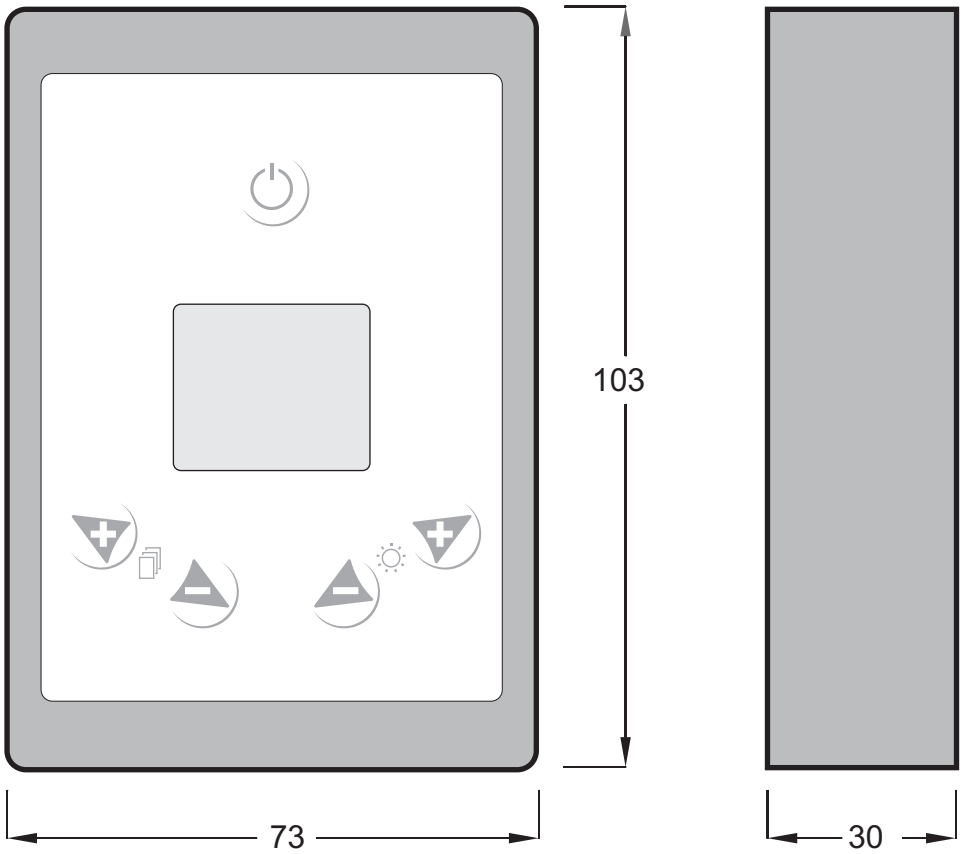
martinarchitectural

Light Fox™
user manual

Martin

Dimensions

Measurements are in millimeters



P/N 35000209 Rev. C

Contents

Notes

Safety information

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

Read this manual before installing or operating the Light Fox™ controller or its power supply unit. Follow the safety precautions listed below, and observe all warnings in this manual and on the power supply unit.

DANGER!
Safety hazard.

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

Safety precautions

- The external power supply unit supplied with this product is specifically matched to the product. Do not use any other device to supply the product with power. Do not connect the power supply unit to any other device.
- Before you use the power supply unit, check that the voltage range marked on the unit matches your local AC power voltage. If your AC power voltage is outside the range indicated, do not use the unit. Contact your Martin supplier for assistance.
- If the power supply unit or any cables connected to it are in any way damaged, defective, wet, or show signs of overheating, stop using the unit immediately and replace with new items from your Martin supplier.
- Disconnect the power supply unit from AC power when not in use for extended periods.
- The power supply unit is not waterproof. Do not allow it to get wet.
- There are no user-serviceable parts inside the power supply unit or Light Fox controller. Do not remove covers or attempt to repair a faulty power supply unit or controller. Refer all service to a Martin service technician.
- Do not operate the power supply unit or Light Fox controller if any parts are damaged, defective or missing.
- Do not modify the power supply unit or Light Fox controller in any way.

