martinarchitectural



Imager Series

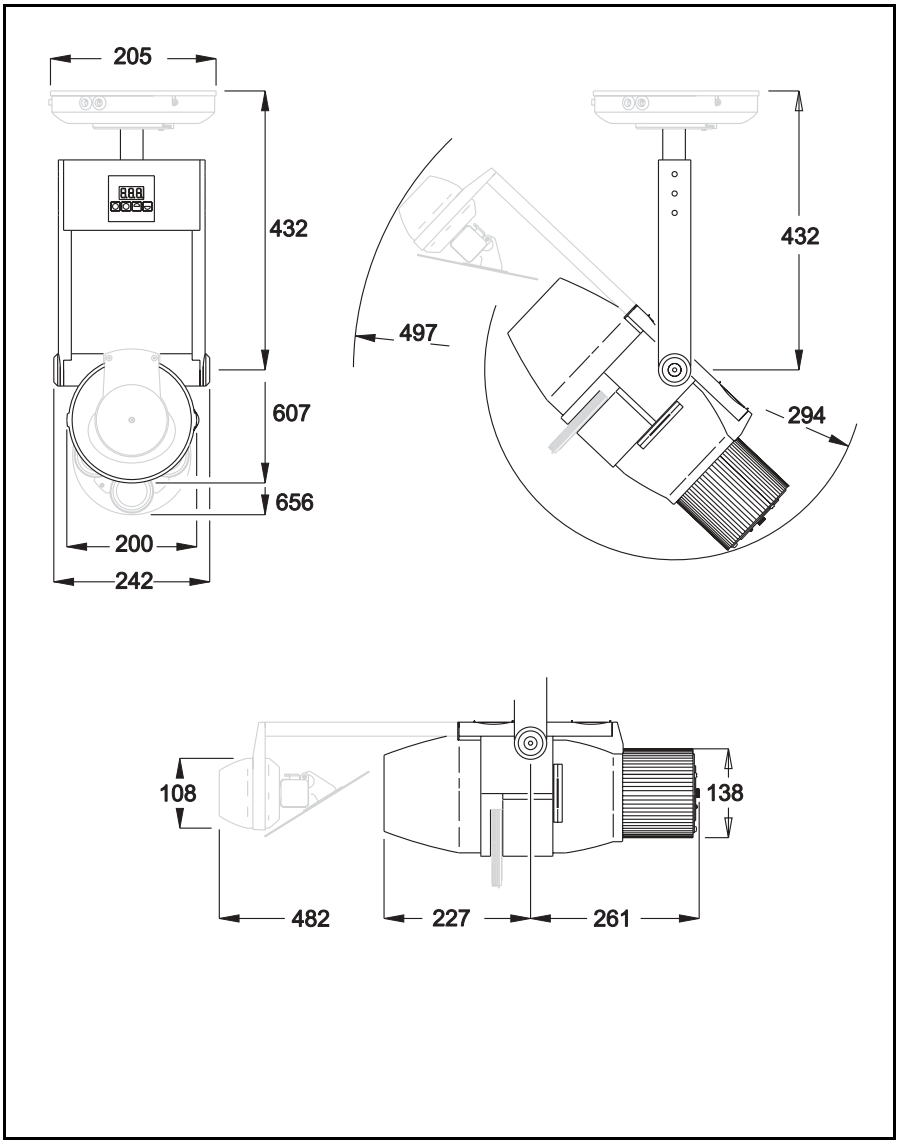




user manual

Martin

Measurements are in millimeters



© 2003-2004 Martin Professional A/S, Denmark.

All rights reserved. No part of this manual may be reproduced, in any form or by any means, without permission in writing from Martin Professional A/S, Denmark.

Printed in Denmark.

P/N 35000127, Rev D

Section 1. Getting started 5
Introduction 6
Safety information 6
Task checklist 8
Installation 9
Unpacking 9
Configuration overview 10
Prerequisites 10
Power 12
Mounting orientation and location 12
Data linking multiple luminaires 16
Replacing the Imager J-Box cover 18
Adjusting the projection angle 18
General operation 19
External control 19
Stand-Alone programming 19
Control panel 20
Menus 20
Section 2. Stand-Alone operation 25
Stand-Alone programming overview 26
About scene timing 26
Synchronizing scene changes for multiple Imagers 27
Programming methods 28
Programming using the optional infrared remote control 29
Before you begin programming 29
Remote control commands 30
Stand-Alone show playback 33
Starting show playback 33
Show Execution with the IR remote control 33
Scene execution Using the optional MC-X 34
DMX controller override during Stand-Alone show playback 34
Synchronous triggering during Stand-Alone operation 35
Section 3. DMX control 37
DMX Controller operation 38
Connecting a DMX control device 38
Set the appropriate DMX mode 38
Control address selection 39
Disable Stand-Alone operation (if required) 39
Lamp control 40

Effects . . . 40
Projection movement precision . . . 42

Section 4. Optics and projection accessories . . . 47

Gobos . . . 48
Image projection size . . . 48
Custom gobos . . . 48
Replacing a gobo . . . 50
Imager 04 DMX Gobo Wheel . . . 52

Filters . . . 53

Lens options . . . 54
Changing the lens . . . 54

Moving mirror . . . 56

Section 5. Service and troubleshooting . . . 59

Service . . . 60
Lamp replacement . . . 60
Cleaning . . . 61
Firmware updates . . . 62

Printed circuit board layout . . . 65

Troubleshooting . . . 66
Error messages . . . 66

Section 6. Reference . . . 69

Control menu structure . . . 70

DMX protocols . . . 74
Imager 04 DMX-Gobo Wheel . . . 75
Imager 04 DMX-Gobo Wheel with moving-mirror fitted . . . 76
Imager 01 DMX-Gobo . . . 78
Imager 01 DMX-Gobo with moving-mirror fitted . . . 80

Specifications - Imager . . . 82

SECTION 1. GETTING STARTED

Introduction

Thank you for selecting the Martin Imager. The Imager is a series of luminaires designed for high resolution projection of patterns, images, logos and messages. Imager luminaires are dedicated projectors suited to low-maintenance installations.

The Imager product range is made up of a number of luminaires and accessories:

- Imager 04 DMX Gobo Wheel - a DMX controlled four-gobo projector
- Imager 01 DMX Gobo - a DMX controlled single gobo projector
- Imager Base - provides power to a single Imager luminaire
- Moving mirror for Imager

Imager luminaires use a 250W discharge lamp. Three available lens options offer the choice of narrow, medium and wide beam angles. DMX control enables remote focus and control of effects. For colored projections there is a simple slot for easy-to-replace color filters.The Imager is also equipped with a dimming system designed to create gentle fades and transitions.

The optional moving mirror provides programmable movement, useful for roving logos or gliding messages. This attachment creates the possibility of precise, smooth movement in a range of 235° of pan by 65° of tilt. Luminaire settings are controlled via a 3-digit control panel or with an optional infrared remote control.

Safety information

Warning! ***This product is for professional use only. It is not intended for use in a dwelling.***

This product presents risks of lethal or severe injury due to fire and heat, electric shock, ultraviolet radiation, lamp explosion, and falls. Read this manual before powering or installing the luminaire, follow the safety precautions listed below and observe all warnings in this manual and on the luminaire. If you have questions about how to operate the luminaire safely, please contact your Martin dealer or call the Martin 24-hour service hotline at +45 70 200 201.

Protection from electric shock

- Disconnect the luminaire from AC power before removing or installing the lamp, fuses, or any part, and when not in use.
- 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 protection.
- Do not expose the luminaire to rain or moisture.
- Refer all service to a Martin service technician.

Protection from UV radiation and lamp explosion

- Never operate the luminaire with missing or damaged lenses and/or covers.
- When replacing the lamp, allow the luminaire to cool for at least 30 minutes before opening the luminaire or removing the lamp. Protect your hands and eyes with gloves and safety glasses.
- Do not stare directly into the light. Never look at an exposed lamp while it is lit.
- Replace the lamp if it becomes defective or worn out.
- Replace any cracked protective shields.

Protection from burns and fire

Warning ***The exterior of the luminaire can reach temperatures up to 100° C (212° F) at room temperature (25° C / 77° F). Allow the luminaire to cool for 30 minutes before handling.***

- Never attempt to bypass the thermostatic switch or fuses. Always replace defective fuses with ones of the specified type and rating.
- Keep all combustible materials (for example fabric, wood, paper) at least 1 meters (39 inches) away from the Imager luminaire.
- Do not illuminate surfaces within 0.5 meters (20 inches) of the luminaire.
- Provide a minimum clearance of 0.1 meters (4 inches) around fans and air vents.
- Never place filters or other materials over the lens.
- Do not modify the luminaire or install other than genuine Martin parts.
- Do not operate the luminaire if the ambient temperature (Ta) exceeds 40° C (104° F).

Protection from injury due to falls

- When suspending the luminaire above ground level, verify that the structure can hold at least 10 times the weight of all installed devices.
- Verify that all external covers and rigging hardware are securely fastened
- Block access below the work area whenever servicing, installing or removing the luminaire.

Task checklist

√	Task	See
	Install Imager Base	Imager Base user manual (P/N 35000128)
	Unpack and check all parts are included	page 9
	Install any optical options such as gobos, lens, filters, or a moving mirror.	page 47
	Install Imager J-Box and connect it to Imager Base	page 12
	Choose a location and connect Imager to J-Box	page 13
	Create data link if using multiple luminaires	page 16
	Set Imager personalities using the control menus	page 20
When DMX control device is used		
	Connect DMX control device (if used)	page 38
	Using the control menus, set Imager profile option to “d1” or “d2” and set the DMX address	page 20 and page 39
	Program show, or use live control, with DMX control device	page 40
When stand-alone program is used (*not available in software Version 1*)		
	If optional IR is used:	
	• Ensure data link not terminated	page 29
	• If this is the first luminaire in the data link, install the optional IR receiver	page 30
	• Set luminaire IR address	page 20
	If synchronous triggering of multiple luminaires is to be used, set triggering options (is the luminaire receiving or sending scene change triggers?)	page 27
	Create stand-alone program, using:	
	• MP-2 Upload device, or the	page 29
	• Optional IR remote control	page 29
	Run stand alone program	page 33

Installation

This section describes in general terms how to mount the luminaire and connect it to data and power. These procedures shall be performed by qualified professionals.

Note ***This product must be installed in accordance with the applicable installation code by a person familiar with the construction and operation of this product and the hazards involved.***

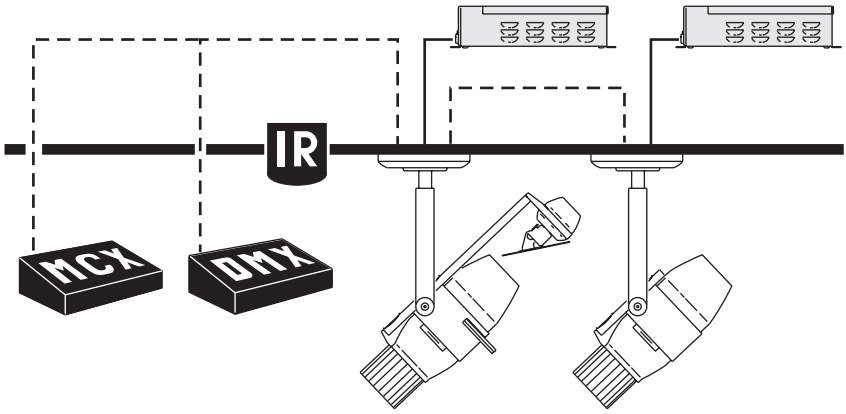
Unpacking

The Imager is supplied with the following items:

- OSRAM HSD 250/80 lamp (installed)
- User manual
- Beacon gobo (pre-installed)
- Four cable glands
- Imager J-box (with terminator pre-installed)
- 2.5 mm Allen key/hex wrench
- 4 rubber cable-glands
- J-Box

Configuration overview

The Imager is designed to be attached to a ceiling mounted Imager J-Box.



The J-Box is connected to a controlling device and power. An Imager Base supplies power to the Imager via the J-Box.

The Imager is controlled via one of the following methods:

- DMX control device (such as a DMX controller or DMX recorder) which sends control signals in real-time
- Martin MC-X remote control to trigger a pre-programmed stand-alone show
- Martin Infrared receiver and remote control transmitter (to program and run stand-alone shows)

A single Imager running a pre-programmed stand-alone show can trigger scene changes in other Imager luminaires (or in Martin Alien 02 or Martin MiniMac Maestro luminaires).

Prerequisites

Tasks

The procedures described here assume the that Imager Base has been installed and power cables have been run from it to the position where the Imager luminaire will be installed. This is recommended, but not required. If you perform the procedures in a different order, then keep this in mind when reading the instructions supplied here.

Required tools

To install the Imager luminaire you will need the following items which are not supplied with the product:

- Four units of 6 mm mounting hardware appropriate to the mounting surface and appropriate to the approximately 11.6 kg (25.6 lbs) combined weight of the Imager J-Box and the Imager luminaire.
- Associated tools to install the mounting hardware
- Small flat head screwdriver
- 2.5 mm Allen key/hex wrench
- Box-cutter/razor knife
- CAT5 data cable (see “Creating a data link” on page 16)

Power

Power is supplied from an Imager Base via the Imager J-Box. They are connected using the following two cables (not supplied):

- Lamp power out cable - 5 x 1 mm2 (AWG 18)
- Low voltage output cable - 4 x 0.75 mm2 (AWG 18)

This product must be mounted or supported independently of an outlet box. During installation of this equipment consult a qualified electrician to ensure correct connection to branch circuit conductors.

