.

## Connection pinouts

### ***XLR connection***

XLR connectors are suitable if DMX cable is used for the data link.

XLR pin numbers are normally marked on connectors. Connectors must be wired using the standard XLR DMX pin-out:

- Pin 1: Cable shield
- Pin 2: DMX Data 1 - (cold)
- Pin 3: DMX Data 1 + (hot)

Pins 4 and 5 on 5-pin XLR connectors are available for Data 2 connections in DMX 512-A or similar systems. They must be wired as follows:

- Pin 4: DMX Data 2 - (cold)
- Pin 5: DMX Data 2 + (hot)

To avoid ground/earth loop interference, ensure that the DMX cable shield does not come into contact with the shell or body of XLR connectors.

### ***RJ-45 connection***

RJ-45 connectors are suitable if CAT 5 cable is used for the data link.

RJ-45 cable connector pins are numbered from the left looking at the face of the connector with the locking clip on top (see Figure 11). Connectors must be wired using the standard RJ-45 DMX pin-out:

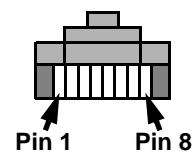
- Pin 1 (WHITE/orange): DMX hot (+)
- Pin 2 (ORANGE/white): DMX cold (-)
- Pins 7 (WHITE/brown) and 8 (BROWN/white):  
Common

Pins 3 and 6 are available for Data 2 connections in DMX 512-A or similar systems. They must be wired as follows:

- Pin 3 (WHITE/green): Available for Data 2 hot (+)
- Pin 6 (GREEN/white): Available for Data 2 cold (-)

Pins 4 and 5 are not used in currently available lighting control systems but can be wired as follows:

- Pin 4 (BLUE/white): Not used
- Pin 5 (WHITE/blue): Not used



**Figure 11: RJ-45 cable connector pins**

## Connecting the link

To build a data link:

1. If the luminaire has been in use, allow it to cool for at least 20 minutes.
2. Connect the data cable to a DMX output socket on the DMX controller and route it to the first luminaire on the link.
3. If the rear cover plate is not already open, remove it as described in "3.1.4: Connections compartment access" on page 19

4. Pass the data cable into the luminaire using one of the supplied cable glands to ensure waterproof cable entry. See page 22 for details of installing the cable gland.
5. Data cable can be connected either via screw terminals on removable connectors or via RJ-45 connectors.

See Figure 12. Either connect the data cable to the luminaire's **Data 1 DMX IN** screw terminals (**A**) as follows:

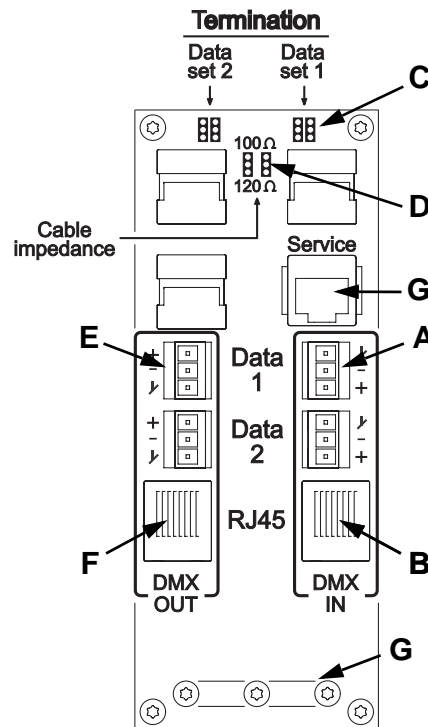
- Connect shield to the terminal marked  $\downarrow$
- Connect cold (-) to the terminal marked -
- Connect hot (+) to the terminal marked +

or install an RJ-45 connector on the data cable respecting the pinout listed under "*RJ-45 connection*" on page 25 and insert the connector into the **DMX IN RJ-45 socket (B)**.

6. Depending on whether the luminaire is the last one on the link or whether the data link needs to be continued to another luminaire, follow one of the following two procedures:
  - If the luminaire is the last one on a branch of the data link, use a pair of long-nosed pliers to move the DMX termination jumpers from the **Data set 1 pins (C)** marked **OFF** to the pins marked **ON**. This places a resistance across data hot and cold to terminate the data link. Ensure that the termination resistance matches the type of cable used by setting the **Cable impedance jumpers (D)** to either **100Ω** if using CAT5 cable for the data link, or **120Ω** if using standard DMX cable.
  - If you need to continue the data link, leave the termination jumpers at **OFF** and pass the data output cable into the luminaire using another cable gland as described above. Connect to the luminaire's **Data 1 DMX OUT** terminals (**E**) or RJ-45 **DMX OUT** socket (**F**), respecting the same pinouts as for the data input cable.

7. If using shielded CAT5 cable, connect the cable shield to PCB ground (earth) by routing the cable under the clamp (**G**), folding back the cable shield and tightening the clamp so that it makes good contact with the shield.
8. If data 2 conductors will be used for communication on the data link, make data 2 connections at the **Data 2** connectors as with the data 1 connections described above.
9. If the power cable has not already been connected, you can connect it now (see "*3.2.2: Connecting to AC power*" on page 21). Otherwise reinstall the rear cover plate as described in "*3.1.4: Connections compartment access*" on page 19.
10. Route the data output cable to the data input of the next luminaire, and continue connecting up to a total of 32 luminaires, output to input, as described above.

Add an optically isolated amplifier/splitter into the link if you intend to add more than 32 luminaires or branch the link.



**Figure 12: DMX connections**

# Section 4. General

## 4.1 General



**DANGER!** Read "*Safety information*" on page 4 before applying power to the Exterior 1200 Image Projector.

This section contains general information about the features and functions as well as basic programming and operating principles of the Exterior 1200 Image Projector. Read this section to familiarize yourself with the luminaire before attempting to program or operate it.

**Important!** Leave the luminaire powered on permanently except during service.

### 4.1.1 *Powering on*

---

When the luminaire is connected to power for the first time, it will start running a factory-set light show to test the fixture. It will continue to run this test show until a new show is programmed into it, or until it receives DMX commands.

When the luminaire is powered on in normal use, the luminaire software version appears in its display, runs an internal test and resets all effects to start positions. It must complete this reset before it can respond to DMX commands or run a stand-alone show.

### 4.1.2 *Maintaining power and temperature regulation*

---

Except during service, maintain power to the luminaire permanently even when the lamp is not lit.

In hot environments, this will allow the cooling system to regulate the luminaire's internal temperature at all times. Heat damage resulting from failure to maintain power is not covered by the product warranty.

In cold environments, the internal heat generated will keep electronics warm and ensure satisfactory performance at ambient temperatures as low as -20° C (-4° F). Note that if the temperature inside the luminaire falls below -10° C (14° F), effects are disabled and the dimmer is closed until the internal temperature rises above this level again.

### 4.1.3 *Powering off*

---

**Important!** Leave power applied for 8 minutes after switching off the lamp.

If the lamp is lit and you wish to cut power (for service, for example), you must first switch off the lamp via DMX or the onboard control panel and wait at least 8 minutes before you cut power. This will give cooling fans enough time to reduce the luminaire's temperature and avoid heat damage. Damage caused by failure to follow this procedure is not covered by the product warranty.

## **4.1.4 Lamp operation**

---

After being switched off, the lamp must cool for at least 8 minutes before it can be switched back on. "Lamp On" commands sent within 8 minutes of a "Lamp Off" command are stored and then attempted again after the time has elapsed.

The lamp can be set to start automatically as soon as power is applied to the luminaire or started via DMX.

Discharge lamps draw an extra inrush current for a fraction of a second during startup. If a large number of luminaires start up at the same time, this current can trip circuit breakers. Therefore:

- If the lamp is set to start automatically when power is applied, it starts after a random delay of 0 - 90 seconds.
- When controlling a large number of luminaires via DMX, switch on lamps one by one at intervals of about half a second.

To obtain optimum lamp life:

- Always allow the lamp to warm up fully for 5 minutes before turning it off.
- Switch off the lamp whenever illumination is not required for extended periods of an hour or more. Note that luminaire power should remain on at all times except during service.

## **4.1.5 'Exercise Program' at lamp off**

---

To ensure free and correct effect movement even if some effects are not used for long periods, the Exterior 1200 Image Projector runs an 'exercise program' and checks effect movement every time the lamp is switched off.

In this program, all effects are moved through their whole range and the luminaire checks the effect positioning and sensor systems.

If an error occurs during checking, the luminaire resets. If the 'exercise program' is complete successfully, the luminaire waits with the cooling system active until either it receives a command or power is shut down.

## 4.1.6 Onboard control panel

The Exterior 1200 Image Projector features an onboard control panel and text-based LCD display. The onboard display and control panel allows the user to:

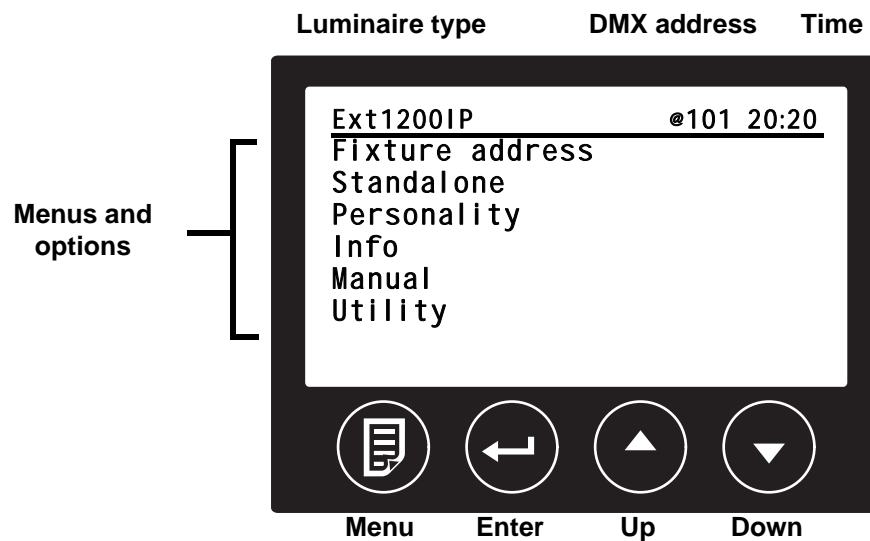


Figure 13: Control panel and LCD display

- obtain feedback about the luminaire – this is especially useful for service and maintenance purposes
- configure the luminaire's basic personality settings
- set up stand-alone operation
- set up the luminaire's DMX address so that commands can be sent to a specific luminaire from a DMX controller

### Display

When the luminaire is powered on, the control panel displays luminaire status in three lists. The display switches between lists approximately every 5 seconds:

- The **Fixture status** list displays information about luminaire temperature.
- The **Fan status** list displays fan speed information in RPM (revolutions per minute) for each of the cooling fans.
- The **Lamp status** list displays a list of resettable counters that indicate hours of lamp use, number of times the lamp has been struck (powered on) and number of times the luminaire has been powered on.

### Control panel

The display and control buttons are protected by a clear cover that is secured with Allen screws. Remove the cover for access to the control buttons and replace it when access is no longer required.

Use the control panel buttons as follows:

- Use the **Menu** button to open the menus or to navigate one level higher up in the menu structure.
- Use the **Enter** button to open a sub-menu, confirm a command or set a value.
- Use the **Up** and **Down** buttons to move up and down a list, toggle between options or increase and decrease a value.

By default, the display dims to minimum automatically 2 minutes after the lamp is turned on. The backlight returns to its preset intensity level as soon as a control button is pressed, or in the event of an error or warning message.

A backlight can be switched on, making the display easy to read in the dark, via the **Set backlight level** command in the **Personality** menu. The brightness of the display can be adjusted from 100 (maximum) to zero (minimum).

See "9.3: Onboard control panel menus" on page 82 for a complete overview of the options available in the onboard control panel.

### **Self-diagnostic feedback messages**

In the event of a problem, the Exterior 1200 Image Projector will show a message in the display indicating the type of problem that has occurred.

## **4.1.7 Cooling fans**

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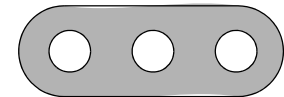
When power is applied, cooling fans run at full speed for a few seconds to clear any dust that has accumulated in the heat exchanger. After this, fan speed is regulated thermostatically to maintain an even temperature in the luminaire. When the lamp is switched off without cutting power to the luminaire, fans remain active.

## **4.1.8 LEDs and operating status**

---

Two LEDs on the rear panel indicate the Exterior 1200 Image Projector's operational status. The LEDs are visible from a distance.

Normal operation is indicated when LED 1 lights green. LED 2 lights green when a valid DMX signal is being received. See Table 5 on page 81 for other status messages.



LED 1 LED 2 SENSOR





# Section 5. Settings and configuration

## 5.1 Luminaire settings

This section describes how to set up luminaires for either:

- single fixture stand-alone operation, in which individual luminaires run programmed light shows independently,
- synchronized stand-alone operation, in which one master luminaire sends signals to slave luminaires on a data link so that light shows are synchronized, or
- DMX operation, in which luminaires on a data link are controlled remotely using a DMX control device.

There are three ways to set up luminaires:

---

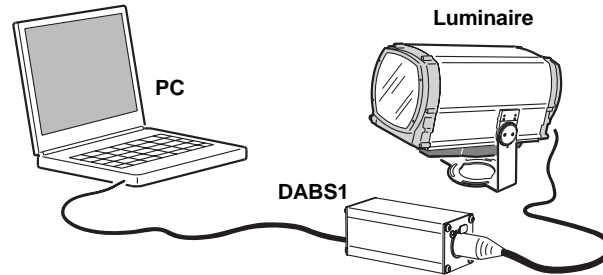
<b>MUM (Multi-Utility Manager)</b>	<p>The Martin MUM (Multi-Utility Manager) is a PC software application available from Martin Architectural in a set (P/N 90758090) that also includes a DABS1 interface adaptor and suitable cables. The set allows a PC to be connected to a luminaire via a data link or RJ-45 service socket.</p> <p>We recommend MUM because it provides an intuitive, easy-to-use, graphical user interface.</p> <p>Note that MUM can only be connected to, and set up, one luminaire at a time.</p> <p>Setup using MUM is described in "5.1.1: <i>Setting up a luminaire with a PC and MUM</i>" on page 35.</p>
<b>Martin MP-2 Uploader</b>	<p>The Martin MP-2 Uploader is no longer available from Martin Architectural, as its text-based interface has been superseded by MUM.</p> <p>However, the MP-2 is still supported, so if you wish to use it to upload software or apply settings to the Exterior 1200 Image Projector, see the separate <i>Guide to Using the MP-2 with the Exterior 1200 Series</i>, available from the Support page for the Exterior 1200 Image Projector on the Martin Architectural website at <a href="http://www.martin-architectural.com">http://www.martin-architectural.com</a></p>
<b>Onboard control panel</b>	<p>The onboard control panel is a convenient way of configuring a luminaire with no external equipment, but access to the luminaire is required.</p> <p>Setup using the control panel is described in "5.1.2: <i>Setting up a luminaire with the onboard control panel</i>" on page 37.</p>

---

## 5.1.1 *Setting up a luminaire with a PC and MUM*

---

Using MUM, you can connect to and set up one luminaire at a time. Refer to the MUM user manual for instructions on installing and starting the MUM application.