Introduction

Thank you for selecting the Martin Light Fox™ controller. This dynamic lighting playback controller has the following features:

- One-touch program selection with adjustable intensity
- ‘Plug and play’ default configuration that controls 8 groups of luminaires with 20 programs stored in internal memory
- Intuitive programming interface using Martin Design Fox™ application
- Compatibility with:
  - RGB (red + green + blue) luminaires
  - RGBW (red + green + blue + white) luminaires
  - WRGB (white + red + green + blue) luminaires such as 4-tube Martin Cyclo™ fixtures that use the first DMX channel to control white
- Matt white wipe-clean finish

- Backlit ON/OFF button for easy identification in the dark
- Power over Ethernet (POE) external PSU (power supply unit) included
- Infrared sensor for use with optional Martin remote control accessory

Installation

The Light Fox is supplied as a package containing the following items:

- Light Fox control unit
- Mounting bracket
- 100-240 V, 50/60 Hz, auto-ranging external PSU (power supply unit)
- Combined UTP (unshielded twisted pair) data & POE (power over ethernet) cable
- USB cable
- This user manual.

Mounting the control interface unit

The Light Fox control unit is designed to be fastened to a surface such as a wall using the supplied mounting bracket. Alternatively, the control unit can simply be placed on a horizontal surface.

To fasten the control unit to a surface:

1. See Figure 1. Separate the control unit from its mounting bracket (you may need to loosen the grub screw in the bottom of the control unit housing to release it).
2. Fasten the mounting bracket to the mounting surface using two screws or bolts.
3. Hang the control unit over the tabs in the mounting bracket. See Figure 2. Do not tighten the locking screw in the bottom of the control unit housing yet because you will need access to the connectors in the back of the control unit when you install cables.

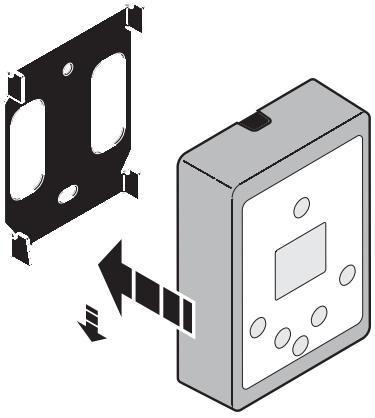


Figure 1: Mounting bracket

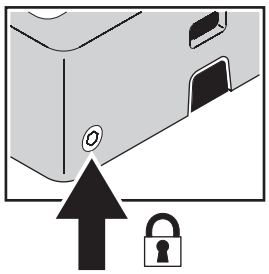


Figure 2: Mounting bracket locking screw

Planning a control data link

The Light Fox must be connected to luminaires via a DMX control data link. See Figure 5 on page 8 for a schematic diagram of cable layout.

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

- Luminaires must be ‘daisy-chained’, i.e. the data cable must be connected in one single chain of luminaires.
- Each daisy-chained link may connect a maximum of 32 luminaires.

- The maximum permitted control data cable length before a control signal amplifier is required is 500 meters (1640 ft.).
- An optically isolated amplifier-splitter such as the Martin RS-485 Opto-Splitter (P/N 90758060) must be used to:
  - branch the link into further single chains, each containing 32 luminaires (the Martin Opto-Splitter allows a link to be branched into four new chains)
  - extend the link to include a further maximum 32 luminaires, or
  - extend a link beyond 500 meters (1640 ft.)
- Each chain on the link must be terminated by placing a resistance across the hot (+) and cold (-) conductors of the data link in the last device on the chain.
- Cat 5 cable (UTP or STP) is suitable for DMX data links in fixed installations. Cable must be straight-through, not crossover.
- RS-485 DMX cable is recommended for movable installations. The minimum recommended wire size is 0.25 mm^2 (24 AWG) for runs up to 300 meters (1000 ft.) and 0.32 mm^2 (22 AWG) for runs up 500 meters (1640 ft).

Long parallel runs of AC power and control data cables may cause interference on the data link and must be avoided. Even if not required by law, separate conduits are recommended for power and data cables.

RJ-45 connector pinouts

Control data link connections are RJ-45, with the pinout described below. Cable connector pins are numbered from the left looking at the face of the connector with the locking clip on top (see Figure 3). Connectors must be wired using the standard RJ-45 DMX pin-out:

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

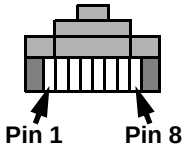


Figure 3: RJ-45 cable connector pins

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

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

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

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

Installing the control data link

Important! The PWR LAN-OUT socket on the PSU (power supply unit) carries POE (power over Ethernet) at 48 volts. Connect only a Light Fox to this socket. If you connect luminaires or any non POE-compliant device to the PWR LAN-OUT socket, you will cause damage that is not covered by product warranties. Do not use more than one PSU in an installation.

