

iPlayer™

USER GUIDE

FOR THE iPLAYER LIGHTING SHOW STORAGE AND PLAYBACK SYSTEM

WINDOWS
RELEASE 1.5
English

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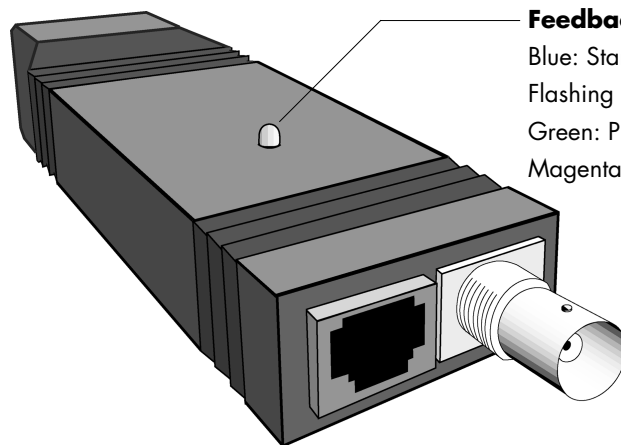
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CHAPTER 1

INTRODUCTION

iPlayer

iPlayer™ is a recording and playback device for your Color Kinetics® lights.



Feedback LED

Blue: Standby

Flashing red/green: Downloading

Green: Playback

Magenta: Recording

Once you install iPlayer and load a light show, you can play the show on your Color Kinetics lights.

iPlayer Software

You use the iPlayer software to control iPlayer.



With iPlayer and the iPlayer software you can:

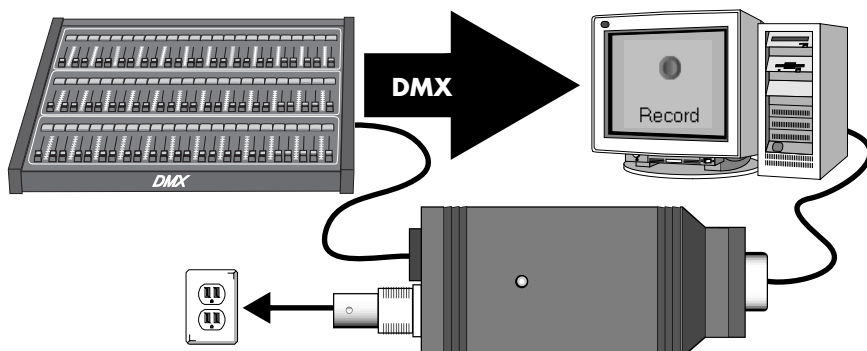
- Download light shows from your computer to iPlayer
- Play light shows on Color Kinetics lights
- Record and edit light shows from any DMX source
- Store light shows on iPlayer or on your computer

A Quick Tour

This section introduces the basic functionality of iPlayer hardware and software: Recording, Downloading, and Playing light shows.

Recording Light Shows

When you record a light show from a DMX512 lighting control console, the signal is sent through iPlayer to your computer, where you can save it as a file.

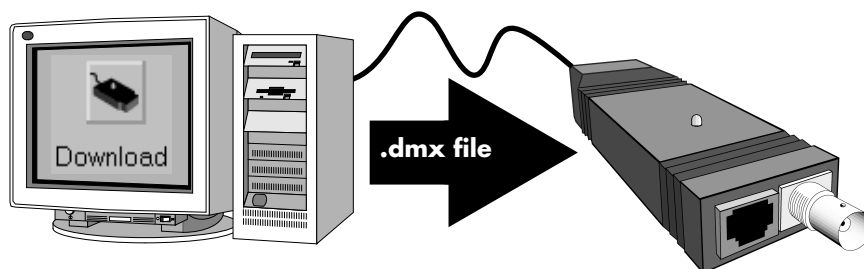


See page 11 for more information about recording DMX input.

Downloading Light Shows

After you save the light show on your computer as a .dmx file, you can download it to iPlayer.

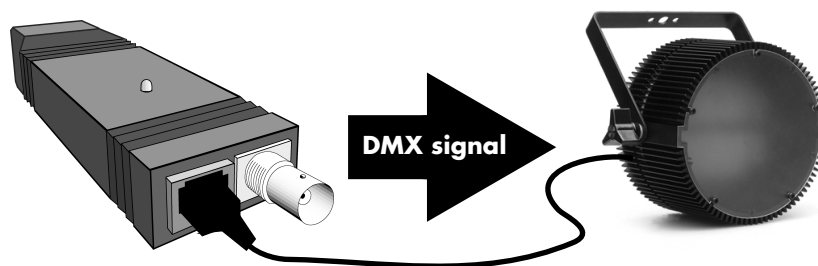
You can also download shows created with ColorPlay, Color Kinetics' DMX authoring software.