**Figure 14: Connecting to a PC with MUM**

### **Connecting a PC with MUM**

To connect a PC with MUM to an Exterior 1200 Image Projector:

1. Obtain the MUM application, a DABS1 adaptor and interface cables. These are available as a set from Martin Architectural, P/N 90758090.
2. Connect the DABS1 adaptor to your PC using the USB cable.
3. Connect the DABS1 adaptor to the Exterior 1200 Image Projector using either an XLR connector connected to the data link or the RJ-45 service socket in the connections compartment behind the rear cover plate (see **G** in Figure 12 on page 26). If connecting via the data link, note that you may only connect to one luminaire at a time.
4. Apply power to the Exterior 1200 Image Projector and start the MUM application. The application will automatically detect an Exterior 1200 Image Projector if it is powered on and correctly connected. It will also retrieve information and current settings from the luminaire and display them.

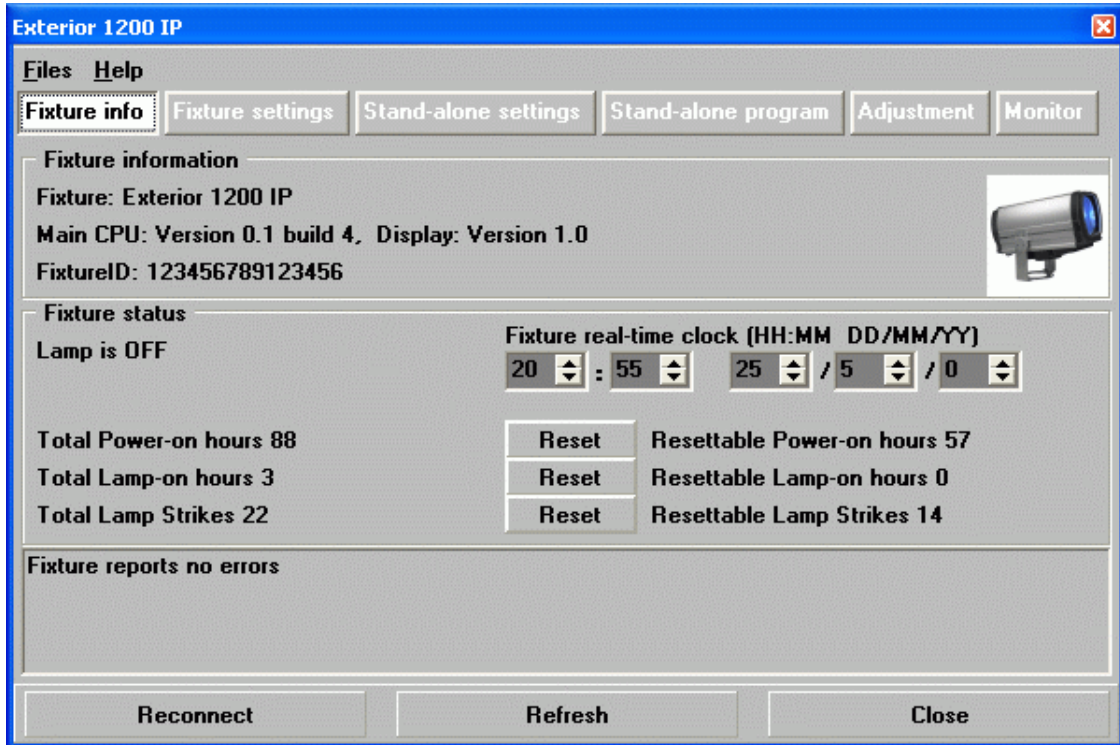
## Configuring a luminaire with MUM

### Clock

The Exterior 1200 Image Projector has a battery-operated 24-hour clock that is used to start and stop stand-alone operation.

To set the clock:

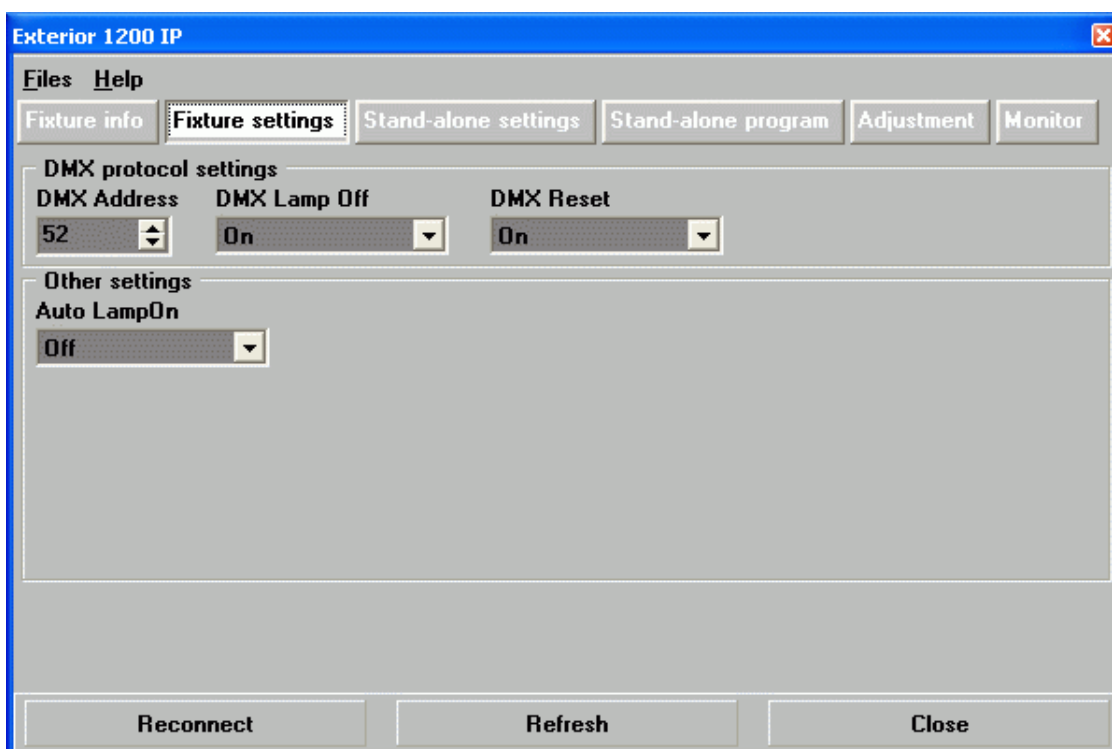
1. Click on the **Fixture Info** button in MUM.



2. Using the **Fixture real-time clock** spin buttons, set the luminaire to the current time (expressed in the 24-hour clock in hours and minutes) and date. The time will be updated in the luminaire in real time.

## Luminaire settings

To access the luminaire settings using MUM, click on the **Fixture settings** button.



### ***DMX address, DMX Lamp Off and DMX Reset settings***

If you intend to operate the Exterior 1200 Image Projector with a DMX controller, the DMX address must be set on all luminaires for which individual control is required. If you are not familiar with the principles of DMX addressing in an installation with multiple fixtures, see "7.1.1: Setting DMX addresses" on page 52.

It is also a good idea to set the **DMX Lamp Off** and **DMX Reset** options. These settings are described in "7.1: Preparing for DMX control" on page 52.

The other default luminaire settings listed below are suitable for most applications, and it may not be necessary to change them.

### ***Automatic lamp on***

When the **Automatic Lamp On** personality is **On** (the default setting), the luminaire turns on the lamp within 90 seconds of power on. When set to **Off**, a lamp-on command is required to turn on the lamp.

## ***5.1.2 Setting up a luminaire with the onboard control panel***

---

See "Onboard control panel menus" on page 82 for an overview of the menus in the onboard control panel.

### ***DMX address***

If you intend to use a DMX controller, you need to set the luminaire's DMX address. If you are not familiar with the principles of DMX addressing in an installation with multiple fixtures, see "7.1.1: Setting DMX addresses" on page 52.

To set the DMX address:

1. Press the **Menu** button to enter the main menu and use the **Up** and **Down** buttons if necessary to select **Fixture address**.
2. Press **Enter**.
3. Use **Up** and **Down** to enter a value between 1 and 496 (512 DMX channels are available in one DMX universe, and the Exterior 1200 Image Projector uses 17 channels). Pressing **Up** and **Down** simultaneously sets the DMX address to 1.
4. Press **Enter** to confirm your choice and return to main menu. If you press **Menu**, you will return to the main menu without saving the address you entered.

### ***Clock***

The Exterior 1200 Image Projector has a battery-operated 24-hour clock that is used to start and stop stand-alone operation.

To set the clock:

1. If the display is showing **Fixture status**, **Fan status** and **Lamp status**, press **Menu** to enter the main menu. Scroll down to **Personality**, and press **Enter**.
2. In the **Personality** menu, scroll down to **Set clock**.
3. Set the luminaire to the current time (expressed in the 24-hour clock in hours and minutes) by entering values for **Hour** and **Minute**. Use the **Up** and **Down** buttons to scroll values and **Enter** to confirm.

### ***Luminaire settings***

Luminaire settings are accessed in the **Personality** menu.

#### ***DMX Lamp Off and DMX Reset settings***

If DMX will be used to control the luminaire, it is a good idea to set the DMX Lamp Off and DMX Reset options via **Personality** → **DMX Lamp Off** and **Personality** → **DMX Reset**. These settings are described in "7.1: Preparing for DMX control" on page 52.

#### ***Automatic lamp on***

When **Personality** → **Auto Lamp On** is set to **On** (the default setting), the luminaire turns on the lamp within 90 seconds of power on. Use this setting if you intend to run stand-alone shows. When set to **Off**, a lamp-on command from the DMX controller is required to turn on the lamp.

# Section 6: Stand-alone operation

## 6.1 Stand-alone programming: general



**DANGER!** Read "*Safety information*" on page 4 before programming or operating the Exterior 1200 Image Projector.

### 6.1.1 Introduction

---

Stand-alone operation is a mode where the luminaire executes color changes at set intervals and speeds, at pre-defined periods during the day, and/or when the light level falls below a defined level. The term *stand-alone* is used to mean that the Exterior 1200 Image Projector is not connected to a control device, but is pre-programmed with a series of up to 20 scenes that play continuously in a loop.

An Exterior 1200 Image Projector can run a stand-alone show independently or with synchronized scene changes with other Exterior 1200 Image Projector luminaires and most other Martin Architectural luminaires (see "6.1.2: *Synchronized operation with multiple luminaires*" on page 40 for details).

#### About scenes

A stand-alone light show consists of scenes. Each scene is a particular lighting effect with predetermined color, intensity and duration. Up to 20 scenes can be programmed into the Exterior 1200 Image Projector's program memory.

Each scene has a dynamic part – the fade – during which effects move to the scene's programmed positions, and a static part – the wait – where effects do not change.

The duration of the fade and wait is programmed individually for each scene. The fade time may be 0 - 120 seconds; the wait time may be 1 second to 12 hours. The total time it takes a scene to execute is the sum of the fade and wait times.

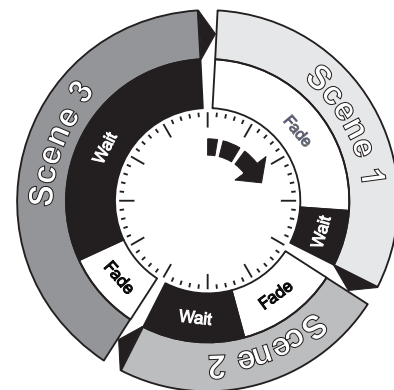


Figure 15: Scene timing

### 6.1.2 Synchronized operation with multiple luminaires

---

If you are running multiple luminaires on a data link, you can synchronize action so that all luminaires start their programmed shows and start fading to the next scene at the same time.



An Exterior 1200 Image Projector running a stand-alone show can perform synchronized scene changes with other Exterior 1200 Image Projector luminaires as well as Martin Architectural luminaires of the following types:

- Exterior 1200 Wash
- Exterior 200
- Exterior 600
- Exterior 600 Compact
- Inground 200 CMY
- Inground 200 6-Color
- FiberSource CMY150
- Imager series
- Alien 02 series
- MiniMAC Maestro

In synchronized operation, one luminaire is set as the master and the others are set as slaves. Each luminaire must be programmed with its own show. When the master fades to the next scene or starts its show from the beginning again, it tells each slave luminaire to fade to its next scene or start its show again. In other words, each slave luminaire will run its show repeatedly in a cycle, changing scene when prompted to by the master, until the master finishes its own show and signals that all luminaires should start from the first scene once again.

If you want to keep things as simple as possible when programming synchronized operation, ensure that:

1. Every luminaire has the same number of scenes.
2. Scene times are a few seconds longer on the master luminaire than on slave luminaires (this will ensure that slave luminaires always have time to finish scenes before the master tells them to start the next scene).

It is important to note that the only commands transmitted by the master are scene change and show start commands. No data about the *appearance* of the scene is transmitted between luminaires.

For a more detailed explanation of synchronized operation and how advanced effects can be created by programming luminaires with a different number of scenes, see the next section.

## Synchronized stand-alone operation: detailed description

**Note:** This section gives advanced information about stand-alone synchronized operation. You only need to read it if you require help with problem diagnosis or if you want to program advanced synchronized light shows.

The principles in stand-alone synchronized operation are as follows:

1. A scene contains a fade section, followed by a wait section
2. Each luminaire can be individually programmed with up to 20 scenes, and each scene can have its own individual fade and wait times.
3. Scenes are numbered from 0 to 19.
4. In synchronized operation, one master luminaire issues commands to the other slave luminaires to "go to scene xx", where xx is the scene number that the master will execute next.
5. If a slave has fewer scenes than the master, it will derive which scene to go to by dividing the number of the scene it has been commanded to go to (scene 5, for example) by the total number of scenes that the slave luminaire has (4, for example) in whole numbers (no decimal places). In this example 5 divided by 4 results in 1, with 1 remainder. This remainder will be the number of the scene that the slave luminaire starts - scene 1. Generally though, when a Slave luminaire reaches its own last scene

before the Master luminaire, a "go to scene xx" message will result in the first scene being played.

- If a slave has more scenes than the master calls, the last scenes in the slave will never be executed, as is the case with scene S4 in the following example.

F=fade, W=wait      Timeline =>

	M0	M1	M2	M3	
Programmed in Master	F   W	F   W	F   W	F   W	
	S0	S1	S2	S3	S4
Programmed in Slave	F   W	F   W	F   W	F   W	F   W
Result	M0	M1	M2	M3	
	F   W	F   W	F   W	F   W	
	S0	S1	S2	S3	
	F   W	F   W	F   W	F   W	

- In synchronized operation, the wait time is determined by the master. Every slave luminaire fades and waits at its own rate and then remains in the "wait" state until it receives a "start scene xx" command from the master.
- A slave luminaire will not listen for the next message from the master luminaire before it has finished its current scene. This may result in a slave skipping a scene if the slave has a longer scene time than the master. Note that in the following example, the scenes in the slave run out of their programmed sequence because scenes 0 and 2 on the slave are longer than the corresponding scenes on the master.

M=master, S=slave  
F=fade, W=wait      Time >

	M0	M1	M2		
Programmed Master	F   W	F   W	F   W		
	S0	S1	S2		
Slave	F   W	F   W	F   W		
Result	M0	M1	M2	M0	M1
Master	F   W	F   W	F   W	F   W	F   W
	S0	S2	S1		
Slave	F   W	F   W	F   W	.. ..	F   W

### 6.1.3 Stand-alone programming methods

You can program stand-alone shows on the Exterior 1200 Image Projector using the Martin MUM application on a personal computer (recommended because it provides an intuitive, easy-to-use, graphical user interface) or the luminaire's onboard control panel.