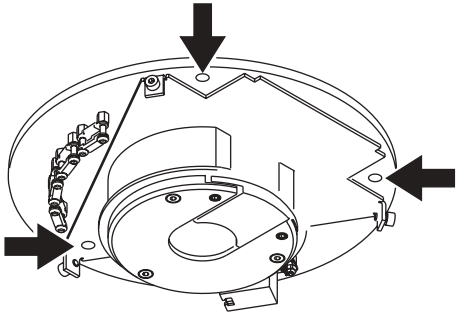
Mounting orientation and location

Do not locate the Imager luminaire in an unventilated space. Install the luminaire in a location where it is:

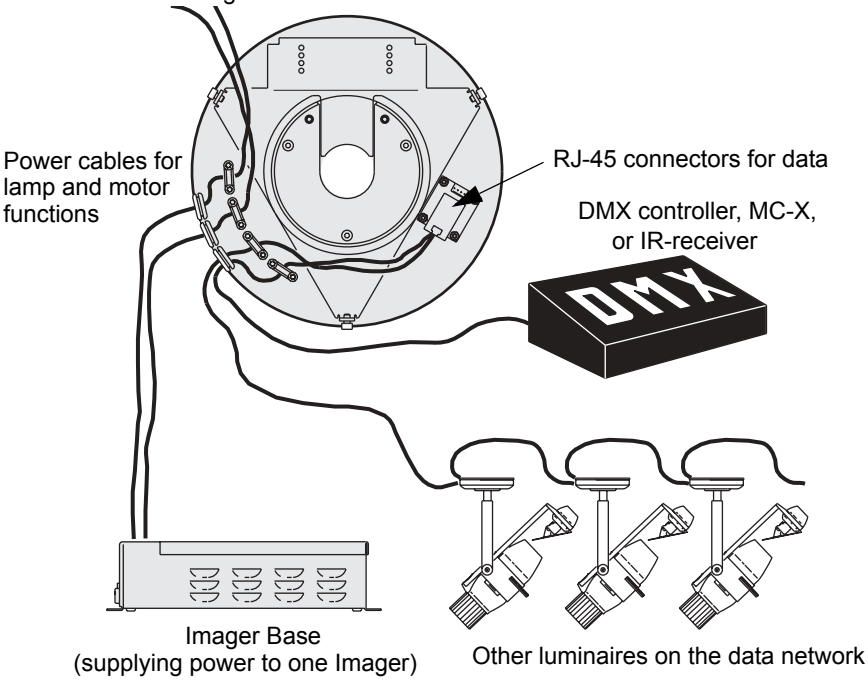
- at least 0.5 meters (20 inches) away from the surface to be illuminated,
- at least 1 meter (40 inches) away from any combustible materials, and
- away from accidental public contact.

Installing the J-Box

All Imager luminaires must be mounted using an Imager J-Box. Securely fasten the J-Box to a ceiling surface using 4 units of 6 mm (1/4 in.) mounting hardware appropriate to the mounting surface and appropriate to the combined weight of the J-Box and the Imager.



The following is an overview of the inside of the J-Box.

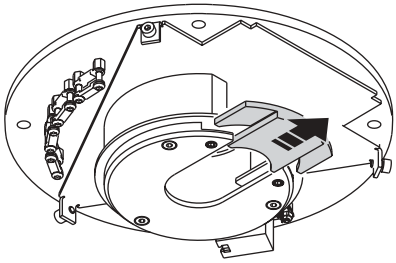


Attaching the Imager to a J-Box

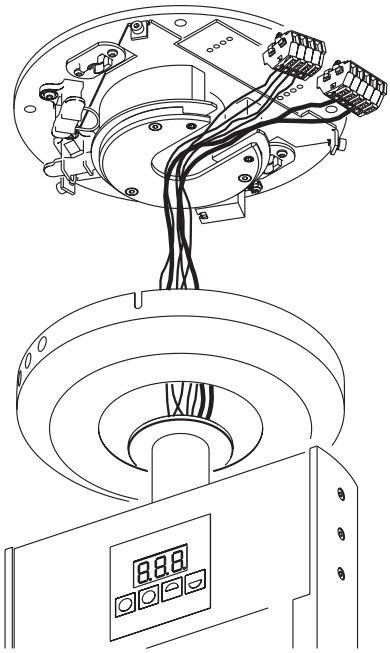
To attach the Imager to a J-Box:

1 Remove the J-Box cover by loosing the 3 Allen screws around the rim with a 2.5 mm Allen wrench.

2 Using the 2.5 mm Allen wrench to loose the two locking screws, remove the slotted section of the J-Box (indicated in grey).



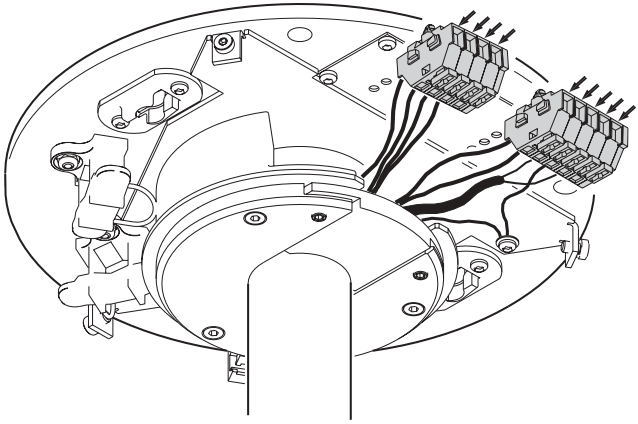
3 Pass the cables and mounting flange of the Imager though the center of the J-Box cover.



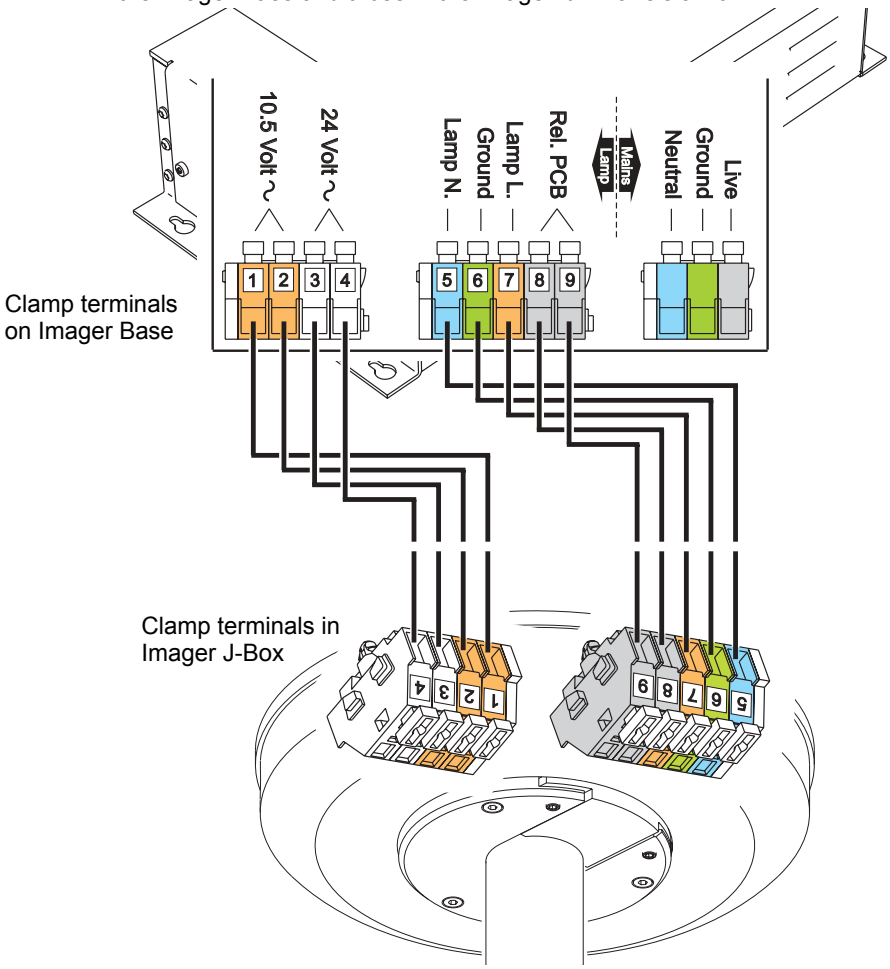
4 Slide the flange of the Imager into the slot on the J-Box. Replace the slotted section.

5 Move the Imager to the correct pan position and screw the locking screws in place using the 3 mm Allen wrench.

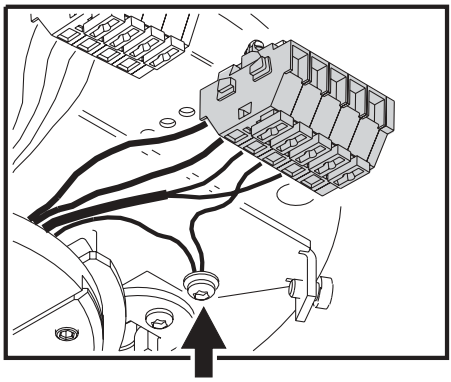
6 Connect the power cables running from the Imager Base to the clamp terminals in the Imager.



The following illustration shows the correlation between the clamp terminals in the Imager Base and those in the Imager luminaire's J-Box.



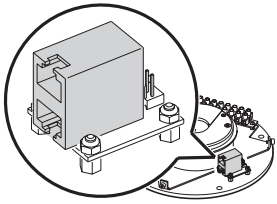
7 Clamp the ground wire running from the luminaire to the green terminal (at position 6) to the J-Box using the screw provided (illustrated here).



8 Push the clamp terminals in the J-Box into the holes that are provided so that they click into place.

9 Connect the data cable from the Imager luminaire to the data connector in the J-Box. This can be found just behind the RJ-45 connectors.

10 Perform any necessary steps in “Data linking multiple luminaires”.



Data linking multiple luminaires

You need to create a data link if you want to:

- Operate multiple Imagers with synchronized action
- Control more than one luminaire via a DMX control device
- Program multiple luminaires via the IR receiver and IR remote control

Creating a data link

The data transmission rate (250 kbits/s) used by DMX512 requires the selection of a cable which does not significantly distort the signal or give rise to spurious signal reflections. Cables intended for use with audio systems (microphone cables), while having the convenience of flexibility, availability and relative low cost, are NOT suitable for use with DMX512 because of their high capacitance and incorrect characteristic impedance; at DMX512 data rates this will give rise to bit time distortion and signal reflections/overshoot.

Cabling systems shall provide a balanced, nominal 120 ohm terminated transmission line, and be made of cables with a characteristic impedance in the range 100-120 ohms.

Note: ***Mixing cables of different impedances and other characteristics not isolated by buffers or other processing devices may affect system reliability.***

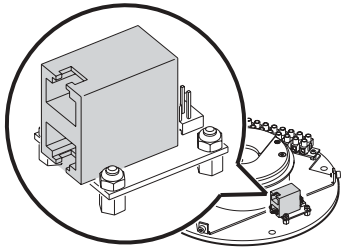
Always use solid or stranded shielded-twisted pair/foiled twisted pair (STP/FTP), 100 or 120 ohm cables that conform to ISO IEC 11801 category 5 or higher with RJ-45 connectors wired as follows

Pair	Wire #	Color	Function	DMX512 Pin
Pair 2	1	white / orange	data 1 +	DMX512 Pin 3
	2	orange	data 1 -	DMX512 Pin 2
Pair 3	3	white / green	data 2 +	DMX512 Pin 5
	4	green	data 2 -	DMX512 Pin 4
Pair 1	5	blue	Not assigned	
	6	white / blue	Not assigned	
Pair 4	7	white / brown	Signal Common (0 v)	DMX512 Pin 1
	8	brown	Signal Common (0 v)	DMX512 Pin 1
Shield			drain	

The minimum wire size is 0.2 mm (24 AWG) for runs up to 300 meters (1000 ft.) and 0.322 mm (26 AWG) for runs up 500 meters (1640 ft.). Your Martin dealer can supply the right cable in various lengths.

The: RJ-45 sockets in the Imager J-Box are wired as follows - pins 7 & 8 to ground, pin 2 to signal - (cold), and pin 1 to signal + (hot).

Creating the data link



1 Connect one of the RJ-45 connectors in the J-Box to a DMX control device, or one of the RJ-45 connectors in the next J-Box.

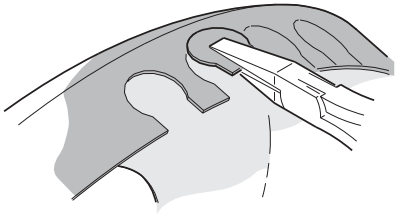
2 Continue connecting luminaires output to input. Up to 32 devices may be connected on a serial link. A termination plug is pre-installed and may need to be removed if you are connecting the luminaire to a subsequent luminaire on a network.

3 If you are not using the infrared remote control and receiver, ensure that the the link is terminated with an RJ-45 termination plug (one is supplied and pre-installed in the J-Box) into the DMX data output of the last J-Box.

Warning ***If you are using Stand-Alone programs (see "Stand-Alone programming overview" on page 26) on multiple luminaires on a data link and you experience random "flicker" or other unexplained control problems, insert a female termination plug (P/N 91613018) into the last luminaire on the data link.***

Replacing the Imager J-Box cover

1 Four holes, for cabling, are semi-stamped in the side of the J-Box cover. If these are needed, take a pair of needle-nose pliers and break the metal stamps out of the cover. Place the supplied cable glands over the cables and push them into the holes in the junction-box cover.



2 Before closing the J-Box ensure that the power and data network cables ("Data linking multiple luminaires" on page 16) are attached to the terminals.

3 Push the Imager J-Box cover into place.

4 Using the 2.5 mm Allen wrench, tighten the three Allen screws that hold the cover in position.

Adjusting the projection angle

You can adjust the angle of the luminaire by making adjustments at the joints. To adjust a joint, use the 6 mm Allen wrench to loosen the joints on either side of the luminaire. Adjust to the desired angle and re-tighten.

General operation

When the Imager is connected to power it resets. After a few seconds, the following text appears in the control panel display:

1 IM, followed by

2 VER, followed by

3 the version number of the installed software, followed by

4 rst

When the reset is completed, the luminaire's DMX address will appear in the control panel display.

External control

The Imager can be controlled with DMX signals from a DMX control device such as a DMX recorder or DMX controller. This is described in "Section 3. DMX control" on page 37.