To connect the installation, see Figure 5:

1. Run an RJ-45 straight-through patch cable (**A**) from the **PWR LAN-OUT** socket on the PSU to either of the two sockets on the Light Fox shown in Figure 4 and secure the Light Fox in its mounting bracket, if used.
2. Run a DMX cable (**B**) from the **LAN-IN** RJ-45 connector on the PSU to the DMX input of the first luminaire on the control data link. If the luminaire has RJ-45 sockets for DMX input/output, straight-through CAT 5 cable can be used in fixed installations.
3. Run a DMX cable (**C**) from the DMX output of the first luminaire on the control data link to the DMX input of the next luminaire. Again, straight-through CAT 5 patch cable can be used.

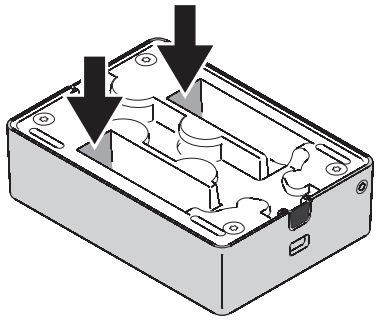


Figure 4: Use either connector in the back of the Light Fox

4. Continue connecting up to a total of 32 luminaires, DMX output to DMX input (**D**).
   - To connect more than 32 luminaires total or branch the link, add an optically isolated amplifier/splitter to the link.
   - Install a DMX termination plug or resistor in the DMX output of the last luminaire on the link (see the luminaire's user manual for details).

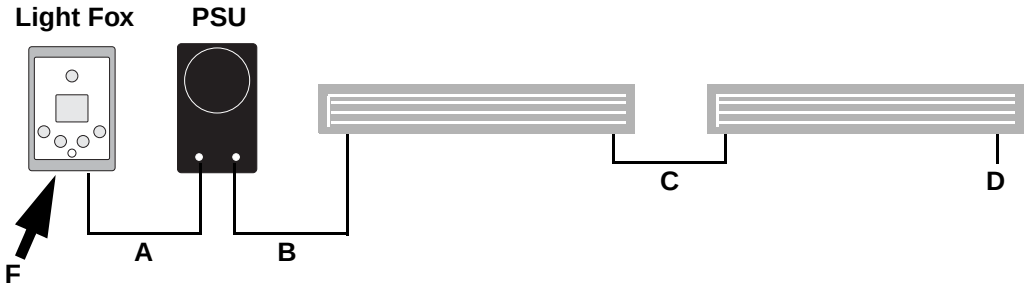


Figure 5: Schematic diagram of basic control data link

Running multiple Light Foxes

Important! Do not connect more than one Light Fox per installation to an external power supply unit.

An installation can be controlled from more than one location if additional Light Fox control units are connected to the first one. If multiple control units are connected, any Light Fox can be used to control the installation. If you enter commands on any Light Fox, it will take over as master and override all the other Light Fox controllers it is connected to.

See Figure 5. To connect an additional Light Fox, use a straight-through Cat 5 patch cable to connect one of its RJ-45 sockets to the spare RJ-45 socket (**F**) on the first Light Fox.

You can connect up to 4 Light Fox controllers in one installation. Power is supplied to all the Light Fox controllers via the Cat 5 patch cable that connects them. It does not matter which of the two RJ-45 sockets on each Light Fox you use to interconnect them.

Setting up groups

By default, the Light Fox is set up to control up to 4 groups of RGB luminaires and 4 groups of WRGB luminaires simultaneously:

- Groups A - D control RGB color-mixing luminaires
- Groups E - H control WRGB color-mixing luminaires.

You can change this setup using the Martin Design Fox™ application (see "*Programming with Design Fox"* on page 13), available free of charge from the Martin website.

All the luminaires in a group behave identically, so if you want all luminaires to show the same scene or scenes at the same time, assign them all to one group.

Luminaires in different groups behave differently, following the pattern shown in Table 5 on page 12.

Creating groups by setting DMX addresses

Luminaires are assigned to a group by setting their DMX addresses as shown in Table 1:

	Group							
	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
DMX address	**1**	**65**	**129**	**193**	**257**	**321**	**385**	**449**

Table 1: DMX addresses for groups

See the luminaires' user manuals for full details of setting DMX addresses.

Remote control

The Light Fox has an infra-red remote control sensor and can be operated using a standard Martin IR remote control.

Controlling luminaires

Default settings

The Light Fox is supplied configured with default settings that are intended to suit many installations. If the default settings are not suitable for your installation, you can change them using the Design Fox application (see "*Programming with Design Fox"* on page 13), available free of charge from the Martin website.