If you are programming a group of luminaires to perform the same scenes with synchronized master/slave triggering, we recommend that you:

- use MUM to program a show on one slave luminaire
- download and save this luminaire's program and settings to your PC using MUM's Files menu, and then
- upload the program and settings to each subsequent luminaire that you connect to.

## 6.2 Stand-alone programming with a PC and MUM



**DANGER!** Read "*Safety information*" on page 4 before programming or operating the Exterior 1200 Image Projector.

The programming of stand-alone shows and setting up of master/slave operation is best performed from a personal computer using the Martin MUM (Multi-Utility Manager) application. The computer is connected to a luminaire via a DABS1 interface, used to program the stand-alone settings for that luminaire, and then removed. Once a luminaire is subsequently switched on, it can automatically run the scenes in its program in a loop, according to the triggering criteria you have specified (time of day, and/or light level).

If you are not familiar with the use of MUM, it is recommend that you familiarize yourself with it by reading the MUM Help files and MUM user manual.

### 6.2.1 *Connecting*

---

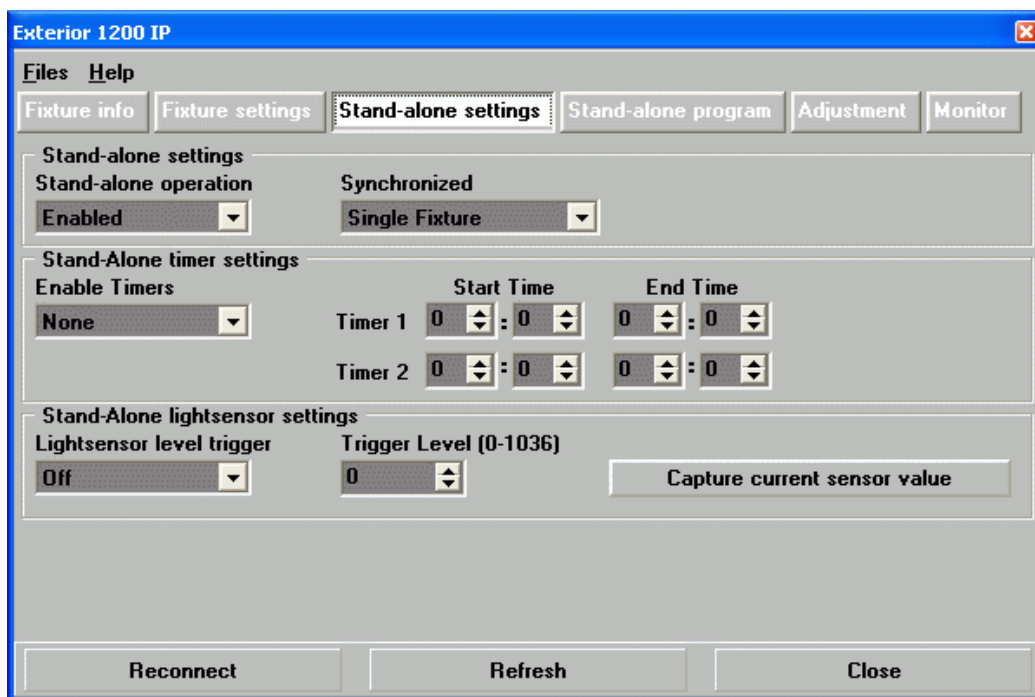
To establish a connection:

1. Connect a DABS1 adaptor to a PC and to the Exterior 1200 Image Projector.
2. Power on the Exterior 1200 Image Projector and start the MUM application. The application will automatically detect an Exterior 1200 Image Projector if it is powered on and correctly connected. It will also retrieve the luminaire's current settings and display them.

## 6.2.2 Stand-alone settings

First, the luminaire needs to be configured to know if and when to activate a stand-alone program:

Click **Stand-alone settings** to display the window below.



The following options are available:

<b>Stand-alone operation</b>	Activates or deactivates stand-alone operation. If enabled, stand-alone operation will start automatically when the luminaire is powered on, or the luminaire is being controlled by DMX and the DMX control signal disappears.
<b>Synchronized</b>	Sets the luminaire to one of the following modes: <b>Single Fixture:</b> operates in stand-alone mode independently of other luminaires <b>Master:</b> sends trigger signals to other luminaires, or <b>Synchronized:</b> slave – receives trigger signals from other luminaires. <i>No more than one luminaire may be the master. Any luminaire on the link, regardless of its position, may be the master. All other luminaires must be set as slaves.</i>
<b>Stand-alone timer settings</b>	See "Setting a timer trigger" on page 45.
<b>Stand-alone light sensor settings</b>	See "Setting a light-level trigger" on page 45.

### Automatically triggering stand-alone operation

Stand-alone operation can be set to a timer trigger that activates operation for one or two periods in a 24 hour period, or set to a light-level trigger that uses a light sensor to activate operation when ambient light is below a certain level.

If both the timer *and* the light-level trigger are used, operation starts whenever it is darker than the light-level setting, and within the times set.

### Setting a timer trigger

To set a timer trigger:

1. Make sure the correct time has been set on the luminaire's built-in clock (see "Clock" on page 36).
2. Select **None**, **Timer 1**, **Timer 2** or **Both Timers** in the **Enable Timers** box.
3. Use the **Start Time** and **End Time** spin buttons to set a period of stand-alone operation on the selected timer(s).

### Setting a light-level trigger

To set a light-level trigger:

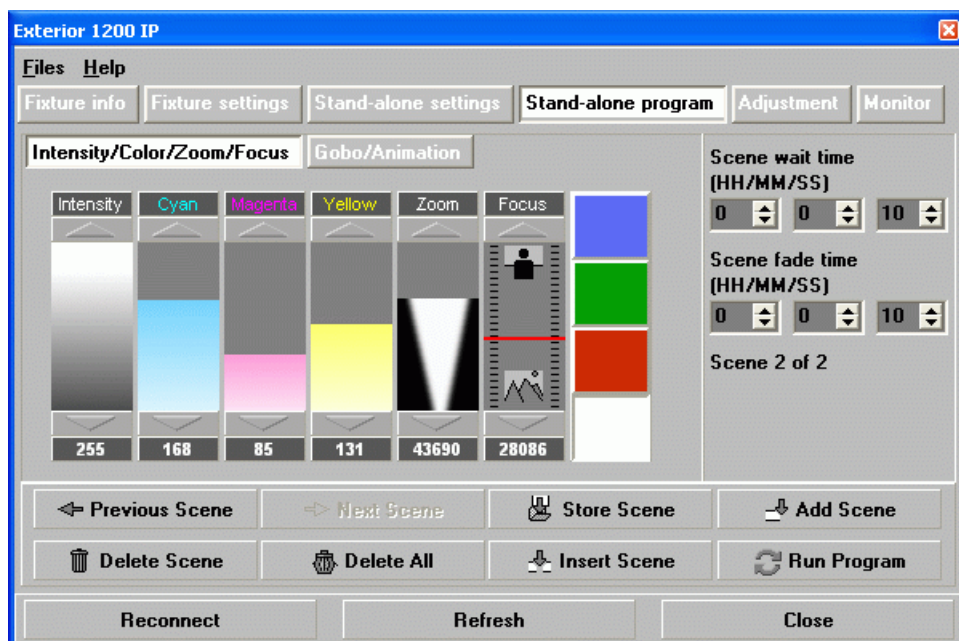
1. Set **Light level sensor trigger** to **On**.
2. Set the light level that triggers stand-alone operation using the **Trigger level** spin button, or press **Capture current sensor value** to set the current ambient light level to trigger stand-alone operation.

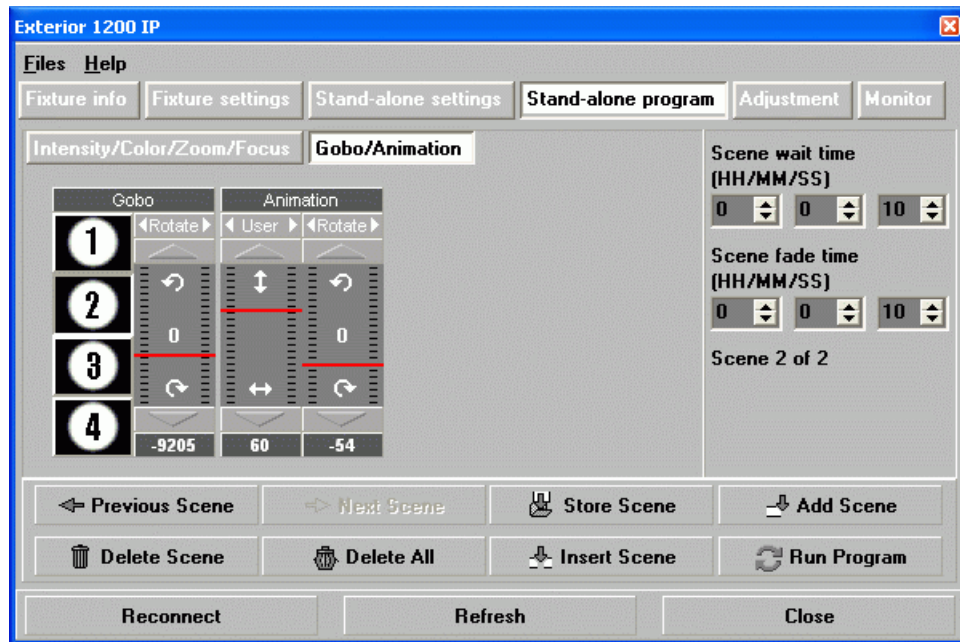
To avoid false triggering by sudden light changes caused by vehicle headlights or clouds, for example), the light level must remain above or below the trigger threshold for 5 minutes to activate the trigger.

## 6.2.3 Programming effects in scenes

---

The programming of effects is performed using the two **Stand-alone program** control windows accessed using the **Intensity/Color/Zoom/Focus** and **Gobo/Animation** buttons:





The following options are available:

<b>Intensity</b>	The dimmer provides smooth, high-resolution 0 - 100% dimming.
<b>Cyan Magenta Yellow</b>	The CMY color mixing system is based on graduated cyan, magenta, and yellow color filters. A full spectrum of colors can be achieved by varying the amount of each filter from 0 to 100%.  Note that mixing 3 colors results in loss of light - the light is blacked out when all 3 colors are fully applied. For maximum brightness, mix only 2 colors at a time.
<b>Zoom</b>	The lens can be driven forwards or backwards to vary the size of the beam.
<b>Focus</b>	Focus can be adjusted from approximately 2 meters to infinity. Note that sharpest focus is achieved when projecting onto a surface that is at 90° to the axis of projection. Soft focus gives best results with some animation effects.
<b>Color filter</b>	Click on one of the four square buttons colored blue, green, red or white to select a filter in the color wheel.  Note that depending on which filters are installed and their positions in the color wheel, the color applied may not be the same as the color of the button in the MUM window.
<b>Gobo</b>	Gobo 1 - 4 can be selected by clicking on the appropriate numbered button. Speed and direction of rotation is set by moving the <b>Rotate</b> slider.
<b>Animation</b>	The angle of the animated patterns in the gobo projection is set by moving the <b>User</b> slider. The speed and direction of movement of the patterns is set by moving the <b>Rotate</b> slider.
<b>Scene fade time</b>	The fade time, anything from 0 to 120 seconds, is the time it takes to change from one effect to another.
<b>Scene wait time</b>	This is the duration a color is applied. A wait time can be from 1 second to 12 hours.

When setting scene fade and scene wait times for luminaires in synchronized operation, avoid unexpected problems by making sure that each scene time is slightly longer in the master luminaire than in the slave luminaires (see "6.1.2: Synchronized operation with multiple luminaires" on page 40 for full details).

## Scene management

Once you have specified a mix of effects, you can store the scene using the options available under the Program menu:

<b>Store scene</b>	Save settings in the current scene.
<b>Add scene</b>	Save settings in a new scene at the end of the current sequence of scenes.
<b>Insert scene</b>	Save settings in a new scene before the current scene. <i>Tip: Think of the Add and Insert commands as Save commands, to be used as the last step after programming all effects.</i>
<b>Delete scene</b>	Remove the current scene from memory. Scenes after the deleted scene are renumbered.
<b>Next scene</b>	Step to the next scene.
<b>Previous scene</b>	Step to the previous scene.
<b>Delete all</b>	Remove all scenes from the luminaire memory.
<b>Run program</b>	Run the scenes in the programmed light show.

When the program is run, scenes execute in a continuous, ascending loop.

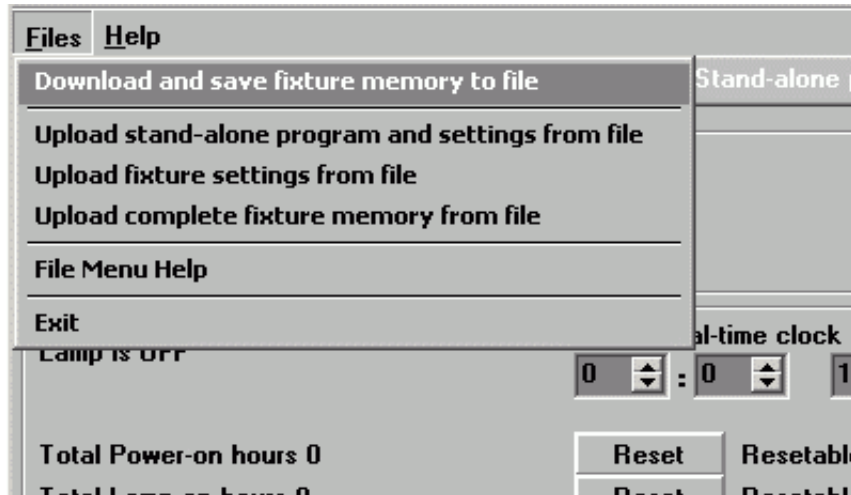
Note that, if a "slave" luminaire has:

- Fewer scenes than the master luminaire, it will run these in a cycle continuously, until the master luminaire signals that the program should start from the beginning again.
- More scenes than the master luminaire, then the additional scenes will never run, because the program will reset to the first scene when the master starts its program from the beginning.

## 6.2.4 Programming the same stand-alone show on multiple luminaires

---

Although you can only connect to and program a single luminaire at a time using the MUM application, you can use MUM to program a single luminaire, then use the commands in MUM's Files menu (see illustration below) to download and save the luminaire's settings to a file on your PC, and then upload the stand-alone program and luminaire settings to each subsequent luminaire that you connect to. This is useful if you have a group of luminaires of the same type that will run the same stand-alone show.



## 6.3 Stand-alone programming with the control panel

The main stand-alone programming commands available in the MUM application are also available in the Exterior 1200 Image Projector's onboard control panel, but because the control panel is text-based, it is not as intuitive as MUM.

The commands available are listed under **Stand alone** in "9.3: Onboard control panel menus" on page 82.



## 6.4 Stand-alone playback

### 6.4.1 *Starting show playback automatically at luminaire power-on*

---

Execution of the pre-programmed scenes in a loop will automatically resume when the luminaire is powered on if stand-alone operation and the automatic lamp-on function are enabled by selecting the following:

**Using MUM:**

- Stand-alone operation in the Stand-alone settings window
- Auto LampOn In the Fixture Settings window

**Using the onboard control panel:**

- Standalone → Enable
- Personality → Automatic Lamp On.

### 6.4.2 *DMX controller override during stand-alone show playback*

---

If an Exterior 1200 Image Projector is connected to a DMX controller and receives DMX signals during show playback, the stand-alone show will stop running and the luminaire will respond to the DMX controller. DMX signals always have priority over the running of a stand-alone show.