Stand-Alone programming

Using stand-alone programming, there are three ways of programming and storing a show in the luminaire itself:

- Via an MP-2 Uploader, or
- Using the optional IR remote control (that communicates with the optional IR receiver mounted on the first luminaire in a data link). This method is popular for installations of up to 10 luminaires because access to the various functions is faster, and because multiple luminaires can be simultaneously selected and programmed from a single IR remote control unit (this potentially time-saving method is known as IR Stand-Alone). If you have any MiniMac Maestro or Alien 02 luminaires installed on the data link you can also use this method to program them.

Stand-Alone programming is described in "Section 2. Stand-Alone operation" on page 25.

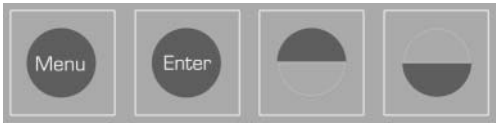
Control panel

The control panel is used to set the luminaire's address and other settings. It can also be used to operate the luminaire in a limited way manually for testing and service purposes.

The control panel will (by default in the personality settings) be deactivated and switch off after 2 minutes if no buttons are pressed. When inactive error messages will still be displayed (provided that this has not been deactivated in the luminaire personality settings). To reactivate the display press one of the buttons for two seconds and release it.

Navigating the control menu

The control panel displays the luminaire's address at the top of the menu. If there are any error messages, these are displayed as well. To get to the top of the menu, press [menu] repeatedly. From the top, press [menu] to enter the main menu. Press [up] or [down] to scroll through menus and press [enter] to view submenus. To activate a setting or function, press [enter]. To return to the previous menu or to escape without making a selection, press [menu].



Inverting the display

Press [up] and [down] at the same time.

Menus

The control panel menu is detailed in "Control menu structure" on page 70. They are described at a high level here.

Address menu (Adr)

Depending on the setting in the Profile menu (see "Profile menu (Pro)" on page 21) the Address menu is used to set either a:

- DMX control address (1-512), where a luminaire will be controlled by DMX signals from a DMX control device.
- IR luminaire ID number (0-9), where a luminaire will be programmed using an IR remote control.

Profile menu (Pro)

The Profile menu contains options where you can specify if the luminaire is:

- Using the IR remote control system and has the IR received installed (option rCS), or
- Using the IR remote control system and does not have the IR receiver installed (option rCr), or
- Not using the IR remote system (options d1 or d2). Always specify one of these when the optional IR remote control system is not in use:
  - *DMX mode 1* uses 9 channels and does not allow fine adjustment of movement and effects.
  - *DMX mode 2*, which is the default, uses 12 channels and allows fine adjustment of movement and effects.

Stand-alone menu (SA)

The Stand-Alone menu commands can be used to execute scenes in Stand-Alone mode. See “Programming using the optional infrared remote control” on page 29 for further information.

Adjustment menu (Adj)

The Adjustment menu (AdJ) provides manual control for service use.

Personality menu (Per)

The Personality menu sets some basic characteristics, or the personality, of the luminaire.

Lamp-off and reset

These options enable you to disable the lamp-off and reset commands that are used on DMX channel 1. This might be useful if you are using a DMX control device with your Imager, because it reduces the chance of accidently selecting lamp-off on channel 1 during a show. The default is that these commands are enabled.

Note that the lamp must be allowed to cool for at least 6 minutes after turning it off before it can be re-struck. A 6-minute hot-restrike delay is programmed into the Imager software from the time that the light is extinguished, or the power is switched off, to ensure that this occurs. If you attempt to strike the lamp and do not succeed, the luminaire will reattempt to strike itself after 6 minutes (and a hot lamp warning/error will appear in the display), unless you issue the lamp off command. If the luminaire fails these two attempts to strike, the lamp will be assumed to be defective and the LE (lamp error) message will appear.

Automatic lamp-on

When enabled, this will strike the lamp automatically within 90 seconds of applying power to the luminaire. By default this is set to `Off`.

Display

Turn off the display 2 minutes after the last key press or leave it on. This setting will be overridden by error and warning messages. By default this option is on.

Store remote status (SrS)

This SRS option is only relevant when you are using the optional infrared remote control and receiver. If SRS is:

- On (default), and you start or stop the programmed show using the IR remote control, the luminaire will additionally be set to automatically start or stop the show next time it is powered on.
- Off, the IR remote control has no influence over the automatic starting of a programmed show at power-on. This is controlled by the `SA / Run` menu (see “Starting show playback” on page 33).

Enable lamp off control from an MC-X

When using an MC-X control device to select and run scenes, button 7 can be used to turn the lamp off. By default this option is off.

The lamp must be allowed to cool for at least 6 minutes after turning it off before it can be re-struck. A 6-minute hot-restrike delay is programmed into the Imager software from the time that the light is extinguished, or the power is switched off, to ensure that this occurs. If you attempt to strike the lamp and do not succeed, the luminaire will reattempt to strike itself after 6 minutes (and a hot lamp warning/error will appear in the display), unless you issue the lamp off command. If the luminaire fails these two attempts to strike, the lamp will be assumed to be defective and the LE (lamp error) message will appear.

Errors and warnings message toggle

This enables error and warning messages to be suppressed. This enables, for example, the continued programming of a luminaire that has a non-critical error. The default setting is On, which means that errors messages will not be suppressed and can be seen, when active, at the top level of the control menu structure.

Lamp Temperature fan regulation

Allows the lamp fan in a Imager to be automatically adjusted based on the temperature. This is on by default.

Gobo Temperature fan regulation

Allows the gobo fan in a Imager to be automatically adjusted based on the temperature. This is on by default.

Temperature warnings enabled

Enables temperature warnings to appear in the display and shut down the lamp.

Lamp hour warning

Using this menu you can enable or disable lamp life warnings and set the number of hours of expected life that apply to the lamp type installed. A counter operates that can be read and reset in the `Inf` menu. When the resettable lamp hour counter reaches:

- 100 hours less than the predefined lamp hour warning level, the display will start blinking 'Lhu' in the display. At this point you should change the lamp to avoid the risk of lamp explosion.
- The predefined lamp hour warning level, the lamp shuts off and can not be turned on again before the counter is reset, or the predefined lamp hour warning level has been redefined.

This is option is off by default. We recommend that you activate the Lamp Hour Warning function on the Imager and that you set the expected number of hours of life the lamp has. Remember to also reset the lamp hour counter using the Information menu.

Note that because the display is limited to 3 digits, and many lamps have a life that is measured in thousands of hours, the counters are set to 1/100ths of their actual value. For example for a lamp that has a life of 3000 hours, the lamp hour warning level would be set to 30.

Restore factory defaults

Restores factory default settings in the Personality menu.

Reset all counters

Resets all resettable counters (these are found under the Information menu).

Information menu (INF)

The Imager provides readouts to track usage, temperature, maintenance intervals, lamp life, and software version. Values from 1000 to 9999 are automatically scrolled and counters roll over to 0 after 9,999.

Displaying or resetting a counter

Scroll to `Inf` in the main menu, press [enter] and scroll to the desired readout. Press [enter] and scroll to the desired option. Press [enter] to display the information.

Note that the resettable counters (`rES`) in the `Inf` menu can be set to zero by pressing and holding [up] for approximately 5 seconds, until the readout displays `0`.

Utility menu (Utl)

The Utility Menu is used to set the luminaire into Boot Upload Mode. See “Firmware updates” on page 62.

Test menu (tSt)

This is used by Martin service personnel to test the printed circuit board.

SECTION 2. STAND-ALONE OPERATION

Stand-Alone programming overview

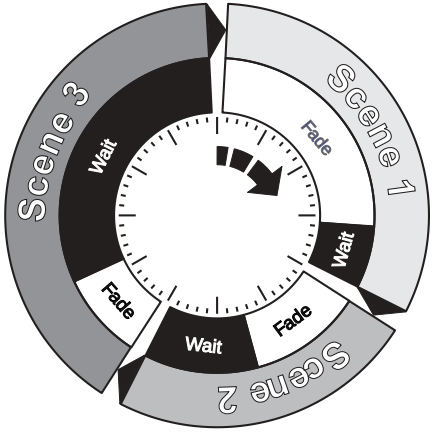
In stand-alone mode, individual Imagers can be programmed to run a show of up to 20 scenes without an external controller. This can be done using the control panel or the optional IR remote control system.

The Imager will run its show in a continuous loop.

Multiple Imagers on a data link all have their own shows individually programmed, but can have scenes synchronously triggered by a one luminaire on the data link.

About scene timing

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 0 - 12 hours. The total time it takes a scene to execute is the sum of the fade and wait times.

When operating multiple luminaires synchronously, the wait time is determined by the luminaire that issues scene change commands. It does this when it reaches the end of each scene wait time. Every other luminaire fades and waits at the its own rate and then remains in the "wait state" until receiving a start scene *xx* command. When programming in synchronous triggering situations, keep in mind that in order to keep things as simple as

possible there are two rules of thumb that will make life much easier; try to ensure that:

1 Every luminaire has the same number of scenes.

2 Respective scene times are a few seconds longer on the luminaire that issues triggering commands.

The rules used in the algorithm are detailed in “Synchronous triggering during Stand-Alone operation” on page 35.

Synchronizing scene changes for multiple Imagers

In situations where you are running multiple Imagers on a data link it is possible to synchronize scene changes. Read this section if this applies in your case.

It is important to note that each individual luminaire must be programmed with a show and that the only commands that are passed are scene change commands. No data about the look of the scene is passed between luminaires.

Setting synchronized triggering options

1 Scroll to SA in the top level of the menus on the control panel and press [enter].

2 Scroll to SAE and press [enter].

3 Select:

Sin	If the luminaire will operate in isolation (with no synchronous triggering). This is the factory default setting.
Snd	If the luminaire will send scene triggering signals to the other Imagers on the data link.
Syn	If the luminaire should “listen” for scene trigger signals on the data link.

4 Press [enter].

Programming methods

The Imager provides two stand-alone programming methods:

- Using an MP-2 Upload device. See the *MP-2 user manual* for further information, or
- Using the optional infrared remote control and infrared receiver. Using this method, you can simultaneously select and program up to ten Imager luminaires on a single data link using a handheld remote. This method can save time programming individual luminaires. See “Programming using the optional infrared remote control” on page 29 for further information.

Programming using the optional infrared remote control

Programming can be performed using an optional infrared transmitter and receiver system that are orderable from your Martin dealer. Infrared programming can be performed for a single luminaire, or up to 10 luminaires on a data link.

The optional IR remote control device can be used to program 20 scenes that make up a show. Note that:

- Every luminaire can have up to 20 on-board scenes with individual fade & wait times.
- Scenes are numbered from 0 to 19.
- A scene contains a fade-section where the luminaire shifts to the scene, followed by a wait-section where the scene effect is shown.
- Programming using the IR remote control is easiest when the display on the Imager control panel can be seen.

You can also program any Alien 02 or MiniMAC Maestro luminaires on the same data link. Refer to the respective user manuals for further information.

Note that it is always possible to perform stand-alone programming using an MP-2 uploading device (refer to the *MP-2 user manual* for more information).

Before you begin programming

If you are running multiple luminaires, ensure that:

- You have established a data link (see “Data linking multiple luminaires” on page 16) and that the IR-receiver is connected to the data link (you may need an XLR-RJ-45 converter to do this) and installed in a line-of-site location.
- There is *no* termination plug in the last luminaire in the data link.

Ensure the stand-alone program is not running

To stop the current stand-alone program running:

1 Press [menu] to return to the top level of the menu.

2 Scroll to SA in the top level of the menus on the control panel and press [enter].

3 Scroll to run and press [enter].

4 Scroll to Off and press [enter].

5 Press [menu] to return to the top level of the menu.

Enabling infrared programming

Perform the following steps in this order:

1 Only the first luminaire on the data link can have an IR receiver. Insert the receiver module into the serial data In socket. Position the sensor arm as desired but avoid turning it more than necessary.

2 From the top level of the menu, scroll to Pro, press [enter].

3 If this luminaire:

- Does not have the IR receiver installed, scroll to rCr. Press [enter].
- Has the IR receiver installed, scroll to rCS. Press [enter].

4 Press [menu] to return to the top level of the menu.

5 Select Adr and press [enter]. Select an IR luminaire address from 0 to 9 and press [enter]. Note that if you have multiple luminaires that will run the same stand-alone scenes it might be a good idea for them to share the same IR luminaire address. This will save time when programming, as they will all receive and process the scene programming instructions simultaneously.

6 Press [menu] to return to the top level of the menu.

7 Stand 2 meters (6 ft.) away from the luminaire, point the remote control at the receiver, and press the lamp power button. If there is no response, try the ID button. If there is still no response, reverse the sensor head by rotating the sensor arm 180° and folding it over.

Remote control commands

Important! ***The luminaire will acknowledge the receipt each valid IR command with a slight change in intensity.***

Luminaire selection

Each luminaire must be assigned an address from 0 - 9 during setup so that it can be individually controlled with the remote control. Note that luminaires can share an address if they are to have the same program.

To select a luminaire, press ID and enter its address using the number keys. Multiple luminaires may be selected by entering more than one address. For example, pressing [ID] [1] [2] [3] selects luminaires 1, 2, and 3.

Lamp power

The lamp power button toggles lamp power on and off on selected luminaires. The button must be held for 5 seconds to turn lamp power off. Note: Lamps cannot be turned off during scene execution and a discharge lamp must cool for several minutes after being turned off before it can be turned back on.