Controls

The Light Fox controls are shown in Figure 6.

- The power on/off button **A** applies power to the Light Fox.
- The display **B** shows either the currently active program or the light intensity.
- The program selection up/down buttons **C** scroll through the available programs.
- The intensity up/down buttons **D** adjust the intensity of the overall light output.

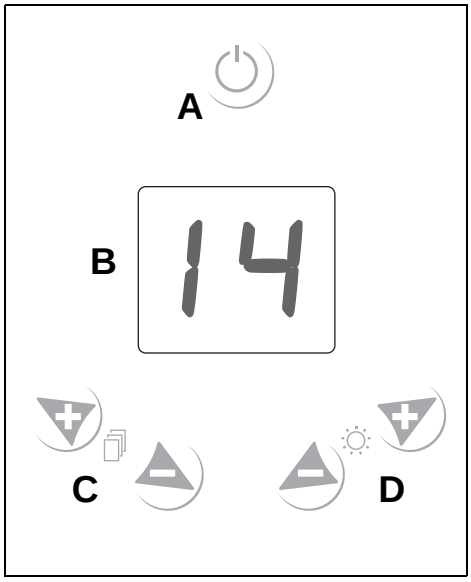


Figure 6: Light Fox controls

About Light Fox programs

A scene is a particular lighting effect with predetermined color and intensity. A program is a show that can contain from one to ten scenes.

If a program only contains one scene, it is static. If a program contains two or more scenes, it is dynamic and will change from one scene to the next in a repeating loop.

The change from one scene to the next is called a fade, and the amount of time required for the change is called the fade time. The amount of time a scene is displayed before it begins the change to the next scene is called the wait time.

The Light Fox is supplied loaded with 20 programs:

- 14 programs consist of one static scene – luminaires display a fixed color mix or white color temperature (warm, neutral or cool)
- 6 programs consist of dynamic shows – luminaires shift color or color temperature constantly, playing two or more scenes continuously in a loop.

Light Fox programs use cross-fading. In other words, one scene merges gradually into the next.

Programs 1 - 14 inclusive consist of one scene and are therefore static (see Table 2)

Scene	Color	Scene	Color
1	Warm white	8	Blue
2	Neutral white	9	Pale green
3	Cool white	10	Green
4	Pale blue	11	Yellow
5	Pale purple	12	Peach
6	Lilac	13	Salmon pink
7	Lavender	14	Pale red

Table 2: Static programs in firmware v. 1.0

Scenes 15 - 20 inclusive are dynamic and consist of two or more of the static scenes displayed in a continuous loop (see Table 3). As soon as luminaires have faded completely to one scene, they begin fading to the next.

Scene	Color	Component scenes	Fade time
15	Dynamic reds	14 - 13 - 12	20 secs.
16	Dynamic greens	11 - 10 - 9	20 secs.
17	Dynamic blues	9 - 8 - 7	20 secs.
18	Dynamic circadian	11 - 8	20 secs.
19	Kaleidoscope	5 to 14 inclusive	5 secs.
20	Color temperatures	1 - 2 - 3	30 secs.

Table 3: Dynamic pre-programmed scenes in firmware v. 1.0

Displaying different scenes on different groups

If you assign luminaires to groups and program more than one scene, when the luminaires in one group display one scene, the luminaires in the group below display the preceding scene and the luminaires in the group above display the next scene.

For example, if you create two groups of luminaires (**A** and **B**) and program three scenes (**1**, **2** and **3**), the program will run as shown in Table 4:

		Scenes							
		1	**2**	**3**	**4**	**5**	**6**	**7**	**...**
Groups	**A**	1	2	3	1	2	3	1	...
	B	2	3	1	2	3	1	2	3

Table 4: Example – 2 groups running 3 scenes

If you create four groups (**A** - **D**) and program six scenes (**1** - **6**), the program will run as shown in Table 5. The sequences of scenes run in repeating loops

		Scenes							
		1	**2**	**3**	**4**	**5**	**6**	**7**	**...**
Groups	**A**	1	2	3	4	5	6	1	...
	B	2	3	4	5	6	1	2	...
	C	3	4	5	6	1	2	3	...
	D	4	5	6	1	2	3	4	...

Table 5: Example – 4 groups running 6 scenes

Override during stand-alone programs

All Martin luminaires that are running a stand-alone program will stop stand-alone operation and respond to commands from the Light Fox as soon as they receive them. Signals from a Light Fox always have priority over the running of a stand-alone program.