# Section 7. DMX control

## 7.1 Preparing for DMX control



**DANGER!** Read "*Safety information*" on page 4 before programming or operating the Exterior 1200 Image Projector.

To control a luminaire via DMX, it must be set up to respond to commands from the controller on specific DMX channels. This chapter describes how to set this up. It also describes DMX lamp off and DMX reset settings that you may wish to alter.

You can use either a PC with the Martin MUM (Multi-Utility Manager) application or the onboard control panel to prepare your Exterior 1200 Image Projector. MUM is probably easier to use because of its graphic user interface.

Follow the instructions in "*5.1: Luminaire settings*" on page 34 to choose and connect a setting device, and then refer to this chapter for information about specific settings.

### 7.1.1 Setting DMX addresses

---

If individual control of each Exterior 1200 Image Projector is required, each luminaire must be set up to receive instructions from the DMX controller on a group of DMX channels that are not used by any other device in its DMX universe. The DMX address, also known as the control address or start channel, is the first of these channels. Each luminaire uses this channel and the channels immediately above it to receive instructions.

Exterior 1200 Image Projector luminaires use 17 DMX channels, i.e. the start channel plus the next 16 channels. If the control address is set to 1, the luminaire uses channels 1 - 17. Channel 18 is available as the DMX address for the next luminaire.

If two or more luminaires are set up with the same address, they will receive the same instructions and behave identically. Setting up identical luminaires with the same address is a good tool for troubleshooting unexpected behavior and an easy way to achieve synchronized action.

#### ***DMX addressing with MUM***

To set a DMX address using the MUM application, use the **DMX Address** spin button in the **Fixture Settings** window. The luminaire's DMX address is updated in real time. MUM can only set the DMX address on one luminaire at a time, and must be connected to one luminaire only via the data link or service port.

#### ***DMX addressing with the onboard control panel***

To set a DMX address using the onboard control panel, enter the **Fixture address** menu and enter the required value.

### 7.1.2 DMX Lamp Off option

---

When the DMX Lamp Off feature is ON (the default setting), lamp power can be turned off from the controller by setting channel 1 to a DMX value from 248 to 255 (97-100%). When set to OFF, the Lamp Off command executes only if channels 4, 5 and 6 are set to values from 230 to 232. Bear in mind that if you turn a lamp off, you must allow it to cool for eight minutes before you can restrike it.

### **7.1.3 DMX Reset option**

---

When the DMX Reset feature is ON (the default setting), the luminaire can be reset from the controller by setting channel 1 to a DMX value from 208 to 217 (81-85%). When DMX Reset is set to OFF, the reset command executes only if channels 3, 4, and 5 are set to values from 230 to 232.

## 7.2 DMX controller operation



**DANGER!** Read "*Safety information*" on page 4 before operating the Exterior 1200 Image Projector.

The Exterior 1200 Image Projector may be operated with any lighting controller that is compatible with the USITT DMX 512 (1990) or USITT DMX 512A standards.

See Refer to "3.3: *Installing a data link*" on page 24 for connection requirements and the "9.4: *DMX protocol*" on page 84 for an overview of DMX control channels and values.

If an Exterior 1200 Image Projector is connected to a DMX controller and receives DMX signals during stand-alone show playback, the stand-alone show will stop running and the luminaire will respond to the DMX controller. DMX signals always have priority over the running of a stand-alone show.

### 7.2.1 *Effect operation*

---

The effects reset to their "home" position when the Exterior 1200 Image Projector is powered on. The Exterior 1200 Image Projector can also be reset from the DMX controller on channel 1. To limit the possibility of accidentally resetting the luminaire in the middle of a light show, you can set up the luminaire so that the reset command only works if the CMY channels are all set to a DMX value from 230 to 232 (see "7.1.3: *DMX Reset option*" on page 53).

### 7.2.2 *Lamp*

---

#### **Lamp on**

If Automatic Lamp On is set to ON (this is the default setting – see "5.1: *Luminaire settings*" on page 34), the lamp strikes automatically when power is applied to the luminaire. If set to OFF, a "lamp on" command must be sent from the controller on DMX channel 1.

A large peak of electric current is drawn for a fraction of a second when striking a discharge lamp. Striking many lamps at once may cause a voltage drop large enough to prevent lamps from striking and/or trip circuit breakers. When striking multiple lamps, program a sequence that strikes lamps one at a time at 5 second intervals. If Automatic Lamp On is enabled, there is a delay of up to 90 seconds after power is applied before the lamp strikes. This delay is determined by the luminaire's DMX address.

#### **Lamp off**

The lamp can be turned off from the controller by sending a "lamp off" command on channel 1. If the DMX Lamp Off personality is OFF (see "7.1.2: *DMX Lamp Off option*" on page 52), the command only works if each of the CMY channels (3, 4, and 5) is set to a DMX value from 230 to 232.

After being turned off, the lamp must cool for at least 8 minutes before it can be turned back on. "Lamp on" commands sent within 8 minutes of a "lamp off" command are stored and then executed after 8 minutes have elapsed.

## 7.2.3 *Color*

---

### **CMY color mixing**

The CMY color mixing system is based on graduated cyan, magenta, and yellow color filters. A continuous range of mixed colors may be achieved by varying the amount of each filter from 0 to 100%. Note that mixing 3 colors results in a loss of light - the light is blacked out when all 3 colors are fully applied. For maximum brightness, mix only 2 colors at a time.

### **Color wheel**

The color wheel has slots for up to 4 dichroic color or CTC filters. If an open (no filter) position is required, one of the slots must be left empty. A range of color and CTC filters is available from Martin Architectural.

The color wheel can be indexed at full or split color positions or rotated continuously with variable speed in either direction. It can be used independently of the CMY system or together with CMY color mixing to increase color saturation.

## 7.2.4 *Dimmer/shutter*

---

The mechanical dimmer/shutter provides smooth 0 - 100% intensity control on channel 2, with fine control available on channel 3.

## 7.2.5 *Rotating gobo wheel*

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The rotating gobo wheel is supplied with three rotating gobos plus an open position as standard. Gobos can be indexed or rotated continuously.

If one of the gobos is selected and set to gobo indexing on DMX channel 8, the indexing angle can be adjusted on channel 9, with fine adjustment of the angle available on channel 10.

If one of the gobos is selected and set to gobo rotation on channel 8, the direction and speed of rotation can be selected on channel 9, with fine adjustment of speed available on channel 10.

## 7.2.6 *Gobo animation wheel*

---

The gobo animation wheel can be used – normally in combination with a gobo – to animate the projection and produce a variety of effects, such as flames or reflections from ripples in water. A radial breakup animation wheel that is suitable for flame and ripple effects is supplied as standard. A range of alternative wheels is available from Martin Architectural.

Animation angle determines whether the pattern is vertical (as with flames) or horizontal (as with reflected ripples). Wheel indexing lets you select a section of pattern for a static projection. Wheel rotation moves the pattern to animate the projection.

Animation angle is adjusted and the animation wheel set to indexing or rotation on channel 11. The wheel can be indexed through 395° and direction and speed of rotation set on channel 12.

## 7.2.7 Focus

---

Focus can be varied remotely from approximately 3 m (9.8 ft.) to infinity on channel 13, with fine control available on channel 14.

Optimum focus can be achieved when the beam strikes the projection surface at 90°. The effect of projection angle on plane of focus increases as the beam angle gets wider.

Soft focus can be advantageous for animated gobo wheel effects.

## 7.2.8 Zoom

---

The beam angle can be varied remotely on channel 15, with fine control available on channel 16. Depending on the lens option installed, the cut-off angle can be varied within the following limits:

Lens option	Cut-off angle
Narrow	12° - 18°
Medium	18° - 36°
Wide	31° - 51°

## 7.2.9 Effects speed (*tracking and vector control*)

---

The speed at which effects fade, that is, move from one position to another, can be controlled in two ways known as tracking control and vector control:

- With *tracking* control, fades are programmed using the controller's fade time. The controller divides the fade into small elements that the luminaire "tracks." The Exterior 1200 Image Projector has a digital filter algorithm that averages several updates to ensure smooth movement.
- *Vector* control provides a way to program fades on controllers without programmable fade times or cross-faders. With vector control, instead of breaking up the movement into many small positions, the controller sends one position value and one speed value and the luminaire's own software controls the movement. Vector control may provide smoother fades than tracking control with some controllers, particularly when the controller is busy with a large number of processor-intensive operations, and particularly on very slow fades.

You can select tracking or vector control using your DMX controller, but you cannot use both at the same time.



# Section 8. Service and accessories

## 8.1 Service: general



**DANGER!** Read "*Safety information*" on page 4 before servicing the Exterior 1200 Image Projector.

**Important!** The Exterior 1200 Image Projector requires regular service and maintenance to maintain reliable operation and protect the investment it represents.

**Before servicing, switch off the lamp via DMX or the onboard control panel and allow the luminaire to cool with fans running for 20 minutes before powering off.**

**If you ever need to transport an Exterior 1200 Image Projector, reinstall the shipping bracket and protective foam insert supplied with the product (see Figure 2 on page 15).**

The service and maintenance procedures described in this section must be carried out by qualified professionals only. Any service procedures not described in this section must be carried out by the Martin Service organization or its authorized agents.

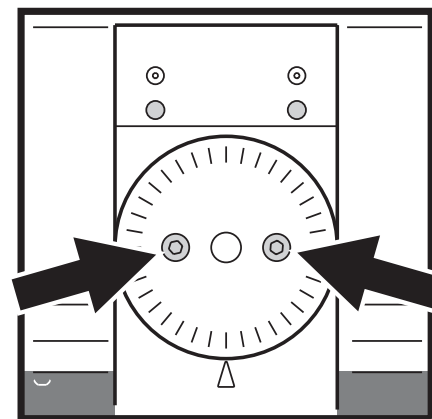
Martin uses the best-quality materials and coatings available to ensure optimum performance and the longest possible component lifetimes. However, optical components in all luminaires are subject to wear and tear over the life of the fixture, resulting in gradual changes in color rendition of dichroic filters or the specular properties of reflectors, for example. The extent of wear and tear depends heavily on operating conditions, maintenance and environment, so it is impossible to specify precise lifetimes for optical components. However, you will eventually need to replace optical components if their characteristics are affected by wear and tear after an extended period of use and if you require luminaires to perform within very precise optical and color parameters.

## 8.2 Beam adjustment

The beam can be adjusted in a vertical plane (tilt) using the tilt lock on the yoke. The beam can be adjusted in a horizontal plane (pan or rotation) using the curved slots in the yoke base.

To adjust tilt:

1. Support the luminaire to ensure that it cannot tilt unexpectedly under its own weight. See Figure 16. Loosen the tilt lock screws on each side of the mounting yoke.
2. Tilt the luminaire to the desired angle in the yoke and retighten the screws to a torque of 16 Nm (11.8 ft.-lbs.).



**Figure 16: Tilt lock screws**

To adjust pan:

1. Loosen the anchor bolts in the yoke base slightly so that the luminaire can be rotated.
2. Adjust the pan position and retighten the bolts.

## 8.3 Cleaning



**DANGER!** Do not use a high-pressure water jet for cleaning. Do not direct a high-pressure air jet at the cooling fan in the heat exchanger. Take care not to damage seals, wiring, the heat exchanger channels and the cooling fan during cleaning.

**Important!** Intermittent lamp cutouts are a sign of critical overheating with a risk of damage to the luminaire. If the lamp cuts out intermittently, turn off power to the luminaire immediately and follow the inspection and cleaning procedures described below.

Periodic cleaning, especially of the heat exchanger, is critical in order to maintain adequate cooling and satisfactory performance.

The intervals at which cleaning is required will vary depending on the amount of airborne dust and other particles around the installation. Therefore, the temperature readings in the display panel must be monitored and luminaires must be visually inspected for signs of dirt and dust build-up frequently over the first few months of use. Once a pattern has been established, a cleaning schedule can be drawn up.

If the heat exchanger becomes increasingly clogged with dirt and dust, the cooling fan will run at increasing speed and the temperature readings in the display (or visible when MUM is connected) will rise. If temperatures rise too high, the luminaire will show a warning in its display, a thermostatic safety switch shuts down power to the lamp and reapplies power when the temperature has fallen to within safe limits.

If intermittent lamp cutouts occur, stop using the luminaire immediately, inspect it, and clean it if dirt and dust has built up in the heat exchanger. If the heat exchanger appears to be clean, contact Martin Architectural for assistance.

### 8.3.1 *Cleaning the heat exchanger*

---

The heat exchanger cooling fan, vents and channels must be kept clean to allow free airflow through the heat exchanger. Use compressed air at low pressure to clean the heat exchanger. Do not spray water or dirt at the fan motor.

To clean the heat exchanger:

1. Cut lamp power, allow the luminaire to cool with fans running for 20 minutes, then isolate the luminaire from AC power and lock out power.
2. Visually check the level of dirt and dust buildup through the heat exchanger vent at the front of the luminaire and the fan grille:
  - If the fan, vents and channels are perfectly clean, consider increasing intervals between cleaning.
  - If the fan, vents and channels have heavy dirt or dust deposits or are clogged, proceed to point 3. below and reduce intervals between cleaning.
3. Remove the heat exchanger cowling and cooling fan cowling retaining screws and lower the cowlings from the bottom of the luminaire for access to the heat exchanger channels.
4. Blow loose dirt out of the heat exchanger with low-pressure compressed air, used in combination with a soft brush if necessary. You can use a long, flat, thin object to dislodge clogged dirt from the spaces between the aluminum channels, but apply

gentle pressure only to avoid damage to the channels. Do not direct the jet of compressed air at the center of the cooling fan, as you may blow dust into the fan motor and bearing and cause premature failure of the fan.

5. Reinstall the cowlings and tighten retaining screws to 2 Nm (1.5 ft.-lbs.).

### **8.3.2 *Cleaning the housing and front glass***

---

The Exterior 1200 Image Projector's 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. Cut lamp power, allow the luminaire to cool with fans running for 20 minutes, then isolate the luminaire from AC power and lock out power.
2. Visually check that the silicone seals are in good condition. If any seal shows signs of damage or loss of water resistance, stop cleaning the luminaire and contact a Martin authorized service technician for seal replacement.
3. If seals are in good condition, rinse off loose dirt with a hosepipe or low-pressure water spray. Do not spray water into the heat exchanger.
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.

## **8.4 Seals and cable glands**

The main housing has an IP rating of 65: it is protected against dust and can withstand low pressure water jets. To maintain protection against dust and water:

- Replace any seal that becomes brittle or shows visible signs of wear.
- Ensure that seals are flush with, or protrude slightly above, the surface of the aluminum housing and covers.
- Ensure that cable glands are tightened both to the housing or cover and the cable.
- Tighten all external cover and cover plate retaining screws to the torque settings specified in Table 3 on page 62. At this torque, seals will be compressed by about one-third and will be waterproof and dustproof to IP65.
- When replacing the front cover, cross-tighten screws gradually, working around in a circle, to avoid breaking the front glass.

A water and oil-repellent GORE-TEX membrane air vent in the floor of the main housing between the heat exchanger cowl and rear cover equalizes pressure differences and expels moisture as the luminaire heats up and cools down. If this seal is blocked or incorrectly installed, condensation can build up and pressure differences can suck moisture into the luminaire.

## 8.4.1 Seals

---

To maintain the luminaire's resistance to dust and moisture, it is important to replace silicone seals carefully after removal. The seals should maintain their sealing ability for the life of the luminaire, but examine them when servicing the luminaire and replace any seal that is cracked, torn, brittle, or inflexible. Replacement seals may be ordered from Martin Architectural. For part numbers, see Table 3 on page 62.