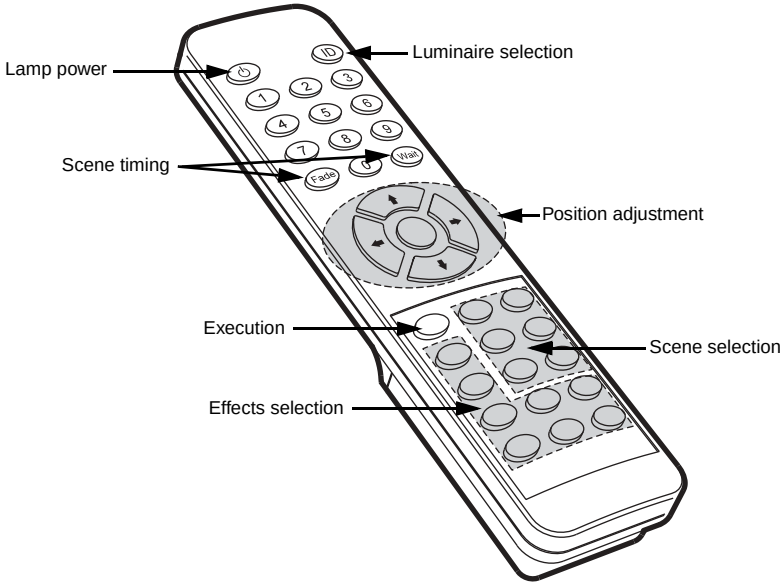
The lamp must be allowed to cool for at least 6 minutes after it is switched off before it can be re-struck. A 6-minute hot-restrike delay is programmed into the Imager software from the time that the light is extinguished, or the power is switched off, to ensure that this occurs. If you attempt to strike the lamp and do not succeed, the luminaire will reattempt to strike itself after 6 minutes (and a hot lamp warning/error will appear in the display), unless you issue the lamp off command. If the luminaire fails these two attempts to strike, the lamp will be assumed to be defective and the LE (lamp error) message will appear.

Scene timing

Fade and wait times are set by pressing the scene timing buttons and entering the desired time in seconds using the number keys.

Scene Selection

Scenes are created, selected, saved, and deleted using the six scene keys. The current scene is displayed on the luminaire display after the letter “r” during editing and after the letter “P” or “S” (client) during execution.



- **Prev** (previous scene) scrolls backwards through scenes on selected luminaires.
- **Next** (next scene) scrolls forwards through scenes on selected luminaires.
- **Store** (store scene) saves effect and timing settings to the current scene.
- **Delete** (delete scene) removes the current scene from memory. Scenes above the deleted scene are renumbered.
- **INS** (insert scene) creates and saves a new scene before the current scene, which moves up a number.
- **ADD** (add scene) creates a new scene at the end of the sequence with the settings that are active when the scene is created.

00 | 01 | 02

Store saves settings in the current scene.

00 | 01 | 02 | 03

Add saves settings in a new scene at the end of the sequence.

00 | 01 | 02 | 03

Insert saves settings in a new scene before the current scene.

Effects Adjustment

The look of a scene is programmed by first selecting an option with the effect selection buttons and then adjusting the option with the position adjustment buttons. When two effects are assigned to a selection button, the up/down arrows control one effect and the left/right arrows control the other effect. If there is only one effect, the up/down arrows usually provide course adjustment and the left/right arrows usually provide fine adjustment. The middle button returns effects to a default position.

Stand-Alone show playback

Starting show playback

1 From the top level of the control menu, scroll to SA and press [enter].

2 Scroll to SA in the top level of the menus on the control panel and press [enter].

3 Scroll to run and press [enter].

4 Scroll to On and press [enter].

When the show starts to run the current scene number will appear in the control panel display (unless the PEr/dIS menu has been set to OFF, in which case the display will switch off two minutes after the last key is pressed).

Important! ***Execution of the pre-programmed scenes in a loop will automatically resume when the luminaire is powered-on if stand-alone is enabled and the automatic lamp-on (PEr/ALO) function is enabled (see "Automatic lamp-on" on page 22).***

Show Execution with the IR remote control

The Run/Stop button on the IR remote control toggles scene execution on/off on luminaires that are selected (see"Luminaire selection" on page 31). Scenes execute in a continuous ascending loop.

All remote control functions except Run/Stop are disabled during show execution.

If the Store Remote Status option (see "Store remote status (SrS)" on page 22) is enabled, then the Run/Stop button will also toggle the SA / run option to OFF or On, so that next time the luminaire is powered on it will automatically start (or not start) the Stand-Alone show.

Scene execution Using the optional MC-X

The MC-X is an optional remote control unit that is available from Martin. Once the remote controller is connected, 7 scenes can be conveniently called up on the MC-X's buttons.

To enable control:

1 Connect the MC-X controller to the Imager's data network via an XLR-to-RJ-45 adaptor. If multiple Imagers are connected, plug the controller into the first luminaire in the link.

2 On each luminaire, select SA / run / OFF and press [enter]. Press [menu] to exit the SA menu.

3 On each luminaire, select Pro / d1 and press [enter]. Press [menu] to exit the Pro menu.

4 To trigger scenes 00-06, press the numbered preset buttons on the MC-X.

5 To have each luminaire run its own routine, press [Auto].

Using the PEr / nn0 menu it is possible to set button 7 on the MC-X to control the lamp off function. See "Control menu structure" on page 70.

DMX controller override during Stand-Alone show playback

If an Imager 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.

Synchronous triggering during Stand-Alone operation

Note ***This chapter details the rules that are used in Stand-Alone synchronous triggering. It is not necessary to read this chapter unless you require help with problem diagnosis or unless you otherwise need a detailed understanding of the algorithm used for synchronous triggering.***

The rules are as follows:

1 Every luminaire can have up to 20 on-board scenes with individual fade and wait times.

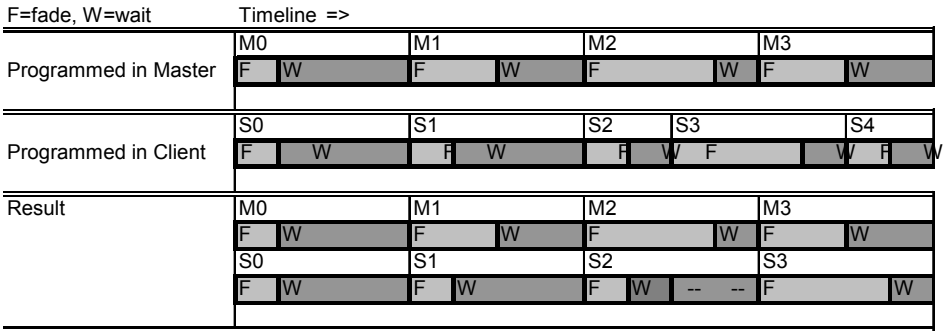
2 Scenes are numbered from 0 to 19.

3 A scene contains a fade-section, followed by a wait-section.

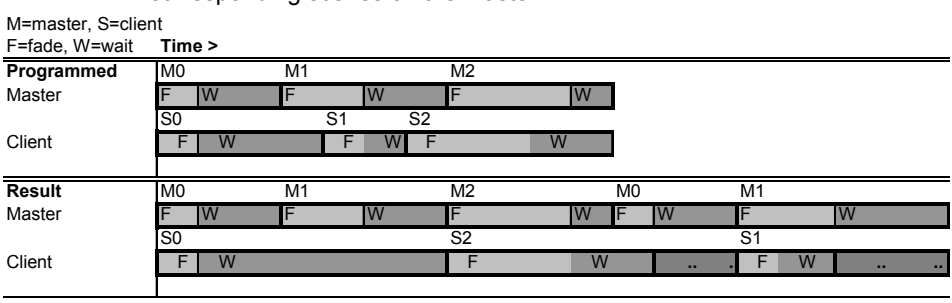
4 When running "synchronous triggering" one Imager issues commands to the other Imagers to "go to scene *xx*", where *xx* is the scene number that master will execute next.

5 If a client 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 client 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 client luminaire starts - scene 1. Generally though, when a Client luminaire reaches its own last scene before the Master luminaire, a "go to scene *x*" message will result in the first scene being played.

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



7 A client luminaire will not listen for the next message from the master luminaire before it has finished its current scene. This may result in a client skipping a scene if client has a longer scene time than master. Note that in the following example the scenes in the Client run out of their programmed sequence because scenes 0 and 2 on the Client are longer than the corresponding scenes on the Master.



SECTION 3. DMX CONTROL

DMX Controller operation

The Imager may be programmed and operated with any lighting control device that is compatible with the USITT DMX standard. This section describes how to operate the system with a controller.

See the appropriate section for specific control values for your Imager model:

- “Imager 04 DMX-Gobo Wheel” on page 75.
- “Imager 04 DMX-Gobo Wheel with moving-mirror fitted” on page 76.
- “Imager 01 DMX-Gobo” on page 78.
- “Imager 01 DMX-Gobo with moving-mirror fitted” on page 80.

Connecting a DMX control device

Connect a data cable from the Imager J-Box to the control device’s data output. If the control device does not have an RJ-45 socket then you may need to purchase or wire an XLR-to-RJ45 converter. For wiring information see “Creating a data link” on page 16.

Set the appropriate DMX mode

There are two DMX modes:

- *DMX mode 1* uses 9 channels and does not allow fine adjustment of movement and effects.
- *DMX mode 2*, which is the default, uses 12 channels and allows fine adjustment of movement and effects.

The mode that is used is specified using the Profile menu in the control panel (see “Control menu structure” on page 70.

Control address selection

The Imager requires 9-12 DMX control channels (depending on the DMX mode that is selected). The DMX address, also known as the start channel, is the first control channel used. It is a logical address to which control instructions are sent. In this way a controller can send instructions to a luminaire, or luminaires, at a particular address. For example when using nine channels of control data (DMX mode 1), the Imager reads the data on the start channel (DMX address) and the next eight channels. If the DMX address is set to 100, the Imager uses channels 100, 101, 102, 103, 104, 105, 106, 107 and 108.

Be sure to allow adequate channels when setting the control address. If control channels for one luminaire overlap control channels for another luminaire, then one of the luminaires will receive the wrong commands. Two Imagers may share the same address if they are to respond identically. They will receive the same commands and individual control will be impossible.

The default factory set control address is '1'.

Setting the control address

1 Scroll to Pro in the top level of the menus on the control panel and press [enter].

2 Select d1 or d2 to enable DMX control. Press [enter].

3 Press [menu] to return to the top level of the menu.

4 Scroll to Adr in the top level of the menus on the control panel and press [enter]. The current address is displayed.

5 Scroll to the address that is assigned to the luminaire on the controller. Press [enter] to activate the address setting.

Disable Stand-Alone operation (if required)

DMX control always overrides any Stand-Alone show that is running, but if Stand-Alone mode is enabled and no DMX signal is received, the Imager will attempt to run any show in its memory. To prevent this:

1 Press [menu] to return to the top level of the menu.

2 Scroll to SA in the top level of the menus on the control panel and press [enter].

3 Scroll to `run` and press [enter].

4 Scroll to `Off` and press [enter].

Lamp control

Important ***Avoid striking several lamps at once!***

The lamp can be turned on and off from the controller using the lamp-on and lamp-off commands on channel 1. To prevent accidental lamp-off commands, lamp off can be partially disabled from the using the `PEr / LOF` menu on the control panel (see “Control menu structure” on page 70). If the DMX Lamp-off personality is off, the lamp-off command on channel 1 executes only on an:

- Imager DMX Gobo Wheel, if gobo position 4 is selected (either in indexed or continuous rotation) and the focus is set to the near position.
- Imager DMX Gobo, if DMX-channel 3 is set to a value of 60-79 or 140-159, and the focus is set to the near position.

Strike lamps one at a time at 5 second intervals. Striking many lamps at once may cause a voltage drop large enough to prevent lamps from striking, damage electronics, and trip circuit breakers. To have the lamp strike automatically at power-up, set the Automatic Lamp-on personality to on (see “Personality menu (Per)” on page 21).

The lamp must be allowed to cool for at least 6 minutes after turning it off before it can be re-struck. A 6-minute hot-restrike delay is programmed into the Imager software from the time that the light is extinguished, or the power is switched off, to ensure that this occurs. If you attempt to strike the lamp and do not succeed, the luminaire will reattempt to strike itself after 6 minutes (and a hot lamp warning/error will appear in the display), unless you issue the lamp off command. If the luminaire fails these two attempts to strike, the lamp will be assumed to be defective and the LE (lamp error) message will appear.

Effects

The mechanical effects reset to their home positions when the luminaire is powered on. Effects can also be reset from the controller on channel 1. If the DMX Reset personality is off, the reset command on channel 1 will only execute on an

- Imager DMX Gobo Wheel only if gobo position 4 is selected (either in indexed or continuous rotation) and the focus is set to the near position.
- Imager DMX Gobo only if DMX-channel 3 is set to a value of 60-79 or 140-159, and the focus is set to the near position.

Note that use of DMX mode 2 provides for fine positioning control of effects. See “Set the appropriate DMX mode” on page 38.

Intensity

The luminaire provides smooth, high resolution, full-range intensity control on channel 2.

Focus

The luminaire provides focus control from 2 meters to infinity on channel 5 (DMX mode 1) or 6 (DMX mode 2).

Gobo effects

Gobo selection (for the Imager DMX Gobo Wheel), rotation and indexing control are available on channels 3 and 4 (DMX mode 1) or 3 to 5 (DMX mode 2).

Moving mirror control

Pan, tilt, and speed control of the optional moving mirror is available on channels 6 to 8 (DMX mode 1) or 7 to 11 (DMX mode 2).

The speed at which the mirror moves from one position to another, can be controlled in two ways known as tracking control and vector control. You may switch between tracking and vector control, but you cannot use both at the same time.

Tracking control is enabled by setting channel 8 (in DMX mode 1) or 11 (in DMX mode 2), to a decimal value from 0 to 2. Fades are then programmed using the controller’s cross-faders. The Imager has a digital filter algorithm that averages several updates to ensure smooth movement.

Vector control provides a way to program fades on controllers without cross-faders and may provide smoother fades than tracking control with some controllers, particularly on very slow fades. A vector speed is programmed by setting channel 8 (in DMX mode 1) or 11 (in DMX mode 2) to a decimal value from 3 (fastest) to 251 (slowest). When using vector control, the controller cross-fade time, if available, must be 0.

Blackout while moving

Image projection can be blacked out while effects or the mirror move at maximum speed from one position to the other by setting channel 8 (in DMX mode 1) or 11 (in DMX mode 2) to a decimal value from 252 to 255.

Projection movement precision

The Imager is a high-precision projector built to stringent tolerances. However, if the projected image needs to be moved to very precise positions during dynamic shows, certain aspects of the luminaire's movement need to be understood.