Programming with Design Fox

Martin Design Fox™ is a Windows PC application that allows you to reprogram the Light Fox. It can be downloaded free of charge from the Support pages for Light Fox on the Martin website at http://www.martin.com

Using Design Fox, you can:

- Create your own programs (sequences of up to 10 scenes)
- Adjust fade times and wait times for programs.
- Set color and intensity independently for up to 8 groups of luminaires in any one scene
- Set any of the 8 groups of luminaires independently to RGB, RGBW or WRGB control.
- Create programs offline and upload them to the Light Fox.
- Download programs from the Light Fox for offline editing.
- Save programs as files that can be stored on a PC or server, sent by e-mail, etc.

Connecting and installing

To connect and start Design Fox:

1. Create a folder called ***Design Fox*** on your PC. Download the Design Fox zip file from the Light Fox support page at www.martin.com under Support and extract its contents to this ***Design Fox*** folder.
2. Connect the Light Fox to a PC running Windows XP using the supplied USB to mini-USB cable.
3. Windows XP will recognize that a new USB device has been connected and ask you where it should look for drivers for that device. Tell Windows to look in the folder called ***Drivers*** in your new ***Design Fox*** folder.
4. Double-click on designfox.exe to launch the Design Fox application.

Using Design Fox

Launching the Design Fox application opens the window shown in Figure 7 on page 14. If a Light Fox controller is correctly connected to your PC, the Light Fox icon on the right of the window will display the word **Connected** in green. Otherwise it will display the word **Disconnected** in red.

Setting color control modes

In Light Fox programs, up to eight groups of luminaires with different color control characteristics can be controlled simultaneously. For example, you can control three groups of Martin Cyclo 03 luminaires using RGB control and five groups of Martin Cyclo 04 luminaires using WRGB control at the same time.

By default, groups A - D are set to RGB control and luminaire groups E - H set to WRGB control, but this color control setup can be changed – you can set any group to RGB, RGBW or WRGB control independently of the other groups.

To set the color control mode for a group of luminaires:

1. See Figure 7. Double-click on one of the 20 palette boxes (arrowed).

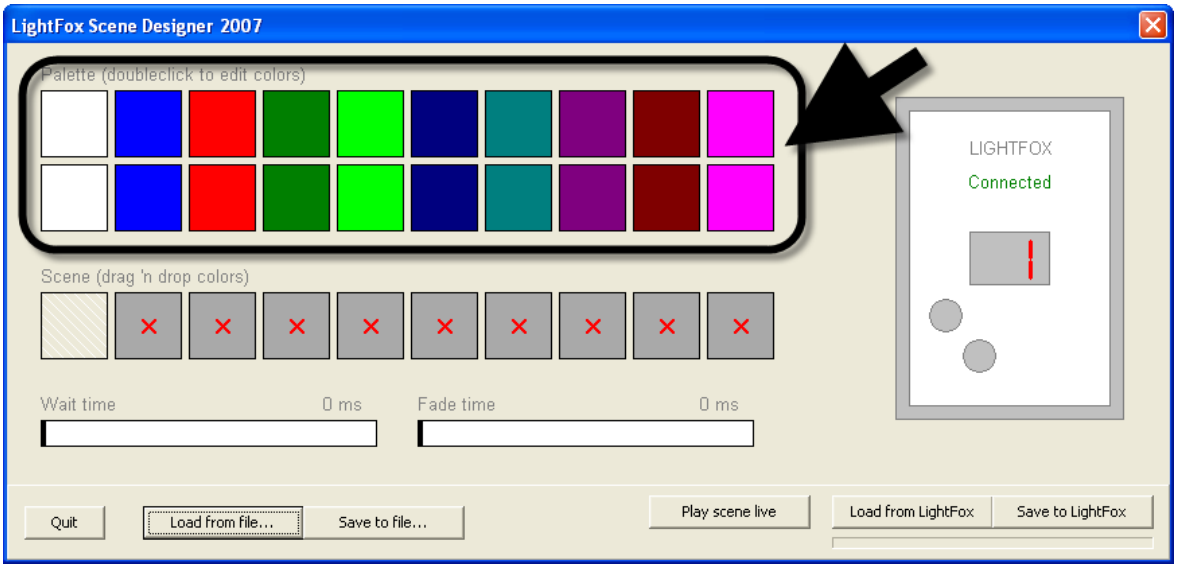


Figure 7: Design Fox Palette

2. See Figure 8. The **Define palette colors** dialog box appears. The eight palette boxes (arrowed) correspond to the eight possible luminaire groups. Groups A - D are displayed from left to right on the top row. Groups E - H are displayed from left to right on the second row.