The seals must extend 0.5 - 1 mm (1/64 - 1/32 in.) beyond the outside of the casing. If you can feel the seal when you run a finger across the joint, that's enough. Seals will be effective if they are flush with casings, but if they are below the casing's edge, they can collapse into the luminaire and let water in.

The recommended procedure for closing all covers is the same:

1. Ensure that the seal and mating surfaces are clean.
2. Place the cover and seal firmly against the housing. Adjust the straight sides of the seal so that they stick out a little, just enough so that you can feel the edge of the seal when you run a finger across the joint.
3. Cross-tighten (i.e. tighten diagonally) retaining screws gradually and evenly to the torque settings specified in Table 3 on page 62.

## 8.4.2 Cable glands

---

Provision is made for cables to enter the luminaire through IP68-rated cable glands that accept:

- power cable with an external diameter of 8 - 13 mm (0.32 - 0.5 in.) and
- data cable with an external diameter of 5.5 - 10 mm (0.22 - 0.39 in.)

The cable glands must be replaced with suitably dimensioned items if the diameter of cable used is not within this range.

Replacement glands, available from electrical suppliers, must have the following characteristics:

<b>Temperature range</b>	-20° to +90° C (-4° to 194° F) or better
<b>Ingress protection rating</b>	IP67 minimum
<b>Minimum entry thread length</b>	8 mm

### 8.4.3 Torque settings

The torque settings for the yoke screws as well as screws holding covers and part numbers for the corresponding seals are as shown below. All torque setting figures are for clean, dry threads.

To ensure that the Exterior 1200 Image Projector is waterproof and to avoid damaging threads, a torque driver with a range from 2 Nm (1.5 ft.-lbs.) to 16 Nm (11.8 ft.-lbs.) must be used. during service and adjustment.

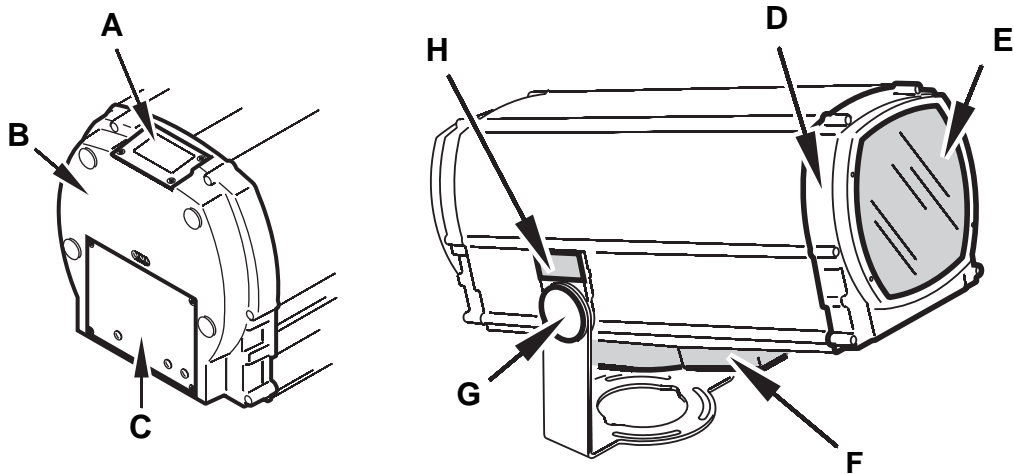


Figure 17: Torque settings

Component	Torque setting	Seal P/N
A - Display cover	2 Nm (1.5 ft.-lbs.)	20620160
B - Rear cover	7 Nm (5.2 ft.-lbs.)	20620130
C - Connections box	2 Nm (1.5 ft.-lbs.)	20620150
D - Front cover	7 Nm (5.2 ft.-lbs.)	20620130
E - Front glass (screws inside luminaire)	2 Nm (1.5 ft.-lbs.)	20620140
F - Cooling fan housing	2 Nm (1.5 ft.-lbs.)	No seal fitted
G - Tilt lock	16 Nm (11.8 ft.-lbs.)	No seal fitted
H - Yoke slider	16 Nm (11.8 ft.-lbs.)	No seal fitted

Table 3: Torque settings and seal part numbers

## 8.5 Lamp maintenance

### 8.5.1 *Approved lamp*

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**Important!** The Exterior 1200 Image Projector is designed to use only the lamp specified below. Installing any other model may cause damage to the luminaire that is not covered by the product warranty.

Lamp	Average life	Color temp.	CRI (Ra8)	Output
Philips MSD 1200	3000 hours	6000 K	80	92 000 lm

**Table 4: Lamp specifications**

*Data subject to change. Refer to lamp manufacturer's specifications for latest information.*

### 8.5.2 *Lamp life and monitoring lamp hours*

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A discharge lamp's quartz bulb weakens over time, significantly increasing the risk of lamp explosion. Always replace a discharge lamp before it reaches the limit of its average life (see table above). In large installations, replacing all lamps at the same time will simplify replacement schedules.

The Exterior 1200 Image Projector has built-in resettable counters that you can use to monitor the number of hours the lamp has been used and the number of times the lamp has been struck (started). The counters can be checked in the onboard control panel or using the MUM application. Check the counter as necessary, and reset the luminaire's Resettable Lamp Hours and Resettable Lamp Strikes counters each time you install a new lamp. Two methods can be used to check and reset the counters – the onboard control panel or MUM:

#### ***A. Checking and resetting the lamp life counters using the onboard control panel***

The onboard control panel displays the lamp hours and lamp strike counters in the **Lamp Status** display every few seconds until you enter the control menus.

To reset the counters using the onboard control panel:

1. Open the **Personality** menu, navigate to the counters and press **Enter** to display.
2. To return the resettable lamp hours and lamp strikes counters to zero, select **Reset all counters**, press **Enter** and confirm.

#### ***B. Checking and resetting the lamp life counters using MUM***

To reset the counters:

1. Connect a PC and DABS1 adaptor to the Exterior 1200 Image Projector via the service port in the connections compartment.
2. Power on the Exterior 1200 Image Projector and start the MUM application. The application will automatically detect an Exterior 1200 Image Projector if it is powered

on and correctly connected. It will also retrieve the current settings on the luminaire and display them.

- Using MUM, click on the **Fixture info** button.
- The **Resettable Lamp-on hours** will be displayed. Click on the **Reset** buttons beside **Resettable Lamp-on hours** and **Resettable Lamp Strikes** to return these figures to zero.

Reset	Resettable Power-on hours 2
Reset	Resettable Lamp-on hours 2
Reset	Resettable Lamp Strikes 33

### 8.5.3 *Installing the lamp*

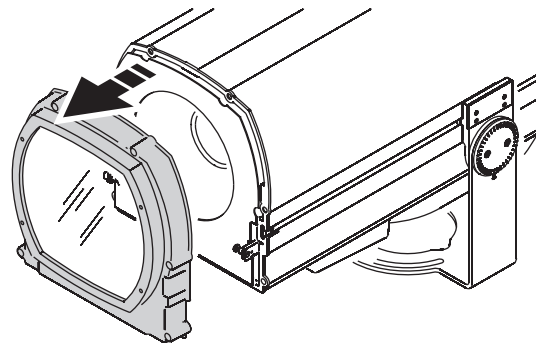


**Warning!** Switch off the lamp, allow the luminaire to cool with fans running for 20 minutes, then isolate it from AC power and lock out power before servicing.

**Wear safety glasses and gloves while installing or inspecting the lamp.**

To replace the lamp:

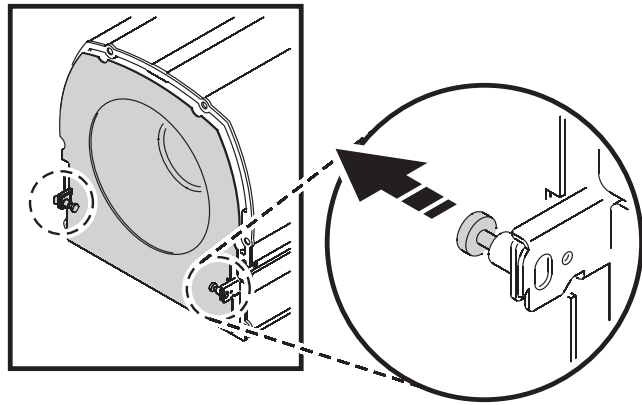
- Cut lamp power, allow the luminaire to cool with fans running for 20 minutes, then isolate it from AC power and lock out power.
- See Figure 18. Loosen the six Allen head screws holding the front cover and remove the cover and its rubber seal. Avoid damaging the seal during removal.



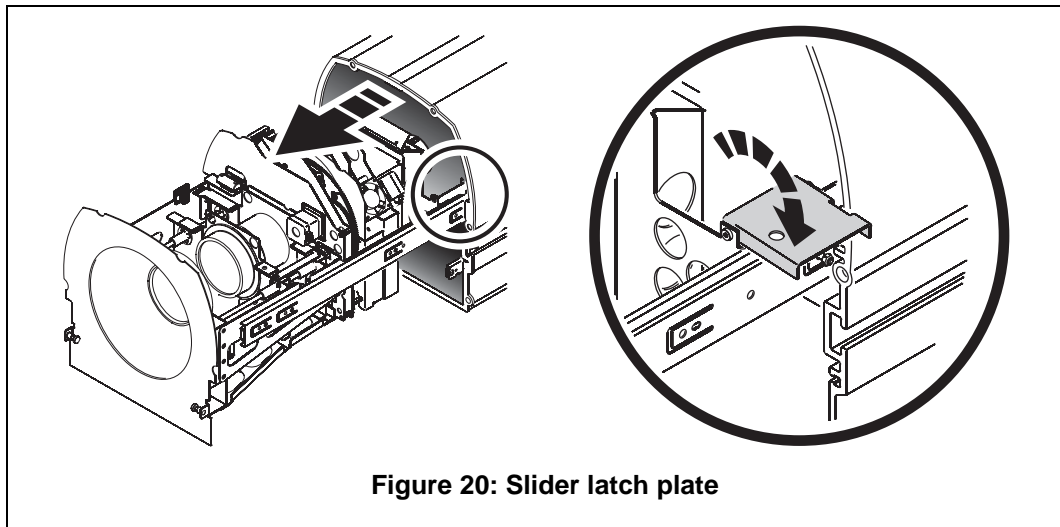
**Figure 18: Removing the front cover and seal**



3. See Figure 19. Pull out the slider locks in the sliders on each side at the front of the housing and slide the lamp/effects assembly out of the housing, avoiding strain on internal wiring. Note that a lamp cutout mechanism is activated as soon as the assembly is moved from its normal position.

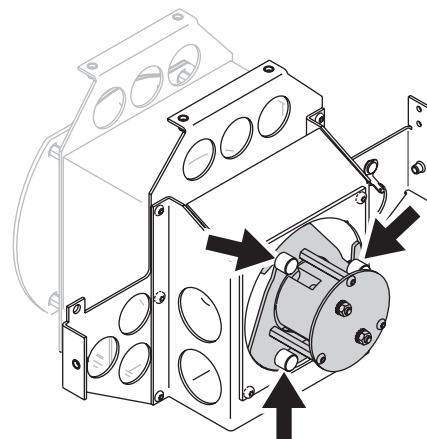


**Figure 19: Slider lock**



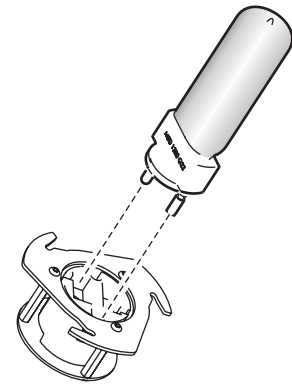
**Figure 20: Slider latch plate**

4. See Figure 20. Flip open the latch plate to lock the assembly in the out position.
5. See Figure 21. The lampholder is at the rear of the effects modules. Note the position of wiring to the lamp. Loosen, but do not remove, the three Allen screws (arrowed) holding the lampholder. To release the lampholder, push it in slightly and rotate it so that the holes in the lampholder plate clear the Allen screws, then gently pull the lampholder clear. Avoid touching or knocking the lamp against other components.



**Figure 21: Lampholder screws**

6. If replacing an old lamp, remove it from the socket.
7. The new lamp's glass bulb must be perfectly clean. Do not touch it with your fingers. Clean it using the wipe supplied with the lamp. A clean, lint-free cloth wetted with 99.9% isopropyl alcohol may also be used.
8. Holding the new lamp by its ceramic base, insert it firmly and squarely into the lamp socket.
9. Re-insert the lampholder in its original position, pushing and twisting it to lock it in place on the three Allen screws. Check that lamp wiring is in its original position.
10. Tighten the lampholder screws.
11. Push the effects/lamp assembly back into the housing. Make sure that the slider locks click into place to ensure that the assembly is correctly positioned and the lamp cutout mechanism is deactivated.
12. Before reinstalling the front cover, check the condition of the seal. Replace with a new item if the seal is torn, cracked or brittle.
13. Place the front cover and seal firmly against the housing. Adjust the straight sides of the seal so that they stick out a little, just enough so that you can feel the seal when you run a finger across the joint.
14. Cross-tighten the cover screws, tightening gradually to a torque of 7 Nm (5.2 ft.-lbs.). At this torque, the seal will be compressed by about one-third.
15. Reapply power and return the resettable lamp hours and lamp strikes counters to zero. See "8.5.2: Lamp life and monitoring lamp hours" on page 63.



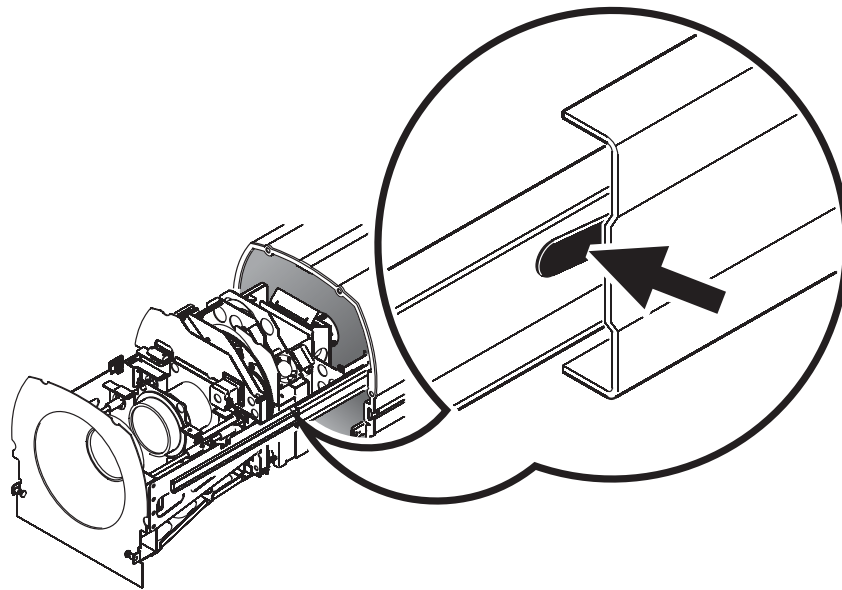
**Figure 22: Lamp socket**

Lamp alignment is factory-set. If after installing a new lamp the Exterior 1200 Image Projector has a noticeable hot-spot or dark area in the centre of the beam, or if the brightest part of the beam is significantly off-center, the lamp may need to be realigned. Please contact your Martin Architectural supplier for assistance.