Degree of precision

If you want to move the projected image between different positions by panning or tilting, the Imager will let you return to these positions with a variation in projection angle of max. ± 0.25°. This corresponds to an offset of max. ± 22 mm when the image is projected at an angle of 90° onto a surface 5 meters from the luminaire. The offset on the projection surface will increase as you project the image further and further away from a 90° angle.

The table below gives an overview of the accuracy with which the Imager will return a projected image to a specific position.

Movement type	**Movement direction**	**Return-to-position accuracy**			
		angle	@ 2.5m	@ 5m	@ 10m
Tilt (damper active)*	same direction*	±0.25°	±11 mm	±22 mm	±44 mm
	any direction	±2.0°	±87 mm	±175 mm	±350 mm
Tilt (damper inactive)	any direction	±0.25°	±11 mm	±22 mm	±44 mm
Pan	any direction	±0.25°	±11 mm	±22 mm	±44 mm
Gobo rotation	any direction	±1.5°			

*Note that special conditions apply to tilt precision when the Imager's tilt damper is active (see "Effect of tilt damper" below).

The indexing precision of the rotating gobos is accurate to within 1.5° regardless of direction of rotation.

Effect of temperature

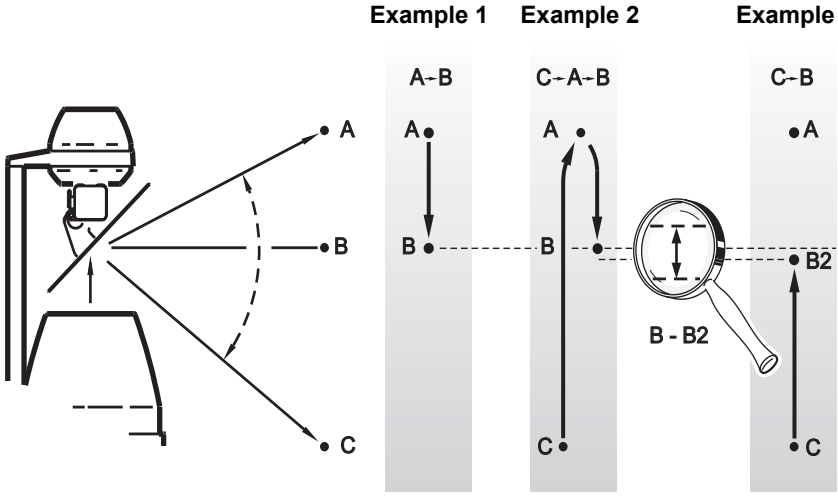
The main factor that affects precision as described above is variation in the temperature of the Imager. The shift of max. ± 0.25° in projection angle will

be most noticeable when the luminaire warms up from cold to operating temperature. An Imager at a stable operating temperature will return the projected image to specific positions with a much higher precision than that given in the table.

If you need maximum precision, we therefore recommend that you allow the Imager to reach operating temperature before programming movement.

Effect of tilt damper

The Imager's tilt mechanism is fitted with a damper that is active when the luminaire leaves the factory. The advantage of the damper is that it reduces sensitivity to vibration and ensures smooth movement. However, the disadvantage of the damper is that it increases the offset when you try to tilt the projected image to the same point from different directions.



In Examples 1 and 2 above, the projected image is tilted from point A to point B. In both cases, the image is tilted to point B from the same direction. With or without the tilt damper active, the Imager will return a projected image to a specific point with an accuracy of ± 0.25° in the projection angle, provided that it is tilted to that point from the same direction.

However, if you try to tilt the image to the same point from the *opposite* direction with the tilt damper active, the stepper motor that moves the mirror will stop a few microns short of the desired mirror position. This tiny difference is multiplied by the projection geometry, resulting in a visible difference in image position. In Example 3 above, the image is moved to point B from point C, i.e. from the opposite direction compared with Examples 1 and 2. The result is a small difference in image position (shown in Example 3 as distance B - B2). This phenomenon is inherent to the mirror

scanner and damper design, and is normal. It occurs because of the drag the damper exerts on the tilt mechanism.

When the tilt damper is active, the projection angle can vary by ± 2° when you try to tilt the projected image to the same point from opposite directions. This projection angle variation will give an offset (distance B - B2 in Example 3) of max. 175 mm when the image is projected at an angle of 90° onto a surface 5 meters from the luminaire.

If the exact position of the projected image during dynamic light shows is important, you will therefore obtain greatest precision if you ensure that the image is moved to that position from the same direction each time.

Note that after a reset, the image may be moved from an unexpected direction.

Compensating for offset

If accurate positioning of the projected image is important, you can either use one of the two control workarounds suggested in the following, or you can de-activate the damper (see “De-activating the tilt damper” below). Note that if you de-activate the damper, sensitivity to vibration and smoothness of movement will be affected.

One workaround that will allow you to move a projected image to a more exact position from the ‘wrong’ direction is to create a blacked-out preset between cues that moves the image to a point just past the desired position, then move it back to the desired position from the ‘right’ direction.

An alternative workaround is to allow for the offset when creating cues: if you want to move a projected image to the same point from opposite directions, send control instructions that would normally move the image slightly further than required to reach that point. This will compensate for the offset. The extra distance you need to program on your controller is best ascertained by trial and error on location, with the Imager installed and running at normal operating temperature.

De-activating the tilt damper

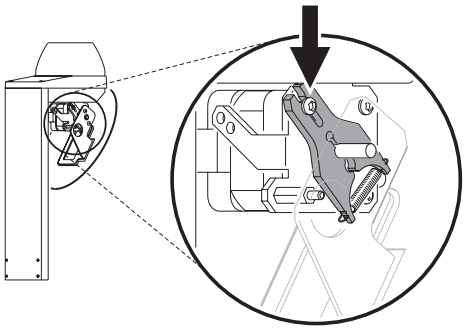
De-activating the tilt damper will reduce the offset in tilt position from ± 2° to ± 0.25° when the image is moved to a specific point from different directions. However, it will also increase sensitivity to vibration and make tilt movement slightly less smooth.

De-activating the tilt damper should only take a few seconds if the luminaire is easily accessible. Note that you do not need to remove the mirror. You will need a torx screwdriver.

To de-activate the tilt damper:

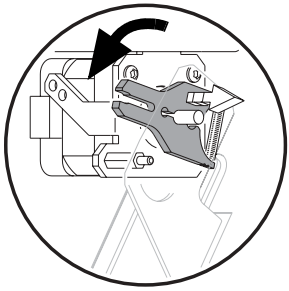
1 Isolate the luminaire from power and allow it to cool for 15 minutes.

2 The damper sits on the tilt shaft behind the mirror. Use a torx screwdriver to completely remove the damper locating screw (see arrow in illustration on right) from the damper and tilt motor casing.



3 Rotate the damper about 45° counter-clockwise, pulling it slightly away from the tilt motor at the same time, and leave it sitting on the mirror tilt shaft for possible re-use if you decide to re-activate it.

4 Replace the damper locating screw in the tilt motor casing for possible re-use.



5 Tilt the mirror up and down by hand, checking that the mirror moves freely and that the damper does not catch against screws, etc. Adjust the damper on the shaft if necessary until it clears all obstacles while you tilt the mirror.

If you wish to re-activate the damper at any time, return it to its original position and secure it with its locating screw.

The damper and its tension spring are available as spare parts: order plastic damper p/n 16520070 and tension spring p/n 17740010.

Section 4. Optics and projection accessories

Gobos

The:

- Imager DMX Gobo Wheel accepts up to four metal or glass gobos
- Imager DMX Gobo accepts a single metal or glass gobo

The gobos must be size D with an outside diameter of 53.3 mm (2.10 in.) and a maximum image diameter of 40 mm (1.57 in.).

The images can be rotated in both directions or set in an indexed position.

A single Imager promotion gobo is factory installed.

Image projection size

To calculate the size of a projected image using a gobo of a given size, the formula is

$$\text{projected image size} = \frac{\text{gobo image size} \times \text{projected distance}}{\text{focal length}}$$

To calculate the gobo image size required to achieve a projected image size, the formula is

$$\text{gobo image size} = \frac{\text{projected size} \times \text{focal length}}{\text{projected distance}}$$

The focal length of the Imager will be one of the following:

- 150 mm (5.9 in.) for the optional 15° lens
- 100 mm (3.9 in.) for the standard 23° lens
- 70 mm (2.75 in.) for the optional 32° lens

Custom gobos

For optimum performance, custom glass gobos for the Imager should be made with the text, logo, and similar artwork:

- as a true image on the coated side if the moving mirror accessory is not fitted
- as a reverse image on the coated side if the moving mirror accessory is fitted.

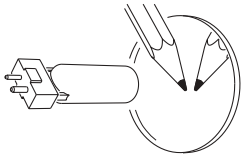
Gobo orientation

The following illustrations show the correct orientation for different gobo types. To reduce the risk of heat damage, always install gobos with the more reflective side towards the lamp.

Bear in mind that a moving mirror fitted to the imager will reverse the projected image (see illustrations on next page).

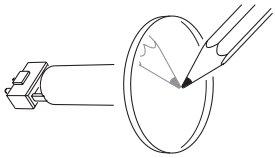
Coated Glass Gobos

Coated/reflective side towards lamp



When an object is held up to the coated side, there is no space between the object and its reflection. The outer edge of the gobo cannot be seen when looking through the coated side. Remember also that the more reflective side of the gobo must always face towards the lamp.

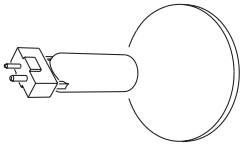
Uncoated side towards surface



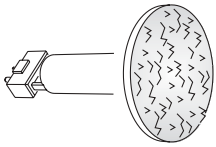
When an object is held up to the uncoated side, there is a space between the object and its reflection. The outer edge of the gobo can be seen through the glass when looking through the uncoated side.

Textured Glass Gobos

Smooth side towards lamp

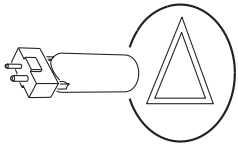


Textured side towards surface

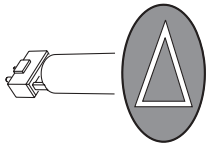


Metal Gobos

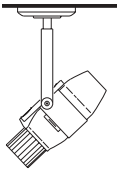
Reflective side towards lamp



Black side towards surface



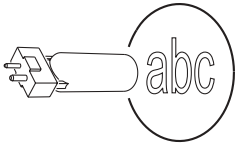
Imager *without* moving mirror



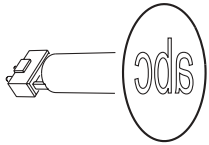
On Imagers that do not have a moving mirror fitted, image and text gobos should be installed as shown below. The more reflective side must face the lamp.

Image/text Gobos (no moving mirror)

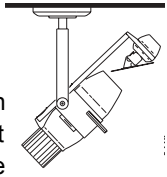
True image towards lamp



Reversed image towards surface



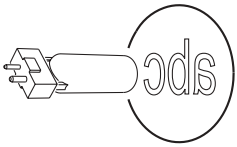
Imager *with* moving mirror



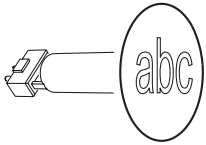
The moving mirror reverses the gobo projection, so on Imagers that have a moving mirror fitted, image and text gobos should be installed as shown below. Note that the more reflective side must still face the lamp.

Image/text Gobos (with moving mirror)

Reversed image towards lamp



True image towards surface

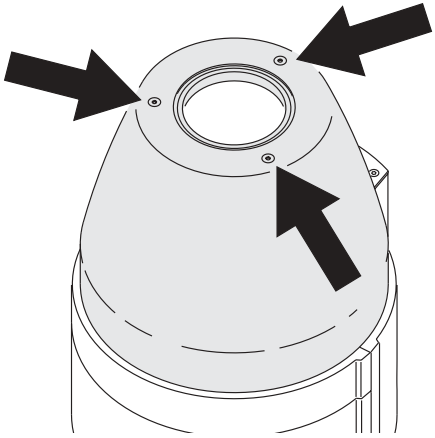


Replacing a gobo

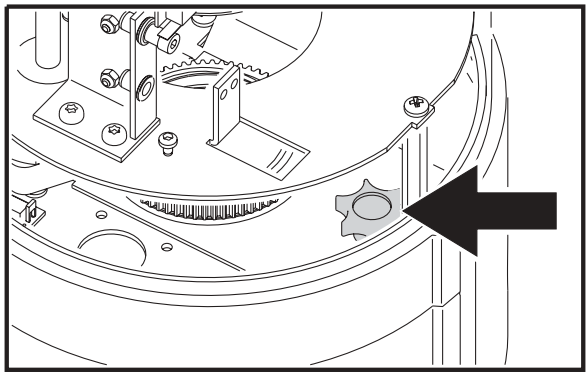
Imager 01 DMX Gobo

1 Disconnect the luminaire from AC power and allow it to cool for 15 minutes.

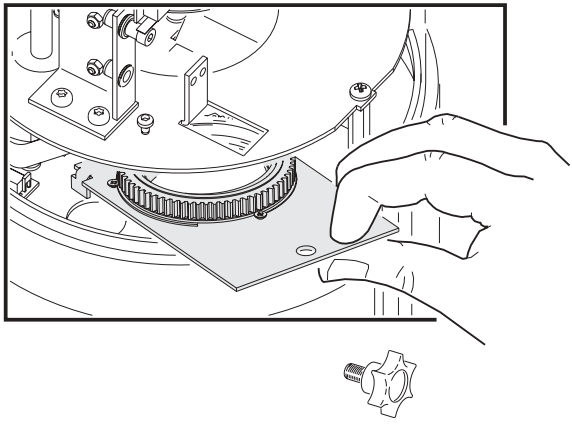
2 Remove the top cover of the luminaire using a 2.5 mm Allen wrench.



3 Unscrew the thumb screw holding the gobo plate in place.



4 Remove the gobo plate from the luminaire.



5 Squeeze the ends of the retention spring (inside the gobo holder) together and remove. Push the existing gobo (if installed) out from the back and remove.