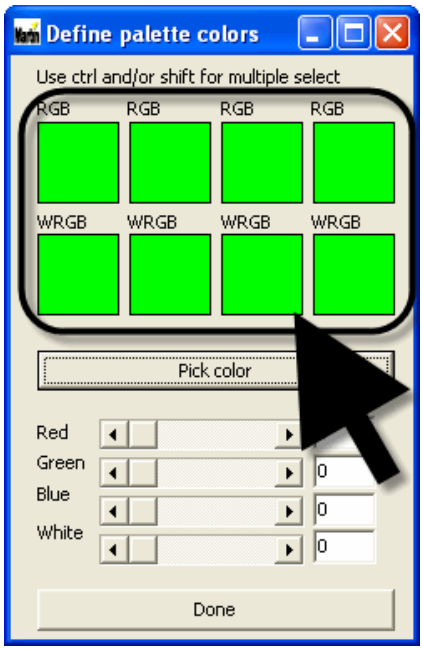


Figure 8: Defining palette colors

3. The color control mode setting for each group is displayed above that group's box. To change a setting, right-click on the box. See Figure 9. A pop-up dialog box appears. Select **RGB**, **RGBW** or **WRGB** to apply that color control mode to the group. Repeat for all the groups you want to set up.

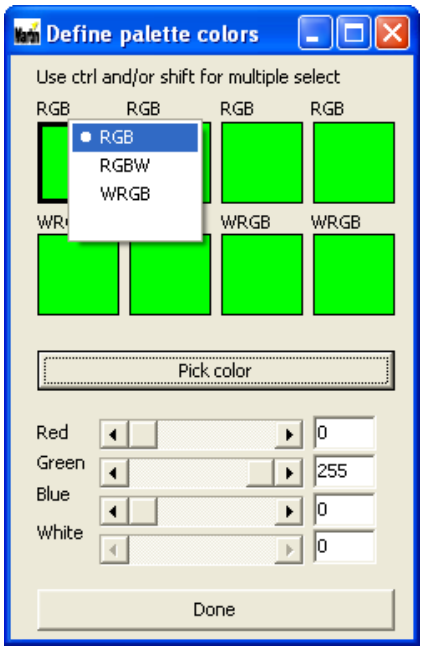


Figure 9: Selecting color control mode

Modifying the appearance of scenes

To modify the appearance of a scene, you must edit the colors and intensity of its box in the palette:

1. Double-click on the relevant box in the palette to open the **Define palette colors** window.
2. See Figure 10. Select one of the luminaire groups for editing by clicking on its box (Group B is selected in Figure 10). Use the **Ctrl** and/or **Shift** keys to select more than one group.
3. See Figure 10. Either click on the **Pick color** button to open a Windows-style color palette, or adjust the color mixing sliders.
4. When you have obtained the desired color, press the **Done** button to confirm your choice and return to the main Design Fox window. The palette box that you edited now displays the new color you selected. If you selected the same color for all groups of luminaires, the box will be one solid color. If you selected different colors for different groups, the box will show those colors in segments as in Figure 12 on page 17.

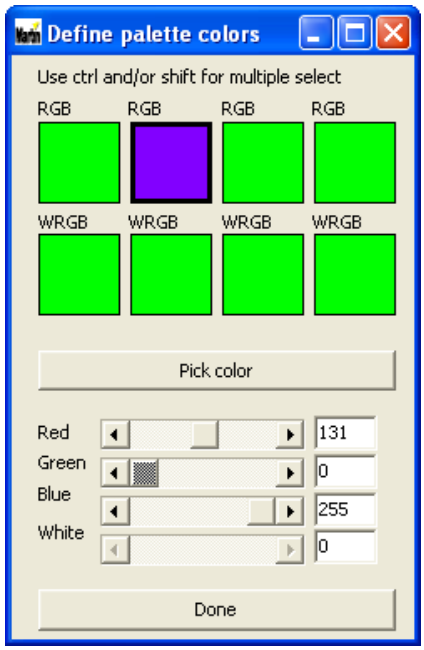


Figure 10: Modifying the appearance of a scene

Designing programs

A Light Fox program is a sequence of up to 10 scenes that repeats in a loop. Each program has a fade time (the amount of time it takes to change to that scene from the previous scene) and a wait time (the amount of time a scene is displayed before the fade to the next scene starts). Fade and wait times can be adjusted from zero seconds to 10 minutes 55 seconds.