## 8.6 Removing the effects/lamp module

The lamp/effects assembly can be removed completely from the luminaire for service or easier access. To remove this assembly:

1. Open the luminaire and pull the slider out as described in "8.5.3: *Installing the lamp*" on page 64.
2. Unscrew and disconnect the four block connectors that connect the wiring from the rest of the luminaire to the lamp/effects assembly. Connector positions are marked and connectors can generally be installed in one position only.



**Figure 23: Slider removal lock**

3. See Figure 23. Push on the two tabs (one must be pushed down, the other up) in the slider channels to release the slider complete with lamp/effects assembly. The assembly can now be removed completely from the luminaire.

To reinstall the lamp/effects assembly:

1. Engage the slider in its channels and slide it into the luminaire.
2. Reinstall the four block connectors.
3. Finish reinstallation as described in "8.5.3: *Installing the lamp*" on page 64.

## 8.7 Installing a filter in the color wheel

Filters (including CTC filters and a diffuser filter) for the color wheel can be ordered from Martin Architectural if custom configuration is required. Note that the diffuser filter does not affect the beam angle but causes a slight reduction in luminous output.

Filters must be perfectly clean and free of grease when installed. Wear clean cotton gloves so that you can manipulate filters without contaminating them with oil from your fingers. If necessary, clean filters with a soft lint-free cloth wetted with 99.9% isopropyl alcohol.

To install a filter in the color wheel:

1. Lock out power, open the luminaire and slide the effects module out of the housing as described in "8.5.3: *Installing the lamp*" on page 64.
2. See Figure 24. Access the color filters (**C**) from underneath the effects module. Rotate the color wheel with your fingers until the position where you want to install the filter is pointing downwards in the wheel.
3. To remove a filter, gently lever the filter retaining spring (**A**) away from the color wheel (**B**), lift the filter (**C**) away from the color wheel so that it clears the retaining lugs (**D**), and lift the filter out of the wheel.

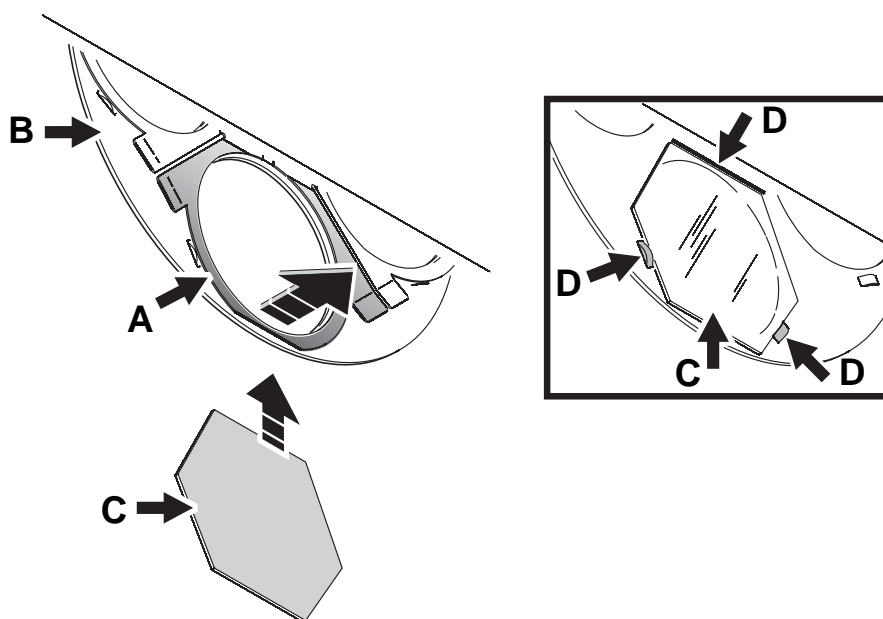


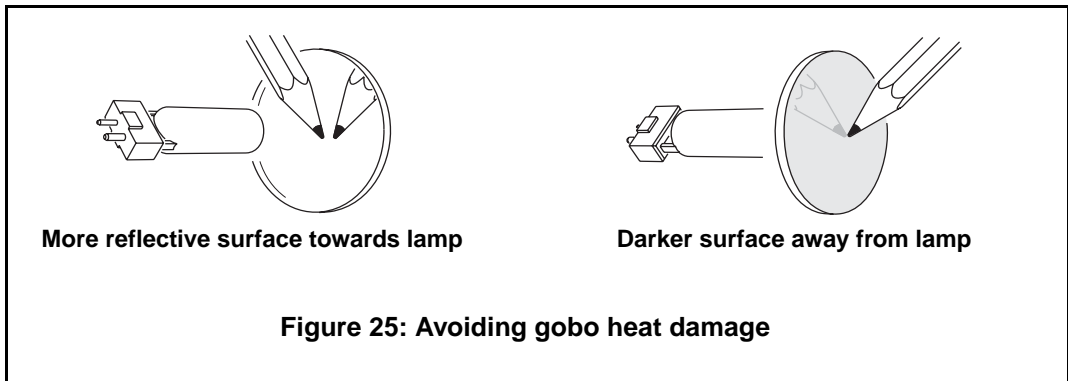
Figure 24: Color filter replacement

4. To install a filter on the color wheel, gently lever the retaining clip (**A**) away from the wheel and slide the filter in under the clip until it locates in the retaining lugs (**D**). Release the clip so that it holds the filter. Grasp the filter on both sides and check that it is held securely.
5. Slide the effects module back into the luminaire housing and close the luminaire as described in "8.5.3: *Installing the lamp*" on page 64 before reapplying power.

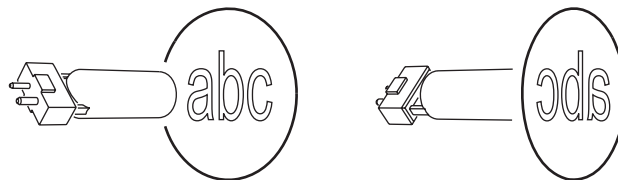
## 8.8 Installing a rotating gobo

Standard or custom metal or glass rotating gobos can be installed in the Exterior 1200 Image Projector's rotating gobo wheel. See Specifications on page 86 for dimensions, etc.

Gobos are exposed to intense heat. See Figure 25. To optimize their lifetimes, it is normally best to install gobos with the more reflective surface facing towards the lamp and the darker side facing away from the lamp, but consult your gobo supplier before installing.



See Figure 26. To obtain a true projection, gobos must be designed and installed so that the image is true viewed from the lamp and reversed viewed from the front of the luminaire.



**Figure 26: Gobo orientation**

The gobos in the Exterior 1200 Image Projector gobo wheel are mounted in rotating goboholders.

To remove a goboholder:

1. Lock out power, open the luminaire and slide the effects module out of the housing as described in "8.5.3: *Installing the lamp*" on page 64.

2. See Figure 27. Rotate the gobo wheel with your finger until you can lift the tab (A) on the retaining plate of the goboholder you wish to remove. Pull the tab (A) outwards and lift the goboholder out of the gobo wheel.

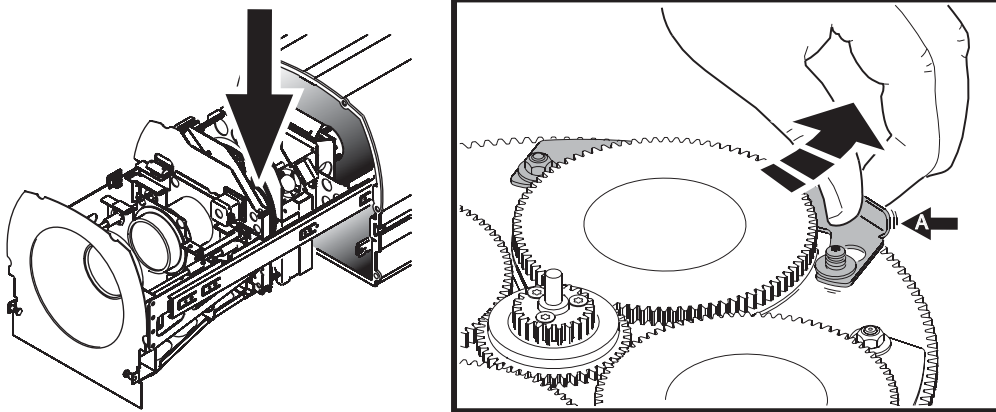


Figure 27: Goboholder release tab

To install a goboholder:

1. See Figure 28. With the retainer plate lifted up, slide the goboholder into the gobo wheel so that the edges of the retaining spring (C) engage in the slot (B) in the goboholder. If necessary, rock the goboholder from side to side slightly until the spring engages. Push down on the retaining plate tab (A) so that the retaining plate locates in the slot (B) in the goboholder and the retaining plate is held firmly in the gobo wheel.

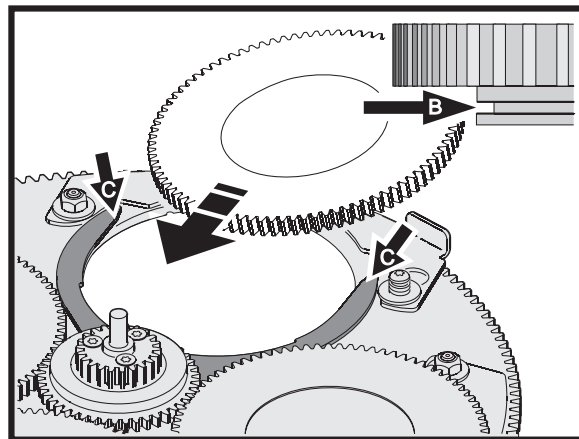


Figure 28: Installing a goboholder

2. See Figure 29. When the goboholder is correctly installed, the outer edge of the retainer plate is perfectly concentric with the outer edge of the gobo wheel, so that distances A, B and C are exactly the same. **Important! Check this carefully, or the goboholder may fall out of the gobo wheel during operation.**
3. Slide the effects module back into the fixture and reinstall all covers before reapplying power.

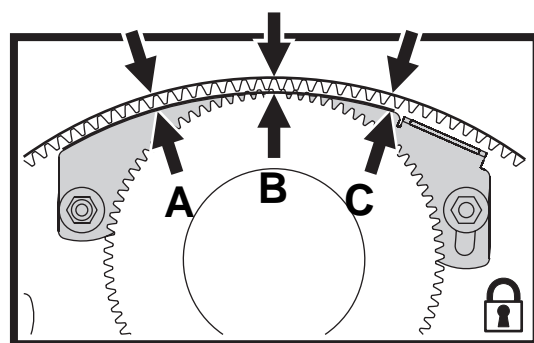


Figure 29: Correct goboholder position

## 8.9 Installing a permanent filter kit

A permanent filterholder with integrated filter can be installed in the Exterior 1200 Image Projector effects module. This allows a CTC filter to be installed to match the luminaire's color temperature with other luminaires.

See Figure 30. The filterholder is inserted from the bottom of the effects module and is held in position by clips (**A**) and a retaining bolt (**B**).

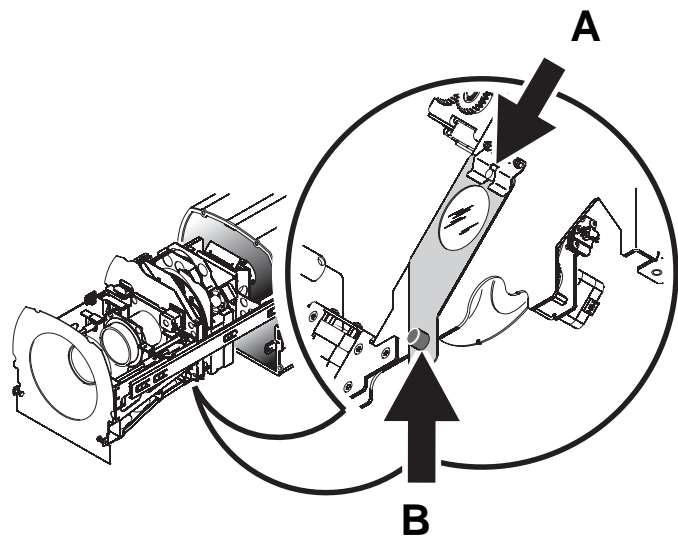
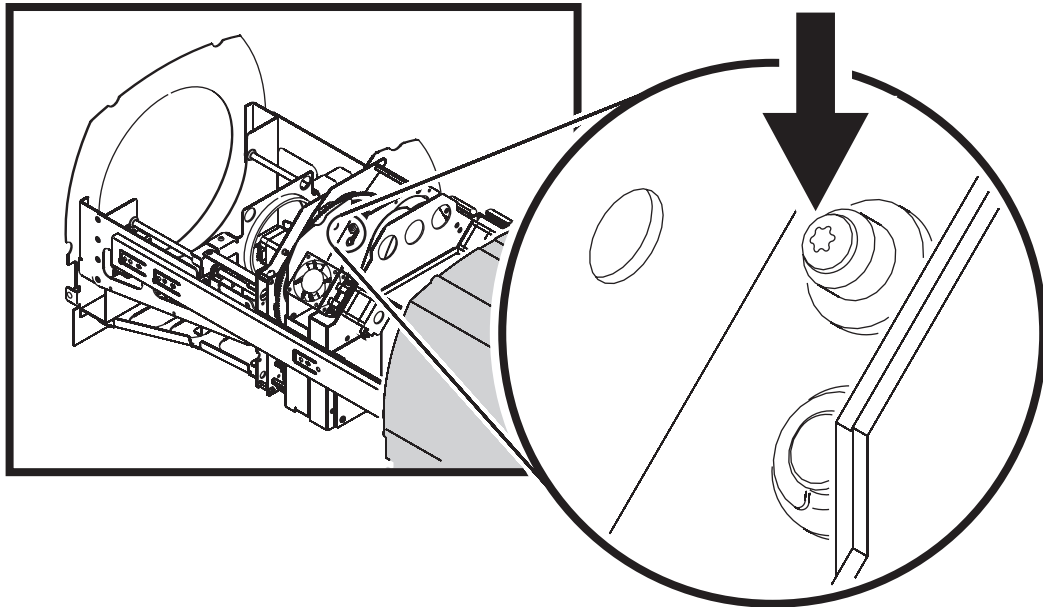


Figure 30: Permanent filterholder

## 8.10 Installing a gobo animation wheel

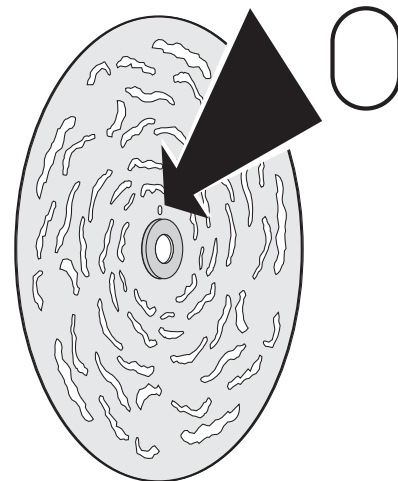
The gobo animation wheel in the Exterior 1200 Image Projector can be replaced to give alternative types of animation pattern. To replace the animation wheel:

1. Lock out power, open the luminaire and slide the effects module out of the housing as described in "8.5.3: *Installing the lamp*" on page 64.