6 Orient the gobo as shown in “Custom gobos” on page 48 and insert the replacement gobo into the holder. Secure the gobo with the retention spring.

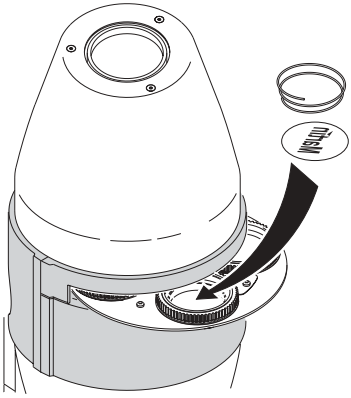
7 Replace the gobo plate, screw it into place, and replace the luminaire cover.

8 Applying power.

Imager 04 DMX Gobo Wheel

1 Disconnect the luminaire from AC power and allow it to cool for 5 minutes.

2 Rotate the gobo wheel to a position that allows you to access the gobo.



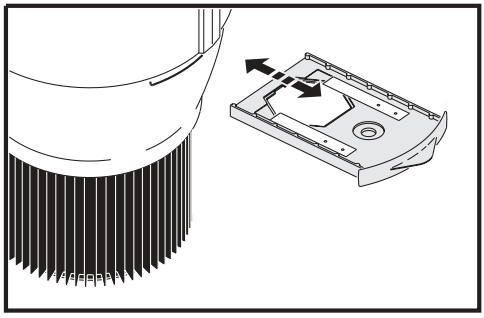
3 Using a small screwdriver if necessary, squeeze the ends of the retention spring (inside the gobo holder) together and remove the existing gobo (if installed) and spring.

4 Orient the gobo as shown in “Custom gobos” on page 48 and insert the replacement gobo into the holder. Secure the gobo with the retention spring.

5 Apply power.

Filters

A Slide Projection Kit (P/N 91611076), or hexagonal color filter can be installed in the Imager. The holder slides out of the side of the luminaire and is held in place by a magnet.



The following filters are available (at the time of printing) from your Martin dealer:

Lilac 503	P/N 46402000
Light Blue 102	P/N 46402001
Green 208 IAD	P/N 46402002
Green 204	P/N 46402003
Orange 306M	P/N 46402004
Red 308	P/N 46402005
Green 203	P/N 46402006
Blue 108	P/N 46402007
UV-transmitter	P/N 46402008
Half Minus Green	P/N 46402009
Heat filter (included in Slide Projection Kit)	P/N 41102060

The number next to each color filter is an OCLI (Optical Coating Laboratory, Inc.) reference number.

Lens options

The following lenses are available for the Imager luminaire:

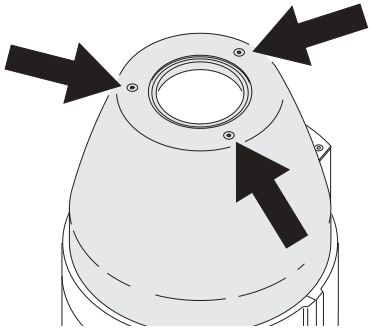
- 23° lens (fitted as standard)
- 15° lens (a screw on attachment) - P/N 91611074
- 32° lens (a screw on attachment) - P/N 91611075

Changing the lens

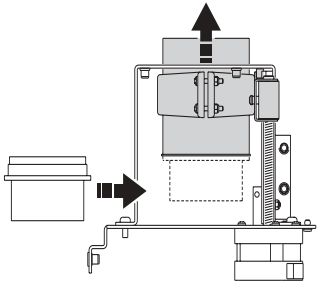
To change the lens:

1 Disconnect the luminaire from AC power and allow it to cool for 30 minutes.

2 Remove the cover of the luminaire using a 2.5 mm Allen wrench.

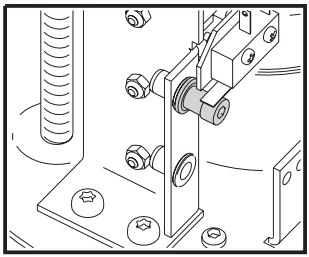


3 Rotate the spindle to move the standard lens as far away from the lamp as possible.

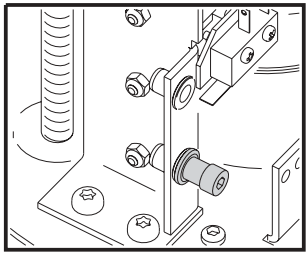


4 Slide the optional lens in under the standard lens, and screw it to the thread on the standard lens.

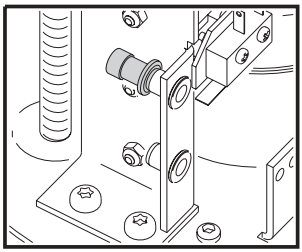
5 Adjust the position of the pin that functions as the mechanical stop to the appropriate position.



15° lens position



23° standard position



32° lens position

Note that for the 32 degree lens the pin is removed and inserted from the other side of the plate.

6 Replace the luminaire cover and apply power.

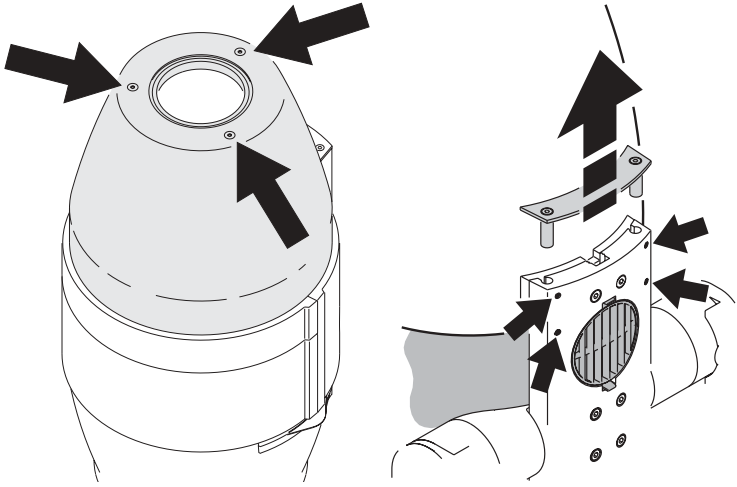
Moving mirror

The optional moving mirror enables programmable movement, useful for roving logos or gliding messages. It provides smooth movement in a range of 235° of pan by 65° of tilt.

To install the moving mirror:

1 Disconnect the luminaire from AC power and allow it to cool for 30 minutes.

2 Remove the cover of the luminaire using a 2.5 mm Allen wrench.

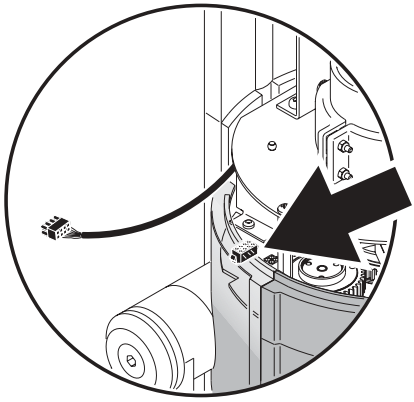


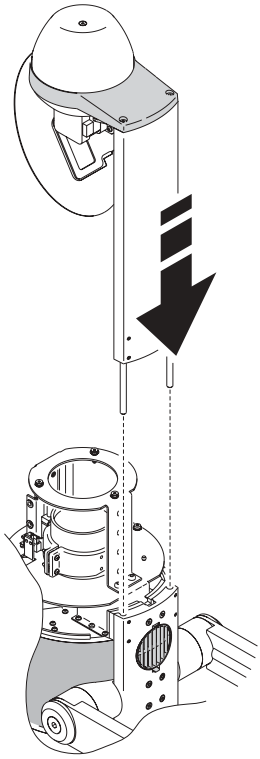
3 Using a 2mm Allen wrench, loosen the 4 recessed Allen screws on the spine of the luminaire and remove the cover plate.

4 Slide the struts on the moving mirror into the Imager.

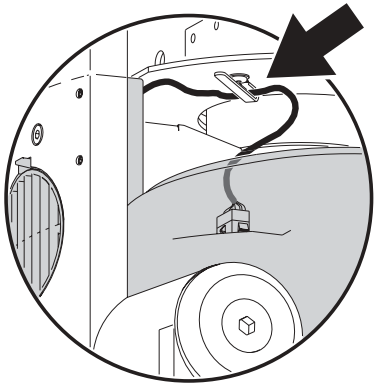
5 Once in position lock the mirror into place by tightening the 4 recessed Allen screws on the spine of the luminaire.

6 Attached the cable to the connector in the Imager.





7 Place the cable so that it stays out of the optical path.



8 Replace the luminaire cover and apply power.

For details of the precision of projected images using the mirror, see “Projection movement precision” on page 43.

Section 5. Service and troubleshooting

Service

This section describes service procedures that can be performed by the user. Refer all service not described here to a qualified Martin technician.

CAUTION! RISK OF SHOCK

Disconnect power before servicing. Replace all parts after servicing.

The exterior of the luminaire can reach temperatures up to 80° C (176° F) when operating at room temperature (25° C / 77° F). Always allow the luminaire to cool for 30 minutes before handling.

Lamp replacement

To ensure optimum lamp life:

- Turn off lamp power whenever illumination is not required for extended periods of an hour or more. Luminaire power may remain on when not in use.
- Always allow the lamp to warm up fully before turning it off.
- Avoid turning on several lamps at once.

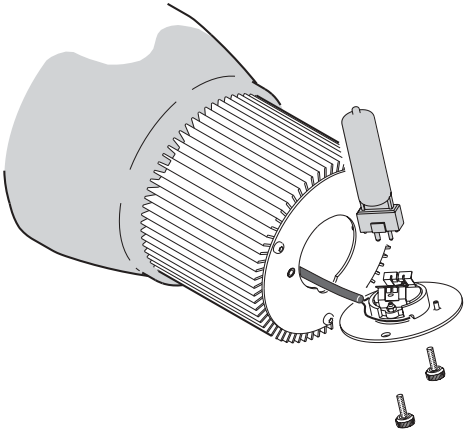
The Imager can use the following discharge lamps. Installing any other lamp type may damage the luminaire.

Lamp	CRI	Color Temp.	Average Life
Philips MSD 250	75	6700 K	3000 hours
Philips MSD 250/2	65	8500 K	3000 hours
Osram HSD 250/78	85	7800 K	3000 hours
Osram HSD 250/60	85	6000 K	2000 hours
Osram HSD 250/80	75-80	8000 K	3000 hours

To replace the lamp:

1 Disconnect the luminaire from power and allow it to cool for 30 minutes before removing the lamp cover.

2 Remove the two thumb screws that hold the lamp holder in place at the back of the luminaire.



3 Gently remove the lamp holder and guide it out of the housing.

4 Remove the old lamp from the socket.

5 Holding the new lamp by its ceramic base - *do not touch the glass bulb* - insert it firmly and squarely into the lamp socket.

6 Clean the glass bulb with an alcohol wipe or a clean, lint-free cloth wetted with alcohol.

7 Gently insert the lamp and screw the holder into place.

8 We recommend that you activate the Lamp Hour Warning function on the Imager and that you set the expected number of hours of life the lamp has. This is done using the Personality menu on the Imager (see the *Imager user manual*). Remember to also reset the lamp hour counter using the Information menu on the Imager. When the lamp hour counter reaches:

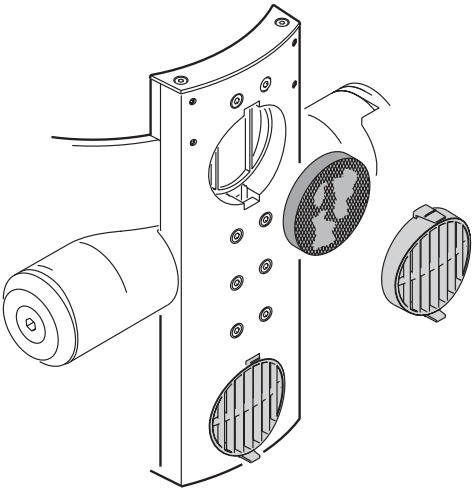
- 100 hours less than the expected life time of the lamp, the display on the Imager will start blinking LHr in the display. At this point you should change the lamp to avoid the risk of lamp explosion.
- The expected life of the lamp, the lamp shuts off and can not be turned on again before the counter in the Imager is reset, or the predefined lamp hour warning level has been redefined.

Cleaning

Wash the aluminum housing of the Imager with a soft brush or sponge and a mild, non-abrasive car washing detergent. Rinse.

Cleaning the air filter in the Imager luminaire

The air filters can be found on the spine of the Imager and should be replaced regularly. You can order extra filters from your Martin Dealer (part number 91611079).



Firmware updates

Firmware updates are released when features are added. The latest version is available from the Support Area of the Martin Professional web site at http://www.martin.dk.

The installed firmware version number is displayed in the control panel under the InF/Uer menu.

Requirements

Firmware is installed using one of the following hardware devices, hereafter referred to as the “Uploader”:

- Martin MP-2 Uploader
- PC using any DMX interface that supports the Software Uploader program (for example a Martin LightJockey or DABS 1 interface)

The following are required in order to install software:

- The Imager update file, available for download from the User Support Area of the Martin web site (http://www.martin.com).

- The Software Uploader program, version 5.3 or later - supplied with the Martin MP-2, LightJockey, or available for download from the support pages for these products in the User Support Area of the Martin web site.

Important ***In DMX or SA-mode (Stand Alone mode) the data link must be terminated.***

In IR-mode press the ID button for approximately 5 sec. then the luminaires will go into DMX-mode and the luminaires can be uploaded. Remove the IR-Remote receiver and terminate the link. After the luminaire is powered off, the luminaires will be in IR-mode again.

For guidance on preparing a LightJockey, MP-2 or Software Uploader refer to the user documentation and online help for these products. Follow these instructions before proceeding to the next section.