Using Design Fox, you can either create a new program, edit an existing program from a Light Fox or edit an existing program that has been saved as a file on a PC or recordable media.

Creating a new program

To create a new program:

1. See Figure 11. Drag and drop one of the 20 palette boxes at the top of the window onto any of the available 10 scene boxes. Drag and drop scene boxes to reorganize the sequence of scenes.

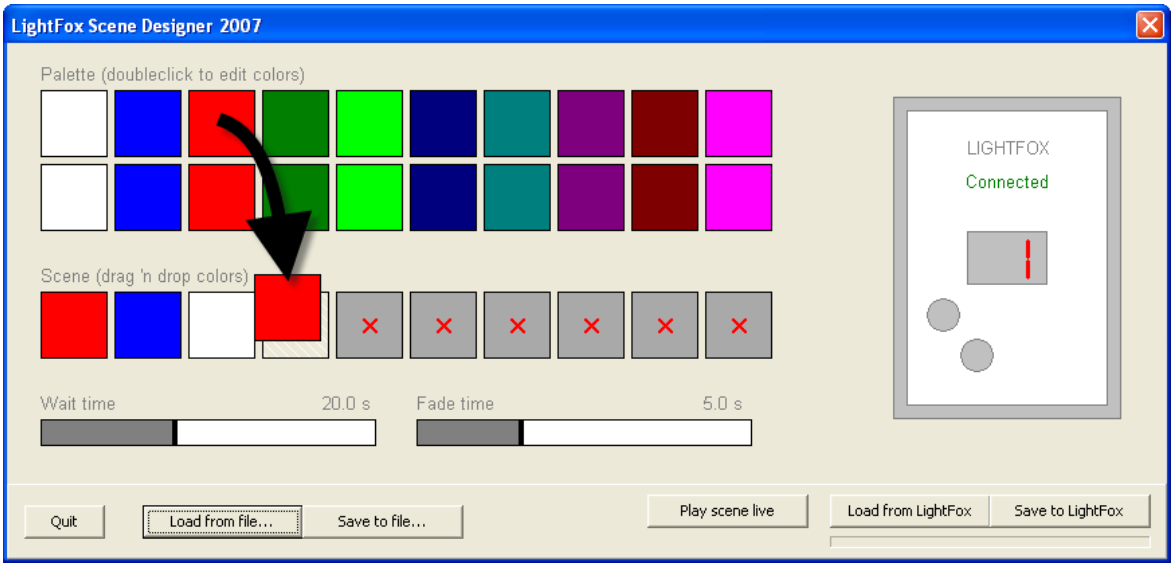


Figure 11: Adding scenes to a program

2. Wait and fade times for the program are displayed in milliseconds, seconds or minutes above the **Wait time** and **Fade time** sliders. To adjust, either click and drag the sliders or double-click on the time displayed above the sliders and enter values in milliseconds.
3. Use the **Save to file...** command to save a program to a PC or recordable media in Light Fox's own **.lfx** format for backup, storage, sharing, etc. If you have a Light Fox connected to the PC, use the **Save to Light Fox** command to upload the program from Design Fox directly to the Light Fox's internal memory.

Editing an existing program

To edit an existing program from a Light Fox:

1. Connect a Light Fox to the PC using its USB cable and check that the word **Connected** appears on the right of the main Design Fox window.

2. Click on the **Load from Light Fox** button at the bottom right of the window to load the Light Fox's program into the Design Fox application for editing.
3. See Figure 12. The 20 palette squares (arrowed) at the top of the main Design Fox window show the 20 palettes stored in the Light Fox's memory.