**Figure 31: Accessing the gobo animation wheel**

2. See Figure 31. If necessary, move the gobo animation wheel upwards and outwards to make access easier by turning the manual positioning screw (arrowed) clockwise until the wheel is at the uppermost limit of its travel.
3. The animation wheel is held in place by a magnetic mount. Lever the installed wheel away from its hub to release it.
4. See Figure 32. When installing the new animation wheel, turn it so that the shiny side faces the lamp and the magnetic ring in the center of the wheel faces the hub in the luminaire. Then line up the lug that sticks out of the hub with the cutout in the wheel (arrowed). Making sure that the lug engages in the cutout, push the wheel so that it clicks into place.
5. Slide the effects module back into the luminaire housing and close the luminaire as described in "8.5.3: *Installing the lamp*" on page 64 before reapplying power.



**Figure 32: Gobo animation wheel locating cutout and magnetic ring**



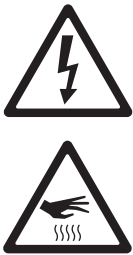
## 8.11 Alternative lens kits

The optical systems installed in Narrow, Medium and Wide Exterior 1200 Image Projector luminaires are available from Martin Architectural as separate Narrow, Medium and Wide lens kits. Installation instructions are supplied with the kits and are also available on the Exterior 1200 Image Projector support page on [www.martin.com](http://www.martin.com).

Before installing a new lens kit or changing optical components, the zoom and focus cars must be moved to specific positions by applying the command **Manual → Optical Change Pos** in the onboard control menus.

Each time the Exterior 1200 Image Projector resets, it checks to see which optical system is installed and auto-configures all its settings to match the installed system.

## 8.12 Replacing fuses



**Warning! Switch off the lamp, allow the luminaire to cool with fans running for 20 minutes, then isolate it from AC power and lock out power before replacing a fuse.**

The Exterior 1200 Image Projector is protected by two 15 amp slow blow main fuses (P/N 05020050) located in fuseholders behind the rear cover plate. One fuse protects the connection labelled "Live 1", and one protects "Live 2". If the luminaire fails to respond when power is applied, one of these may have blown.

To replace a main fuse:

1. Switch off the lamp, allow the luminaire to cool with fans running for 20 minutes, then isolate it from AC power and ensure that power cannot be reconnected accidentally.
2. Remove the rear cover plate as described in "3.1.4: Connections compartment access" on page 19.
3. See Figure 33. The two main fuses are located in fuseholders in the connections compartment. Unscrew the fuseholder caps with your fingers and remove the fuses.
4. Replace the defective fuse with one of the same size and rating. Replace the fuseholders.
5. If neither of the main fuses are defective, check and if necessary replace the main PCB low-voltage fuse with one of the same type and rating. This fuse is released from its fuseholder with a flat-head screwdriver.
6. Reinstall the cover plate as described in "3.1.4: Connections compartment access" on page 19.

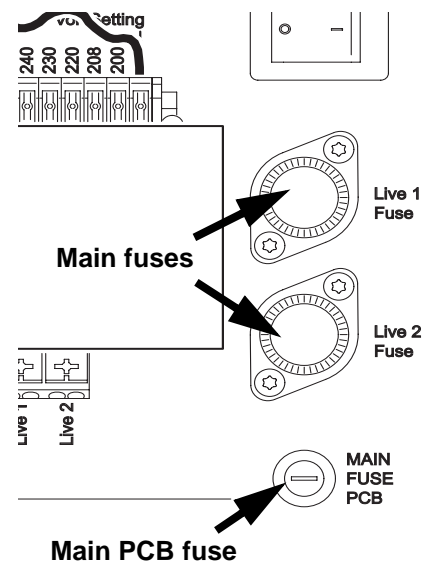


Figure 33: Fuses

## 8.13 Software-based service functions

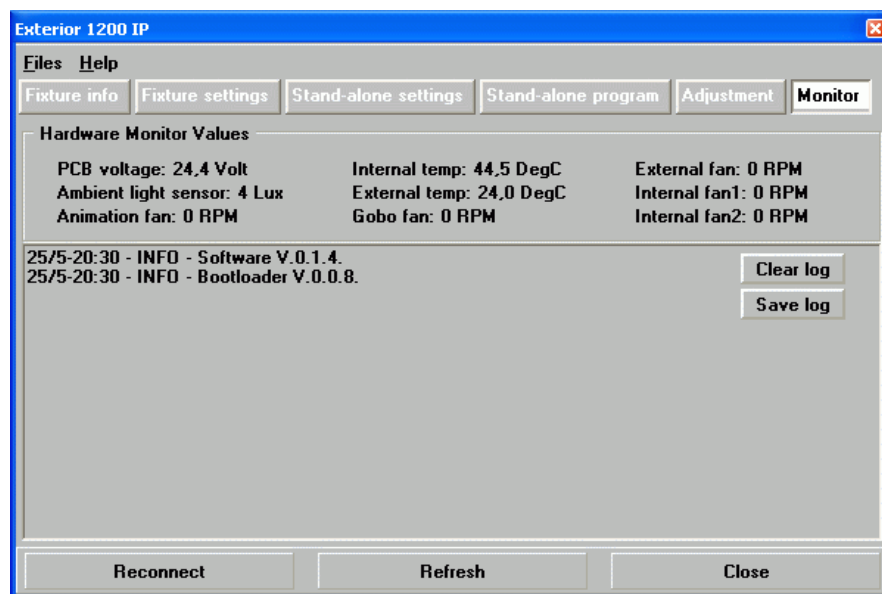
### 8.13.1 Adjustment and monitoring

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The MUM application and the onboard control panel both contain an **Adjustment** function. This is a tool for mechanical adjustment and effect calibration, and is for use by Martin Global Service and its authorized agents.

MUM and the onboard control panel both also contain a **Monitor** function that can provide useful information about the luminaire's operating conditions and settings.

- To view monitoring information in MUM, connect the luminaire to MUM via a DABS1 interface as described in "5.1.1: Setting up a luminaire with a PC and MUM" on page 35, then click on the **Monitor** button. As well as hardware monitoring information, software and bootloader version details are displayed.



### 8.13.2 Restoring factory defaults

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The Exterior 1200 Image Projector factory default settings can be restored, if required, using the **Personality → Factory default** command in the onboard control panel.

### 8.13.3 Updating software

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The most recent software versions for all Martin Architectural products are available free of charge from the Support area of the Martin website at <http://www.martin.com>

If the Exterior 1200 Image Projector software needs to be updated, the software can be downloaded from the Martin website and then installed in the luminaire using a PC with the Martin Software Uploader application, also available free of charge from the Martin website. The PC must be connected to the Exterior 1200 Image Projector via a hardware interface. The following hardware interface devices are currently supported:

- Martin Universal USB-DMX Converter
- Martin DABS1 PC/luminaire hardware interface

Before updating software, read the release notes to familiarize yourself with any changes in functionality or any special instructions.

## Uploading software to the luminaire

To update software in an Exterior 1200 Image Projector, connect an upload device either to the DMX link the luminaire is on or to the luminaire's RJ-45 service port located behind the rear cover plate.

- If you upload via the service port, software will only be uploaded to the one device you connect to.
- If you upload via the DMX data link, software will be uploaded to all devices that are connected to the link and powered on.
- If you upload via the DMX data link but apply the **Force upload** command in the **Utility** menu of one luminaire and carry out a boot mode upload as described in the upload device's documentation, software will only be uploaded to the one luminaire you have set to **Force upload** mode.

When an upload is completed (and when booting up) the Exterior 1200 Image Projector performs a check-sum test of the memory and then resets.

In the unlikely event that a software upload is interrupted, the luminaire must be powered off for at least 10 seconds and then powered on again to force a check-sum test. You can then repeat the upload.

If an error occurs during subsequent uploads and the luminaire does not reset, data may have been interrupted or corrupted during transmission and you will need to obtain assistance from Martin Service.

## 8.14 Troubleshooting

Problem	Probable cause(s)	Remedy
No response from luminaire when power is applied.	No power to luminaire.	Check power cables.
	Main fuse or main PCB (low-voltage) fuse blown.	Replace fuse.
	Secondary fuse(s) blown (located on PCB).	Refer to Martin Architectural.
Luminaire resets when power applied but does not respond correctly to DMX controller. LED 2 lights steady green.	Incorrect DMX addressing.	Check luminaire addressing on controller. If no error found, check luminaire's DMX address setting.
Luminaire resets when power applied but does not respond correctly to DMX controller. LED 2 does not light steady green.	Bad data link connection.	Inspect cables and correct poor connections and/or broken cables.
	Data link not terminated.	Insert DMX termination resistor in data output of last luminaire on each branch of the data link.
Luminaire resets when power applied but does not respond correctly to DMX controller. LEDs flash red and green.	Defective luminaire.	Bypass luminaires on the data link one at a time until normal operation is regained.
	Electronic or mechanical failure.	Refer to Martin Architectural.
	Luminaire software corrupted.	Upload new software. If luminaire repeatedly fails to reset correctly, refer to Martin Architectural for boot mode upload.
Luminaire cuts out intermittently, especially in hot weather.	Luminaire temperature too high: thermal cutout shutting down power to avoid overheating.	Stop using luminaire. Inspect for dirt buildup and clean if necessary. If luminaire is clean or if problem reoccurs, stop using luminaire and refer to Martin Architectural.
No light output.	Lamp has been in use and is too hot to restrike.	Allow to cool for 8 minutes before attempting to restrike.
	Lamp defective or worn out.	Replace lamp.
	Lamp cutout inside front cover not correctly deactivated.	Open front cover. Make sure that left-hand slider lock presses cutout switch.
	Power settings do not match local AC voltage and frequency.	Disconnect luminaire and open rear cover. Check jumper lead settings and correct if necessary.
	Temperature or fans error	Check display for error message. Check for dirt buildup. Check that ambient temperature does not exceed maximum. Refer to Martin Architectural.
Lamp life unexpectedly short (note that lamp manufacturers state <i>average</i> life, not <i>minimum</i> ).	Defective lamp.	Replace lamp.
	Strain on lamp or excessive lamp strikes.	Always allow lamp to fully warm up for five minutes before switching off. Leave lamp powered and use intensity command to reduce light output to zero if only cutting light output for short periods. Leave power applied for at least 8 minutes after switching off lamp to allow cooling fans to reduce temperature.

## 8.15 Accessories

This section lists the optional accessories available for the Exterior 1200 Image Projector. You can find an updated list on the Martin Architectural website at <http://www.martin-architectural.com>.

Installation instructions are included with all accessories and can also be downloaded from the Support area of the Martin Architectural website.

### **Custom color filters, rotating gobos and gobo animation wheels**

A range of dichroic color filters, including various CTC (color temperature control) filters, rotating gobos and gobo animation wheels is available from Martin Architectural.

### **Permanent CTC kit**

A permanent CTC kit consisting of a dichroic color filter in a metal filterholder that can be permanently installed in the lamp/effects module is available from Martin Architectural. With the filter fitted, color temperatures are reduced, giving warmer colors but with slightly reduced light output.

### **Snoot/barndoors kit**

Other accessories, such as snoot/barndoors accessories that can be used to mask the beam and control glare, are available from Martin Architectural.

### **Lens options and auto-configuring**

The lenses from the Narrow, Medium and Wide models are available separately from Martin Architectural as accessory kits. Installation instructions are included with each lens kit.

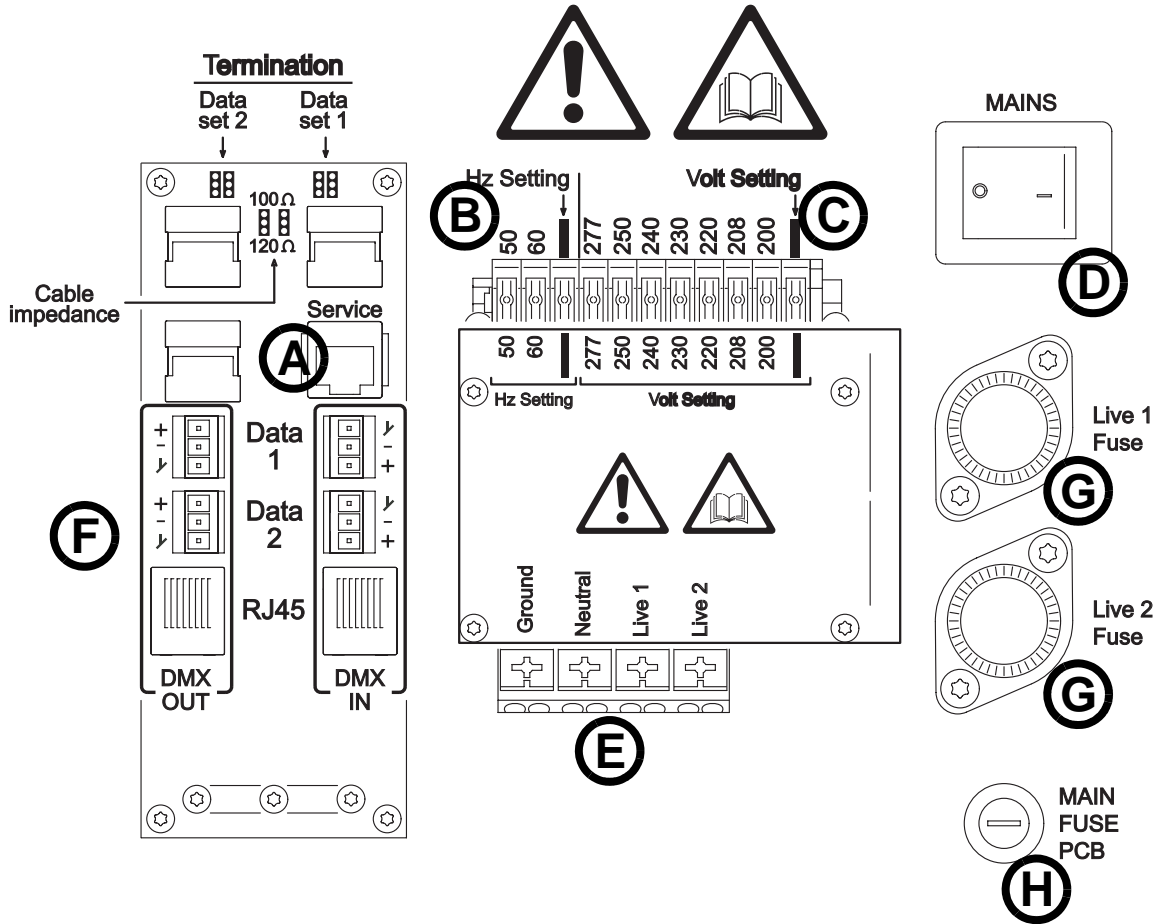
If a new lens type is installed, the Exterior 1200 Image Projector will recognize the new lens when it is powered on and automatically configure itself to match the lens. Installing a different lens option is thus a 'plug and play' operation.



# Section 9. Reference

# 9.1 Connections compartment

The connections compartment behind the rear cover plate contains the elements illustrated below:



- A - Service port (RJ-45 socket)
- B - AC power frequency setting jumper
- C - AC power voltage setting jumper
- D - Main power on/off switch
- E - AC power connection terminals
- F - DMX connection terminals
- G - Main fuseholders
- H - Main PCB (low voltage) fuseholder



## 9.2 LED status messages

LED 1	LED 2	Status
Steady green	-	Effects OK
-	Steady green	Data OK
-	Off	Waiting for data
-	Steady red	Invalid data / no data
Steady red	Steady red	Display software being updated
Steady yellow	Steady yellow	Waiting for upload or upload in progress
Flashing yellow	Flashing yellow	Reset in progress
Steady green	Flashing yellow	Slave PCB update (automatic internal process, occurs after software upload)
Flashing red & green	-	Error detected. See message in display or contact service technician

**Table 5: LED status messages**

The three-digit version number (*major.minor.build*) of the installed software is displayed by the LEDs on power up. The number of:

- Red flashes in LED 1 indicates the major number, followed by,
- Green flashes in LED 2 to indicate the minor number, followed by,
- Red flashes in LED 2 to indicate the build number (only used for beta releases)

For example, if the software version is 1.3.0, LED 1 flashes red once and LED 2 flashes green three times.