Updating firmware with the MP-2 Uploader

1. Connect a prepared MP-2 Uploader to the DMX link on the Imager. Apply power to the luminaires and the MP-2. Wait a few moments for the luminaires to reset.
2. Select `Read Memory Card` from the MP-2 main menu.
3. Use the buttons on the right to scroll through the card slots. Select the slot that holds the desired version of the Imager firmware.
4. Select `Update Software`. Select `Yes` to confirm.
5. Select `Update in DMX mode` to start the upload. The MP-2 initializes all connected Imagers.
6. After a successful upload, the luminaires reset with the new software. If an error occurs and the luminaires do not reset, data was interrupted or corrupted during transmission. Perform a boot mode upload as described in the following section.

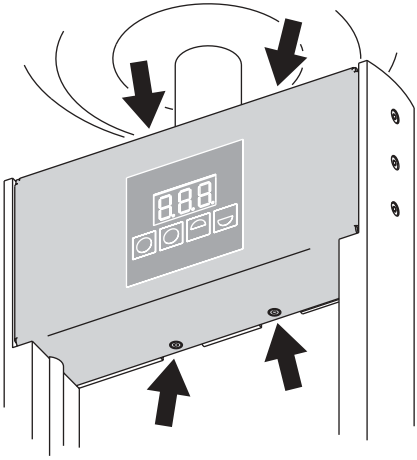
Boot sector upload

If the normal upload procedure does not work, or if the software update notes call for a boot sector update. Boot sector update mode needs to be set either in the control menu, or by moving a jumper on the PCB in the Imager.

Performing a boot sector update by moving a PCB jumper

1. Make sure the Imager is isolated from AC power.

2 Open the cover behind the control panel using a 2 mm Allen wrench to remove the 4 screws.



3 Referring to “Printed circuit board layout” on page 65, locate the jumper at position PL12. Move the jumper to the “ENABLE” position (the two pins closest to the fuses on the printed circuit board).

4 Perform a boot mode upload as described in the uploader manual.

5 When the upload is complete, disconnect the luminaire from power and move the jumper at PL12 back to the “DISABLE” position (the two pins farthest away from the fuses on the printed circuit board).

6 Replace the cover and reapply power.

Performing a boot sector update via the control menu

1 Select the Utility (UtL) menu from the control menu.

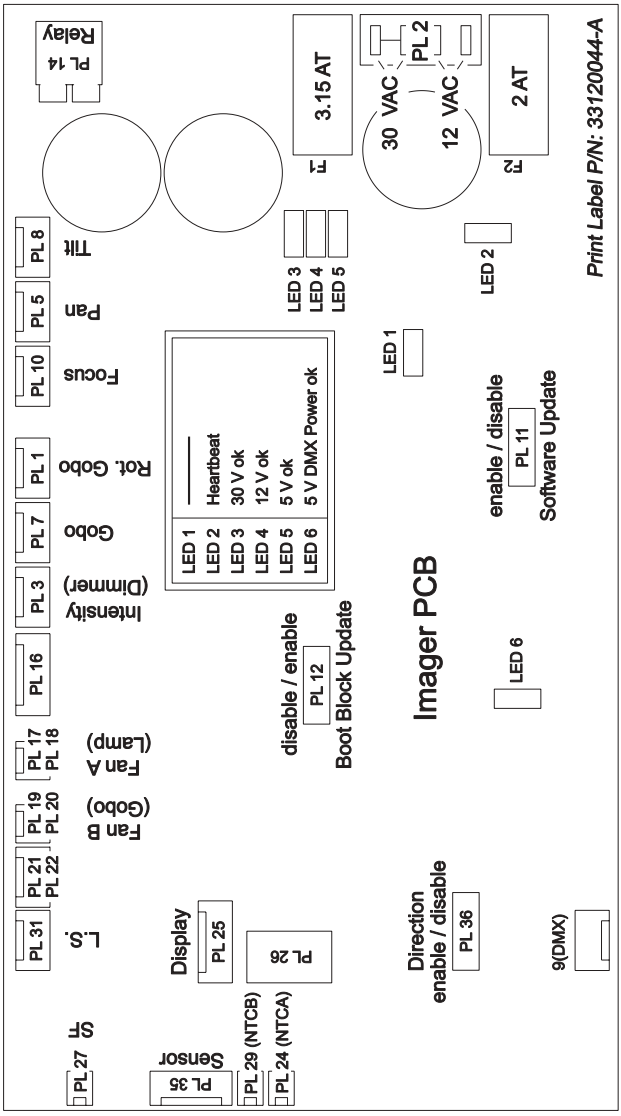
2 Select Upload (UPL) and then select yES to place the luminaire in Boot Upload Mode.

3 Perform a boot mode upload as described in the uploader manual.

4 When the upload is complete, use the control menu to disable Boot Upload Mode.

Printed circuit board layout

The PCB can be found behind the control panel.



Troubleshooting

Problem	Probable cause(s)	Remedy
No response from luminaire when power is applied.	No power to luminaire.	Check power and data cables.
	Primary fuse blown in Base.	Replace fuse.
Luminaire resets but does not respond correctly to controller (DMX mode operation).	Controller not connected.	Connect controller.
	Incorrect addressing of the luminaires.	Check address setting on luminaire and controller.
	Bad data link connection.	Inspect cables and correct poor connections and/or broken cables.
	Data link not terminated.	Insert termination plug in output of last luminaire.
	Defective luminaire or 2 devices transmitting on link.	Bypass luminaires one at a time until normal operation is regained: unplug both connectors and connect them directly together.
Luminaire does not reset correctly.	Electronic or mechanical failure.	Contact service technician.
No light, lamp cuts out intermittently, or burns out too quickly.	Lamp missing or blown.	Disconnect luminaire and replace lamp.
	Luminaire or lamp is too hot.	Allow luminaire to cool. If problem persists, contact service technician.
	Incorrect power supply setting.	Check setting.

Error messages

Message in display	Error	Remedy
EEE	EPROM error	Contact your Martin dealer for service.
rAE	Memory error	Contact your Martin dealer for service.

Message in display	Error	Remedy
FPE	FPGA error	Contact your Martin dealer for service.
drE	Driver error	Contact your Martin dealer for service.
LHE	Lamp hour expected life has been reached and the lamp shuts off.	Replace the lamp.
rtE	Real time clock error.	The battery on the mother board needs to be replaced. Contact your Martin dealer for service.
LE	Lamp error. After attempting to strike a lamp once and failing, the Imager will wait approximately 6 minutes (for the lamp to cool) and re-attempt to strike the lamp. If this fails the Lamp Error message will appear.	Replace the lamp if necessary
		Check and replace fuses if necessary
		Check that the fan is functioning and that there is enough space around the air vent.
		Issue a Lamp off command and wait 6 minutes before attempting to strike the lamp again manually.
		Contact your Martin dealer for service.
LtE	Temperature error (lamp sensor) The lamp cannot be struck	Check that there is enough space around the air vent.
		Check that the ambient temperature does not exceed 40° C (104° F).
		Contact your Martin dealer for service.
gtE	Temperature error (gobo sensor) The lamp cannot be struck	Check that there is enough space around the air vent.
		Check that the ambient temperature does not exceed 40° C (104° F).
		Contact your Martin dealer for service.
FoE	Focus error	Contact your Martin dealer for service.
rgE	Gobo rotation error	Contact your Martin dealer for service.
goE	Gobo error	Contact your Martin dealer for service.
SHE	Lamp short error	The lamp cannot be turned off. Contact your Martin dealer.

Message in display	Error	Remedy
LSE	Light sensor error	The light sensor is not working. Contact your Martin dealer for service.
LFE	Lamp fan error	The lamp fan speed is too low or too high. Contact your Martin dealer for service.
gFE	Gobo fan error	The gobo fan speed is too low or too high. Contact your Martin dealer for service.
Lhu	Lamp hour warning	Replace the lamp if necessary
Ltu	Temperature warning (lamp sensor). Temperature around the lamp is too high.	Check that there is enough space around the air vent.
		Check that the ambient temperature does not exceed 40° C (104° F).
		Contact your Martin dealer for service.
gtu	Temperature warning (gobo sensor) Temperature around the gobo is too high.	Check that there is enough space around the air vent.
		Check that the ambient temperature does not exceed 40° C (104° F).
		Contact your Martin dealer for service.
Hot	Hot lamp warning	The lamp is too hot to be turned on. Wait for the lamp to cool before attempting to re-strike it.

SECTION 6. REFERENCE

Control menu structure

Default settings appear in bold.

Level 1	Level 2	Level 3	Effect (default = bold)
Luminaire address (Adr)	DMX: 1-512 & IR: 0-9		Select control address for both DMX and IR profile
Profile (Pro)	DMX-mode (d1)		Set DMX mode (8-bit, tracking)
	DMX-mode (d2)		**Set DMX mode (16-bit, tracking)**
	IR-remote "send" (rCS)		Set IR-remote control "send" mode
	IR-remote "receive" (rCr)		Set IR-remote control "receive" mode
Stand alone (SA)	Enable SA (run)	**Off (OFF)**	**Disable stand alone operation**
		On (On)	Enable stand alone operation
	SA Execution (SAE)	**Single luminaire (Sin)**	**Luminaire operates in isolation**
		Master (Snd)	Luminaire is set master for program operation
		Synchronized (Syn)	Luminaire is set to synchronized program operation
Adjust (AdJ)	Reset (rSt)		Reset effects to home position
	Lamp on (LOn)		Turn lamp on
	Lamp off (LOF)		Turn lamp off
	Intensity (Int)	Open (OPn)	Intensity 100%
		Closed (CLO)	Intensity 0%
	Focus (Foc)	Reset focus (rF)	
		Near (nEA)	
		Far (FAr)	
	Gobo wheel (gob)	Reset gobo (rg)	
		Gobo 1 (g 1)	
		Gobo 4 (g 4)	

	Rotating gobo (rgo)	Reset Gobo (rg)	
		Gobo 1 no rotation (g 1)	
		Gobo 1 slow (1rS)	
		Gobo 1 fast (1rF)	
		Gobo 2 no rotation (g 2)	
		Gobo 2 slow (2rS)	
		Gobo 2 fast (2rF)	
		Gobo 3 no rotation (g 3)	
		Gobo 3 slow (3rS)	
		Gobo 3 fast (3rF)	
		Gobo 4 no rotation (g 4)	
		Gobo 4 slow (4rS)	
		Gobo 4 fast (4rF)	
	Pan/tilt (P-t)	Position 1 (P1)	
		Position 1 (P2)	
		Position 1 (P3)	
		Position 1 (P4)	
		Position 1 (P5)	
		Position 1 (P6)	
		Position 1 (P7)	
Personality (PEr)	DMX lamp off (LOF)	Off (OFF)	Disable lamp off without confirmation
		On (On)	**Enable lamp off without confirmation**
	DMX reset (rES)	Off (OFF)	Disable reset without confirmation
		On (On)	**Enable reset without confirmation**

Personality (PEr) continued	Auto lamp on (ALO)	**Off (OFF)**	**Strike lamp from controller or display**
		On (On)	Automatically strike lamp within 90sec from power on.
	Display (dIS)	**Off (OFF)**	**Turn display off 2 minutes after key press**
		On (On)	Keep display lit
	Store remote status (SrS)	Off (OFF)	Disable the store remote status feature.
		On (On)	Enable the store remote status feature.
	MC-X lamp off (nnO)	Off (OFF)	Disable MC-X lamp off
		On (On)	Enable MC-X button 7 lamp off
	Error messages (Err)	Off (OFF)	Error warnings disabled
		On (On)	Error an warning messages enabled
	Lamp Fan Temp. regulation (tFL)	Off (OFF)	Lamp fan Temperature fan regulation disabled
		On (On)	**Lamp Fan Temperature regulation enabled**
	Gobo Fan Temp. regulation (tFg)	Off (OFF)	Gobo Fan Temperature regulation disabled
		On (On)	**Gobo Fan Temperature regulation enabled**
	Lamp hour warning (LHr)	**Off (OFF)**	**Lamp hour warning disabled**
		On (On)	Enable power on warning and set value [1.000h] If time exceeds +10% over the set value, it will not only give warning but also prevent lamp strike.
	Swap pan/tilt (Pt)	**Off (OFF)**	**Do not map pan to tilt and vice versa**
		On (On)	Map pan to tilt and vice versa
	Pan invert	**Off (OFF)**	**Do not invert pan movement**
		On (On)	Invert pan movement
	Tilt invert	**Off (OFF)**	**Do not invert tilt movement**
		On (On)	Invert tilt movement
	Restore default (FAC)	Yes (yES)	Restore default personality settings
		No (no)	

	Reset counters (rEC)	Yes (yES)	Reset all counters.
		No (no)	
Info (InF) only display not MP2	(UEr)		Read firmware version number
	(tLA)	(CUr)	Read current lamp temperature [×C]
		(tOt)	Read maximum lamp temperature since fabrication [×C]
		(rES)	Read maximum lamp temperature since reset [×C]
	(tgo)	(CUr)	Read current gobo temperature [×C]
		(tOt)	Read maximum gobo temperature since fabrication [×C]
		(rES)	Read maximum gobo temperature since reset [×C]
	(Hr)	(tOt)	Read power-on hours since fabrication
		(rES)	Read power-on hours since counter was reset
	(LHr)	(tOt)	Read lamp hours since fabrication
		(rES)	Read lamp hours since counter was reset
		(UAL)	Read set value for warning
	(LSt)	(tOt)	Read lamp strikes since fabrication
		(rES)	Read lamp strikes since counter was reset
Utility (UtL)	(UPL)	Yes (yES)	Set luminaire to Boot Upload mode.
		No (no)	
Test (tSt)	(Pcb)	Yes (yES)	Test PCB. For service use only
		No (no)	

DMX protocols

The DMX protocols each have two modes:

- *DMX mode 1* uses 9 channels and does not allow fine adjustment of movement and effects.
- *DMX mode 2*, which is the default, uses 12 channels and allows fine adjustment of movement and effects.

The DMX mode that is used is specified using the Profile menu in the control panel (see “Control menu structure” on page 70.

Choose the protocol appropriate to the your Imager model:

- “Imager 04 DMX-Gobo Wheel” on page 75.
- “Imager 04 DMX-Gobo Wheel with moving-mirror fitted” on page 76.
- “Imager 01 DMX-Gobo” on page 78.
- “Imager 01 DMX-Gobo with moving-mirror fitted” on page 80.