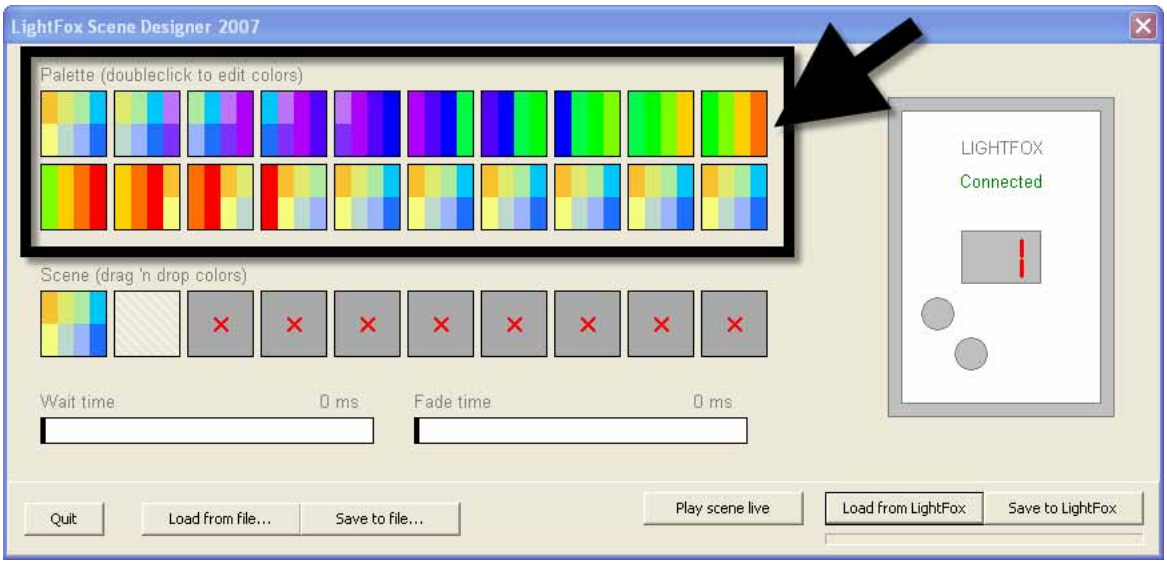


Figure 12: Programming a program

4. Drag and drop palette boxes from the top of the window onto any of the available 10 scene boxes. Drag and drop scene boxes to reorganize the sequence of scenes.
5. Adjust wait and fade times for the program using the fade and wait time sliders.
6. To modify the appearance of a scene, edit the colors and intensity of the palette box used by that scene.

To edit an existing program from a file:

1. Click on the **Load from file...** button, locate an **.lfx** file and double-click or click on **Open** to open the file.
2. You can now edit the file as described above and finally either save it to a Light Fox or save it again as a file.

Service

Periodic cleaning and installation of new firmware if released are the only maintenance operations required or possible for the user. Refer any other service or repairs to Martin Service.

Cleaning

DANGER! Do not use water to clean the power supply unit. Use only a dry cloth or brush.

Important! Use only a cloth slightly dampened with water or a water/detergent solution to clean the control unit. Do not soak, spray or splash with water. Do not use solvents or abrasives.

Firmware updates

This manual covers Light Fox firmware version 1.0. If the firmware is updated, a new installation file will be made available on the Light Fox support page and the new firmware will be installed at the factory as soon as it is released. The release notes will explain any changes or new features.

Specifications

Physical

Length..... 70 mm (2.8 in.)
Width ..... 100 mm (3.9 in.)
Height ..... 30 mm (1.2 in.)
Weight..... 190 g (7 oz.)

Control/User Interface

Backlit control panel with backlit button symbols and 2-digit LED display
On/off button
Scene up/down buttons
Scene intensity up/down buttons
Sensor for infrared remote control

Playback

Number of luminaire groups 8
Number of pre-programmed scenes (all with variable intensity)..... 20
Scene types..... Static and dynamic
Playback triggering options ..... IR wireless, RC5, Macintosh, NEC

Construction

Housing ..... Aluminum
Finish ..... Clear anodized
Front display/control surface..... White acrylic, built-in infrared sensor

Installation

Control interface unit..... Wall-mount on supplied bracket, concealed cables
External power supply unit ..... Surface-mount

Connections

Control interface unit

Communication with PC ..... USB
DMX and POE in, out/thru ..... 2 x RJ-45
Up to 4 control interface units daisy-chainable

External power supply unit

DMX in/thru, POE out ..... 2 x RJ-45
AC power input ..... 1.5 m (4.9 ft.) UL-approved power cable with IEC connector

Electrical

AC power ..... Auto-ranging 100 - 240 VAC nominal, 50/60 Hz, to external PSU
Typical current ..... 0.4 A
Control unit voltage..... 48 V DC via POE from external PSU

Approvals

EU safety ..... EN 60950
EU EMC ..... EN 55103-1, EN 55103-2, EN 61000-3-2, EN 61000-3-3
External power supply unit ..... CE, UL (C + US), FCC, GS, CCC

Included Items

Light Fox controller
IEEE 802.3af POE (Power Over Ethernet)-compliant external PSU (Power Supply Unit)
Combined UTP data & POE cable
USB cable
User documentation

Accessories

Infrared remote control unit ..... Due for release spring 2008

Ordering Information

Light Fox™ Controller ..... P/N 90734540

Specifications subject to change without notice.

Disposing of this product

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

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

Notes

Notes

Martin

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