## 9.3 Onboard control panel menus

Menu	Options	Notes	
Fixture address	1 - 496	Set the luminaire's DMX address	
Standalone	SA-Enable	Enable stand-alone operation	
	SA-Execution	Single	Set luminaire to independent stand-alone operation
		Master	Set luminaire as master in master/slave synchronized stand-alone operation
		Synchr	Set luminaire as slave in master/slave synchronized stand-alone operation
Personality	DMX Lamp off	When enabled, allows lamp to be turned off via DMX	
	DMX Reset	When enabled, allows luminaire to be reset via DMX	
	Auto lamp on	When enabled, turns lamp on as soon as power is applied to luminaire	
	Fan regulation	When enabled, cooling fan speed is temperature-regulated (when disabled, fans run at full speed)	
	Display Errors	When enabled, gives priority in the display to error messages	
	Setup C/F	Set temperature readouts to degrees Centigrade or Fahrenheit	
	Set backlight level	Set brightness of display backlighting (0 - 100)	
	Set clock	Set real-time clock	
	Reset counters	Reset all counters	Reset all counters
		Reset power hours	Reset power hours counter
		Reset lamp hours	Reset lamp hours counter
Reset lamp strikes		Reset lamp strikes counter	
Load Factory Default	Return all luminaire settings to factory default		
Info	Version	Displays main luminaire software and control panel display software versions	
	Optical system	Displays currently installed optical system (Narrow, Medium or Wide)	

Table 6: Onboard control panel menus

Menu	Options	Notes	
Manual	Fixture reset	Reset luminaire	
	Set lamp On	Turn on lamp	
	Set lamp Off	Turn off lamp	
	Set strobe	Strobe off	No strobe
		Normal strobe	Regular strobe (speed 0 - 23)
		Random strobe fast	Random strobe, fast
		Random strobe medium	Random strobe, medium speed
		Random strobe slow	Random strobe, slow
	Set Intensity	Set shutter position (0 - 255)	
	Set Cyan	Set cyan position (0 - 255)	
	Set Magenta	Set magenta position (0 - 255)	
	Set Yellow	Set yellow position (0 - 255)	
	Set Colorwheel	Set color wheel to full positions (1-4), split positions (0-199) or continuous rotation from full speed clockwise to counter-clockwise (0 - 55)	
	Set Animation	Mode→Index/Rotate	Set gobo animation wheel to de-activated or applied with indexing or rotation
		Orientation→0-89	Set gobo animation wheel angle (horizontal→vertical)
		Adjustment	Adjust gobo animation indexing or rotation speed (0 - 255)
	Set Gobo	Mode→Index/Rotate	Set rotating gobo to indexing or rotation
		Gobo→1-4	Select rotating gobo 1 - 4
		Adjustment	Adjust rotating gobo indexing or rotation speed (0 - 255)
	Set Focus	Set focus position (0 - 255)	
Set Zoom	Set zoom position (0 - 255)		
Optical Change Pos	Move zoom and focus cars to correct position for changing lenses or other optical components		
Utility (press for 3 seconds to activate menus)	Adjust	Fixture reset	Reset luminaire
		Set lamp On	Turn on lamp
		Set lamp Off	Turn off lamp
		Adjust effects	All – Zoom: open or close effects (for adjustment and test purposes)
	Calibrate	Cal Intensity	Move shutter to intensity calibration position
		Cal Focus	Move focus car to focus calibration position
		Cal Zoom	Move zoom car to zoom calibration position
Force Upload	Set luminaire to receive boot mode software upload		

Table 6: Onboard control panel menus

## 9.4 DMX protocol

DMX channel	Value	Percent	Function
1	0 - 19	0 - 7	<b>Reset, lamp on/off, shutter</b> Shutter closed
	20 - 207	8 - 81	Shutter open
	208 - 217	82 - 85	Reset <sup>(1)</sup>
	218 - 227	86 - 89	Shutter open
	228 - 237	90 - 92	Lamp power on
	238 - 247	93 - 97	Shutter open
	248 - 255	97 - 100	Lamp power off: value must be held for 5 seconds <sup>(2)</sup>
2	0 - 255	0 - 100	<b>Intensity</b> Intensity 0 → 100%
3	0 - 255	0 - 100	<b>Intensity fine</b> Low → high
4	0 - 255	0 - 100	<b>Cyan</b> White → cyan
5	0 - 255	0 - 100	<b>Magenta</b> White → magenta
6	0 - 255	0 - 100	<b>Yellow</b> White → yellow
7	0	0	<b>Color wheel scroll and rotation</b> <b>Indexed scrolling</b> Slot 1
	1 - 49	1 - 19	Slot 1 → Slot 2
	50	20	Slot 2
	51 - 99	20 - 39	Slot 2 → Slot 3
	100	39	Slot 3
	101 - 149	40 - 58	Slot 3 → Slot 4
	150	59	Slot 4
151 - 199	59 - 78	Slot 4 → Slot 1	
200 - 227	78 - 89	<b>Continuous rotation</b> Clockwise fast → slow	
228 - 255	89 - 100	Counter-clockwise slow → fast	
8	0 - 9	0 - 3	<b>Rotating gobos selection and rotation</b> <b>Selection</b> ( <i>set indexing angle on channels 9 + 10</i> ) Open
	10 - 19	4 - 7	Gobo 1
	20 - 29	8 - 11	Gobo 2
	30 - 39	12 - 15	Gobo 3
	40 - 99	16 - 39	Reserved: selecting this value has no effect
	100 - 109	39 - 43	<b>Continuous rotation</b> ( <i>set speed on channels 9 + 10</i> ) Open
	110 - 119	43 - 47	Gobo 1 rotation
	120 - 129	47 - 51	Gobo 2 rotation
	130 - 139	51 - 54	Gobo 3 rotation
	140 - 255	55 - 100	Reserved: selecting this value has no effect

9	0 - 255	0 - 100	<b>Rotating gobos: indexing and speed</b> <b>Indexing</b> ( <i>when selected on channel 8</i> ) Gobo indexing 0° - 395°
	0 - 2	0 - 1	<b>Continuous rotation</b> ( <i>when selected on channel 8</i> ) No rotation
	3 - 127	1 - 49	Clockwise slow → fast
	128 - 252	50 - 99	Counter-clockwise fast → slow
	253 - 255	100	No rotation
10	0 - 255	0 - 100	<b>Rotating gobos: indexing/rotation speed (fine)</b>
11	0 - 9	0 - 3	<b>Animation wheel: angle position and function</b> ( <i>set indexing and rotation direction and speed on channel 12</i> ) Open
	10 - 19	4 - 7	Horizontal angle position, indexing
	20 - 29	8 - 11	Vertical angle position, indexing
	30 - 39	12 - 15	Horizontal angle position, continuous rotation
	40 - 49	16 - 19	Vertical angle position, continuous rotation
	50 - 139	20 - 54	Horizontal → vertical angle position, indexing
	140 - 229	55 - 90	Horizontal → vertical angle position, continuous rotation
	230 - 255	90 - 100	Open
12	0 - 255	0 - 100	<b>Animation wheel: indexing, rotation speed and direction</b> <b>Indexing</b> ( <i>when selected on channel 11</i> ) Animation wheel indexing 0 → 395°
	0 - 2	0 - 1	<b>Rotation</b> ( <i>when selected on channel 11</i> ) No rotation
	3 - 127	1 - 49	Clockwise rotation slow → fast
	128 - 252	50 - 99	Counter clockwise rotation fast → slow
	253 - 255	100	No rotation
13	0 - 255	0 - 100	<b>Focus</b> Infinity → near
14	0 - 255	0 - 100	<b>Focus (fine)</b>
15	0 - 255	0 - 100	<b>Zoom</b> Wide → narrow
16	0 - 255	0 - 100	<b>Zoom (fine)</b>
17	0 - 2	0 - 1	<b>Effects speed</b> Tracking mode
	3 - 245	2 - 95	Vector mode fast → slow
	246 - 251	96 - 99	Tracking mode
	252 - 255	99 - 100	Tracking mode, blackout while moving

(1) If DMX reset without confirmation is disabled in the control menus (**Personality** → **DMX Reset**), the Exterior 1200 Image Projector can still be reset via DMX if confirmation is given by setting channels 4 (cyan), 5 (magenta) and 6 (yellow) to a value of 230 - 232.

(2) If DMX lamp off without confirmation is disabled in the control menus (**Personality** → **DMX Lamp off**), the lamp can still be powered off via DMX if confirmation is given by setting channels 4 (cyan), 5 (magenta) and 6 (yellow) to a value of 230 - 232.

# Exterior 1200 Image Projector specifications

## Physical

Length .....	1006 mm (39.6 in.)
Width including mounting yoke .....	448 mm (17.6 in.)
Height including mounting yoke .....	620 mm (24.4 in.)
Weight .....	90 kg (198.4 lbs.)
EPA (Effective Projected Area).....	0.8 m <sup>2</sup> (8.5 sq. ft.)

## Lamp

Type.....	1200 W metal halide
Approved model .....	Philips MSD 1200
Lamp socket.....	G22
Control.....	Automatic and/or remote on/off

## Dynamic Effects

Color mixing .....	Independently variable continuous CMY
Cyan.....	0 - 100%
Magenta .....	0 - 100%
Yellow .....	0 - 100%
Color wheel .....	4 slots for interchangeable filters (one required for open)
Rotating gobo wheel .....	4 gobo positions (one required for open), gobo indexing, continuous gobo rotation
Gobo animation wheel .....	Interchangeable, indexing, rotation with variable angle, speed and direction
Mechanical dimmer/shutter .....	0 - 100% variable dimming, instant open and blackout
Focus .....	Approx. 3 m (9.8 ft.) to infinity
Motorized zoom, narrow lens .....	12° - 18°
Motorized zoom, medium lens .....	18° - 36°
Motorized zoom, wide lens.....	31° - 51°

*Zoom limits stated as cut-off angles*

## Control and Programming

Control options .....	DMX, stand-alone, synchronized (master/slave)
DMX channels.....	17
DMX address setting.....	MUM (Multi-Utility Manager), onboard control panel
16-bit control .....	Mechanical dimmer, rotating gobo indexing/speed, focus, zoom
Stand-alone trigger options .....	Internal timer and/or ambient light level
Stand-alone memory.....	20 scenes
Stand-alone programming.....	MUM, onboard control panel
Protocol.....	USITT DMX-512A
Receiver .....	RS-485

**Construction**

Housing ..... Aluminum  
Finish ..... Clear anodized  
Front glass ..... 6 mm, anti-reflection coated  
Color wheel filters ..... 1.2 mm, dichroic, hexangular  
Protection factor..... UL wet location, main enclosure IP65

**Gobos**

Material ..... Metal or glass  
Size.....D  
Outside diameter .....53.3 mm (2.1 in.) +/- 0.3 mm (0.01 in.)  
Maximum image diameter ..... 48 mm (1.9 in.)  
Maximum thickness ..... 2 mm (0.1 in.)  
Image orientation..... True from lamp side

**Installation**

Orientation ..... Any (air intake must face down)  
Minimum distance to combustible materials ..... 1 m (40 in.)  
Minimum distance to illuminated surfaces ..... 1 m (40 in.)  
Minimum clearance around heat exchanger cowling..... 135 mm (5.5 in.)  
Minimum clearance from top of luminaire to building member ..... 150 mm (6 in.)  
Minimum clearance from center of fixture to side building member ..... 400 mm (16 in.)  
Minimum center-to-center distance in side-by-side installation ..... 800 mm (31.5 in.)

**Connections**

Power cable entry .....IP68 cable gland  
Power connection .....Quick connectors  
Data cable entry .....IP68 cable gland  
Data connection..... RJ-45 or screw terminal/quick connectors

**Electrical**

AC power .....200/208/220/230/240/250/277 V nominal, 50/60 Hz  
Main fuse ..... 17.5 AT (slow blow)  
Ballast.....Magnetic

**Typical power and current\***

200 V, 50 Hz ..... 1380 W, 7.0 A, PF 0.975  
200 V, 60 Hz ..... 1405 W, 7.3 A, PF 0.960  
208 V, 60 Hz ..... 1417 W, 7.1 A, PF 0.958  
220 V, 50 Hz ..... 1373 W, 6.4 A, PF 0.973  
230 V, 50 Hz ..... 1365 W, 6.1 A, PF 0.973  
240 V, 50 Hz ..... 1370 W, 5.9 A, PF 0.973  
250 V, 50 Hz ..... 1364 W, 5.6 A, PF 0.972  
277 V, 60 Hz ..... 1417 W, 5.4 A, PF 0.956

*\*Figures listed are typical, not maximum. Measurements taken at nominal voltage. Allow for +/- 10% variation. PF = Power factor.*

## Thermal

Maximum ambient temperature (Ta) .....	45° C (113° F)
Minimum ambient temperature (Ta) .....	- 20° C (- 4° F)
Maximum surface temperature, steady state, Ta=45° C .....	90° C (194° F)
Total heat dissipation (calculated, +/- 10%) .....	4950 BTU/hr.
Cooling .....	Forced air, integrated air/air heat exchanger, IP65 barrier

## Approvals



US safety .....	UL 1598
Canadian safety .....	CSA C22.2 No. 250.0-04
EU safety .....	EN 60 598-1, EN 61 347-1
EU EMC.....	EN 55 015, EN 55 103-1, EN 61 000-3

## Included Items

Philips MSD 1200 lamp.....	P/N 97010313
Two M16 x 1.5 IP68 cable glands, metal, cable diameter 5.5 - 10 mm (0.22 - 0.39 in.).....	P/N 13102030
One M20 x 1.5 IP68 cable gland, metal, cable diameter 8 - 13 mm (0.32 - 0.5 in.).....	P/N 13102090
Four M16 cable entry blanking plugs (installed), metal, with neoprene seals.....	P/N 13102050
Two M20 blanking plugs (installed), metal, with neoprene seal .....	P/N 13103030
Two main fuses, 17.5 AT (installed).....	P/N 05020045
Main PCB fuse, 15 AT (installed) .....	P/N 05020039
User manual.....	P/N 35000177

## Accessories

Narrow lens kit .....	P/N 91610083
Medium lens kit .....	P/N 91610084
Wide lens kit.....	P/N 91610085
Color, CTC and diffusion filters for color wheel .....	Contact Martin Architectural for details
Custom gobos.....	Contact Martin Architectural for details
Alternative gobo animation wheels .....	Contact Martin Architectural for details
Permanent CTC filter kit.....	Contact Martin Architectural for details

## Related Items

MUM (Multi Utility Manager) incl. DABS1 PC/luminaire interface & cables.....	P/N 90758090
Martin Universal USB/DMX Interface Box.....	P/N 90702045

## Ordering Information

Exterior 1200 Profile, Narrow .....	P/N 90504065
Exterior 1200 Profile, Medium.....	P/N 90504075
Exterior 1200 Profile, Wide .....	P/N 90504085

*Part numbers are for one single item unless stated otherwise.*

*Specifications subject to change without notice.*



## Notes



### **Disposing of this product**

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

Help preserve the environment! Ensure that this product is recycled at the end of its life. Your supplier can give details of local arrangements for the disposal of Martin® products.

Notes





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