Imager 04 DMX-Gobo Wheel

Start code = 0

DMX2	DMX 2	Value	Percent	Function
	1			**Reset, Lamp On/Off**
		0 - 208	0 - 81	Reserved (no change)
		208 - 217	81 - 85	Reset luminaire
		218 - 227	85 - 87	Reserved (no change)
		228 - 237	89 - 93	Lamp power on
		238 - 247	93 - 97	Reserved (no change)
		248 - 255	97 - 100	Lamp power off: T>= for 5 seconds.
				If reset or power off are disabled, confirm on channel 3, by selecting image 4, either in indexed or continuous rotation, and focus in near position (channel 5 or 6).
	2			**Intensity**
		0 - 255	0 - 100	Intensity 0→100%
	3			**Image Selection**
		0 - 19	0 - 7	Image 1, indexed rotation
		20 - 39	7 - 15	Image 2, indexed rotation
		40 - 59	15 - 23	Image 3, indexed rotation
		60 - 79	23 - 31	Image 4, indexed rotation
		80 - 99	31 - 39	Image 1, continuous rotation
		100 -119	39 - 46	Image 2, continuous rotation
		120 - 139	47 - 54	Image 3, continuous rotation
		140 - 159	55 - 62	Image 4, continuous rotation
		160 - 198	63 - 78	CW (Clockwise) wheel rot., slow→fast
		199 - 237	78 - 93	
		238 - 255	93 - 100	CCW wheel rot. fast→slow
				Reserved (no change)
	4			**Image Rotation (select indexed image rotation, on channel 3)**
		0 - 255	0 - 100	Coarse position index (MSB), Min→Max
				Rotation Velocity (select cont. image rotation, on channel 3)
		0 - 2	0	No rotation
		3 - 127	1 - 50	CW rotation, slow→fast
		128 - 252	50 - 99	CCW rotation, fast→slow
		253 - 255	99 - 100	No rotation
	5			**Image Rotation, Fine Position**
		0-255	0-100	Fine position index (LSB), Min→Max
5	6			**Focus**
		0-255	0-100	Infinity→near

Start code = 0

DMX2	DMX 2	Value	Percent	Function
6	7	0-255	0-100	Reserved (no change)
	8	0-255	0-100	Reserved (no change)
7	9	0-255	0-100	Reserved (no change)
	10	0-255	0-100	Reserved (no change)
8	11	0-255	0-100	Reserved (no change)
9	12			**Image and Focus Speed**
		0 - 2	0	Tracking mode
		3 - 251	1 - 96	Fast→slow
		252 - 255	97 - 100	Blackout while moving

Imager 04 DMX-Gobo Wheel with moving-mirror fitted

Start code = 0

DMX 1	DMX 2	Value	Percent	Function
	1			**Reset, Lamp On/Off**
		0 - 208	0 - 81	Reserved (no change)
		208 - 217	81 - 85	Reset luminaire
		218 - 227	85 - 87	Reserved (no change)
		228 - 237	89 - 93	Lamp power on
		238 - 247	93 - 97	Reserved (no change)
		248 - 255	97 - 100	Lamp power off: T >= for 5 seconds
				If reset or power off are disabled, confirm on channel 3, by selecting image 4, either in indexed or continuous rotation, and focus in near position (channel 5 or 6).
	2			**Intensity**
		0 - 255	0 - 100	Intensity 0→100%

Start code = 0

DMX 1	DMX 2	Value	Percent	Function
3				**Image Selection**
		0 - 19	0 - 7	Image 1, indexed rotation
		20 - 39	7 - 15	Image 2, indexed rotation
		40 - 59	15 - 23	Image 3, indexed rotation
		60 - 79	23 - 31	Image 4, indexed rotation
		80 - 99	31 - 39	Image 1, continuous rotation
		100 -119	39 - 46	Image 2, continuous rotation
		120 - 139	47 - 54	Image 3, continuous rotation
		140 - 159	55 - 62	Image 4, continuous rotation
		160 - 198	63 - 78	CCW wheel rotation, slow→fast
		199 - 237	78 - 93	CW (Clockwise) wheel rot., fast→slow
		238 - 255	93 - 100	Reserved (no change)
4				**Image Rotation (select indexed image rotation, on channel 3)**
		0 - 255	0 - 100	Coarse position index (MSB), Min→Max
				Rotation Velocity (select cont. image rotation, on channel 3)
		0 - 2	0	No rotation
		3 - 127	1 - 50	CCW rotation, slow→fast
		128 - 252	50 - 99	CW rotation, fast→slow
		253 - 255	99 - 100	No rotation
	5			**Image Rotation, Fine Position**
		0-255	0-100	Fine position index (LSB), Min→Max
5	6			**Focus**
		0-255	0-100	Infinity→near
6	7			**Pan**
		0-255	0-100	Left→right (128 = neutral)
	8			**Pan fine (LSB)**
		0-255	0-100	Left→right
7	9			**Tilt**
		0-255	0-100	Up→down (128 = neutral)
	10			**Tilt fine (LSB)**
		0-255	0-100	Up→down
8	11			**Pan/Tilt Speed**
		0 - 2	0	Tracking mode
		3 - 251	1 - 98	Fast→slow
		252 - 255	99 - 100	Blackout while moving
9	12			**Image and Focus Speed**
		0 - 2	0	Tracking mode
		3 - 251	1 - 96	Fast→slow
		252 - 255	97 - 100	Blackout while moving

Imager 01 DMX-Gobo

Start code = 0

DMX2	DMX 2	Value	Percent	Function
	1			**Reset, Lamp On/Off**
		0 - 208	0 - 81	Reserved (no change)
		208 - 217	81 - 85	Reset luminaire
		218 - 227	85 - 87	Reserved (no change)
		228 - 237	89 - 93	Lamp power on
		238 - 247	93 - 97	Reserved (no change)
		248 - 255	97 - 100	Lamp power off: T>= for 5 seconds.
				If reset or power off are disabled, confirm by setting DMX-channel 3 to any value in the ranges 60-79 or 140-159, and focus in near position. (channel 5 or 6).
	2			**Intensity**
		0 - 255	0 - 100	Intensity 0→100%
	3			**Image Selection**
		0 - 79	0 - 31	Image, indexed rotation
		80 - 159	31 - 62	Image, continuous rotation
		160 - 255	63 - 100	Reserved (no change)
	4			**Image Rotation (select indexed image rotation, on channel 3)**
		0 - 255	0 - 100	Coarse position index (MSB), Min→Max
				Rotation Velocity (select cont. image rotation, on channel 3)
		0 - 2	0	No rotation
		3 - 127	1 - 50	CW rotation, slow→fast
		128 - 252	50 - 99	CCW rotation, fast→slow
		253 - 255	99 - 100	No rotation
	5			**Image Rotation, Fine Position**
		0-255	0-100	Fine position index (LSB), Min→Max
5	6			**Focus**
		0-255	0-100	Infinity→near
6	7	0-255	0-100	Reserved (no change)
	8	0-255	0-100	Reserved (no change)
7	9	0-255	0-100	Reserved (no change)
	10	0-255	0-100	Reserved (no change)
8	11	0-255	0-100	Reserved (no change)

Start code = 0

DMX2	DMX 2	Value	Percent	Function
9	12			**Image and Focus Speed**
		0 - 2	0	Tracking mode
		3 - 251	1 - 96	Fast→slow
		252 - 255	97 - 100	Blackout while moving

Imager 01 DMX-Gobo with moving-mirror fitted

Start code = 0

DMX 1	DMX 2	Value	Percent	Function
1				**Reset, Lamp On/Off**
		0 - 208	0 - 81	Reserved (no change)
		208 - 217	81 - 85	Reset luminaire
		218 - 227	85 - 87	Reserved (no change)
		228 - 237	89 - 93	Lamp power on
		238 - 247	93 - 97	Reserved (no change)
		248 - 255	97 - 100	Lamp power off: T >= for 5 seconds
				If reset or power off are disabled, confirm by setting DMX-channel 3 to any value in the ranges 60-79 or 140-159, and focus in near position. (channel 5 or 6).
2				**Intensity**
		0 - 255	0 - 100	Intensity 0→100%
3				**Image Selection**
		0 - 79	0 - 31	Image, indexed rotation
		80 - 159	31 - 62	Image, continuous rotation
		160 - 255	63 - 100	Reserved (no change)
4				**Image Rotation (select indexed image rotation, on channel 3)**
		0 - 255	0 - 100	Coarse position index (MSB), Min→Max
				Rotation Velocity (select cont. image rotation, on channel 3)
		0 - 2	0	No rotation
		3 - 127	1 - 50	CCW rotation, slow→fast
		128 - 252	50 - 99	CW rotation, fast→slow
		253 - 255	99 - 100	No rotation
	5			**Image Rotation, Fine Position**
		0-255	0-100	Fine position index (LSB), Min→Max
5	6			**Focus**
		0-255	0-100	Infinity→near
6	7			**Pan**
		0-255	0-100	Left→right (128 = neutral)
	8			**Pan fine (LSB)**
		0-255	0-100	Left→right
7	9			**Tilt**
		0-255	0-100	Up→down (128 = neutral)

Start code = 0

DMX 1	DMX 2	Value	Percent	Function
	10			**Tilt fine (LSB)**
		0-255	0-100	Up→down
8	11			**Pan/Tilt Speed**
		0 - 2	0	Tracking mode
		3 - 251	1 - 98	Fast→slow
		252 - 255	99 - 100	Blackout while moving
9	12			**Image and Focus Speed**
		0 - 2	0	Tracking mode
		3 - 251	1 - 96	Fast→slow
		252 - 255	97 - 100	Blackout while moving

Specifications - Imager

Physical

Length . . . . . 726 mm (28.6 in.)
Width . . . . . 242 mm (9.5 in.)
Weight (Imager 04 DMX Gobo Wheel) . . . . . 9.9 kg (21.8 lbs)
Weight (Imager 01 DMX Gobo) . . . . . 9.7 kg (21.4 lbs)

Installation

Mounting device . . . . . Imager J-Box
Orientation. . . . . Ceiling mount

Minimum distance to combustible materials. . . . . 1 m (39 in)
Minimum distance to illuminated surfaces . . . . . 0.5 m (20 in)

Construction

Imager housing . . . . . Aluminum and plastic

Thermal

Maximum ambient temperature (Ta). . . . . 40° C (104° F)
Maximum surface temperature, steady state, Ta=40° C . . . . . 100° C (212° F)

Source

Lamp . . . . . 250 W discharge
Approved models . . . . . Philips MSD 250
Philips MSD 250/2
Osram HSD 250/78
Osram HSD 250/60
Osram HSD 250/80

Power supply

Power source . . . . . Imager Base via Imager J-Box
PCB fuses . . . . . 3.15 AT, 2 AT

Dynamic effects

Dimmer
Gobo rotation, continuos or to indexed position
Pan and tilt (with optional moving-mirror)
Focus

Gobos

Size . . . . . .D
Outside diameter . . . . . 53.3 mm (2.10 in.)
Maximum image diameter . . . . . 40 mm (1.57 in.)
Maximum thickness . . . . . .2 mm
Material . . . . . metal or glass

Photometrics

Standard beam angle . . . . . 23°, focal length = 100 mm (3.9 in.)
Optional bean angle. . . . . .15° lens, focal length = 150 mm (5.9 in.)
Optional bean angle. . . . . .32° lens, focal length = 70 mm (2.75 in.)
Size of a projected image using a gobo of a given size:

$$\text{projected image size} = \frac{\text{gobo image size} \times \text{projected distance}}{\text{focal length}}$$

Gobo image size required to achieve a projected image size:

$$\text{gobo image size} = \frac{\text{projected size} \times \text{focal length}}{\text{projected distance}}$$

Control & Programming

Control options . . . . . DMX-512, stand-alone, synchronous operation
Receiver. RS-485
Setting and addressing. . . . . 3-digit LCD control panel
Firmware update . . . . . Serial upload (.MU3)
Data input RJ-45
Data output RJ-45
DMX channels. . . . . .9 or 12

Ordering information

Imager, Base . . . . . .P/N 90721000
Imager 04 DMX Gobo Wheel w. J-Box . . . . . .P/N 90540010
Imager 01 DMX Gobo w. J-Box . . . . . .P/N 90540110
Moving-mirror for Imager. . . . . .P/N 91611069

Included items

User manual
Osram HSD 250/80
Beacon gobo (installed)
RJ-45 terminator (installed in J-Box)
J-Box
4 rubber cable-glands for J-Box

Accessories

Martin infrared remote control transmitter . . . . . P/N 90760010
Martin infrared remote control receiver . . . . . P/N 91611047
MP-2 uploader: . . . . . P/N 90758420
MC-X Controller, 220-245V/50Hz . . . . . P/N 90718200
MC-X Controller, 110-120V/60Hz . . . . . P/N 90718300
15 degree lens . . . . . P/N 91611074
32 degree lens . . . . . P/N 91611075
Slide projection kit (with heat filter) . . . . . P/N 91611076
Remote control upgrade kit . . . . . P/N 91614008
Air filters . . . . . P/N 91611079
Color filter - Lilac 503. . . . . P/N 46402000
Color filter - Light Blue 102 . . . . . P/N 46402001
Color filter - Green 208 IAD. . . . . P/N 46402002
Color filter - Green 204. . . . . P/N 46402003
Color filter - Orange 306M . . . . . P/N 46402004
Color filter - Red 308 . . . . . P/N 46402005
Color filter - Green 203. . . . . P/N 46402006
Color filter - Blue 108 . . . . . P/N 46402007
Color filter - UV-transmitter . . . . . P/N 46402008
Color filter - Half Minus Green. . . . . P/N 46402009
Heat filter. . . . . P/N 41102060

The number next to some color filters are OCLI (Optical Coating Laboratory, Inc.) reference numbers.

www.martin-architectural.com • Olof Palmes Allé 18 • 8200 Aarhus N • Denmark
Tel: +45 8740 0000 • Fax +45 8740 0010