See page 17 for more information about downloading shows to iPlayer.

Playing Light Shows

Once the show is loaded on iPlayer, you can play it back on your Color Kinetics lights.

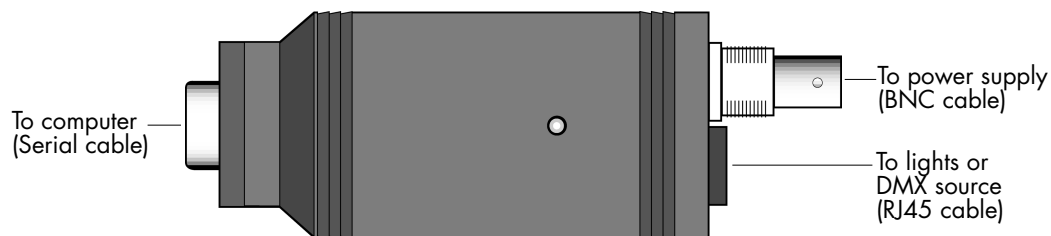


See page 18 for more information about playing light shows.

CHAPTER 2

GETTING STARTED

Installing iPlayer Hardware



To install iPlayer, you need to connect it to the computer and the power supply. Then you can connect it to a DMX lighting control console for recording light shows, or to the lights for live playback.

The following sections explain these steps in detail.

Making the Right Connections

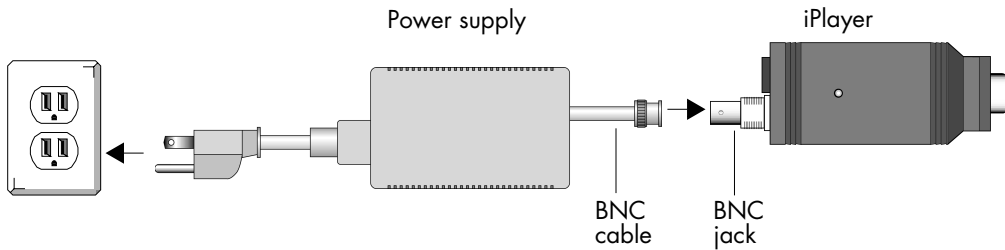
Power Supply

The iPlayer hardware includes a C-Series Universal Power Supply. You can also power iPlayer using a Juicebox, ProMops 3, or Data Masseuse, all available from Color Kinetics.

To connect to the C-Series Universal Power Supply

Note: The C-Series Universal Power Supply operates on input voltages ranging from 100–240V AC. Make sure your source voltage is within this range.

1. Connect the BNC cable from the power supply to iPlayer's BNC jack.
2. Plug the power supply in to an AC outlet.

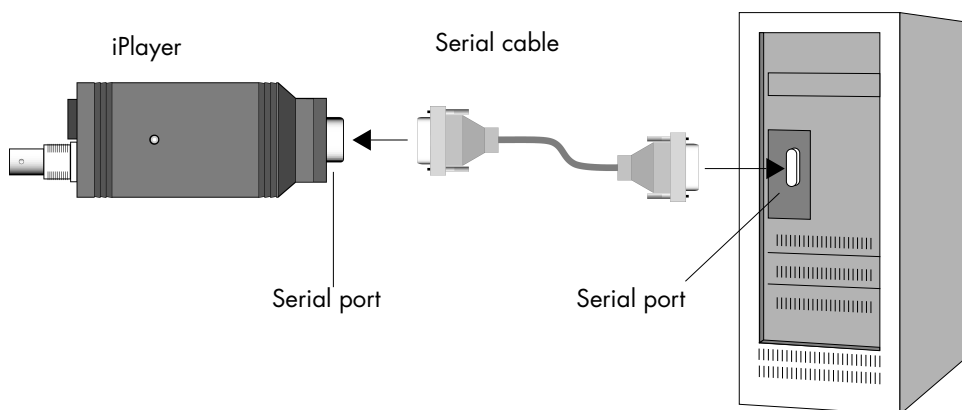


Computer

iPlayer must be connected to your computer's serial port for the iPlayer software to run. If your computer has a 25-pin serial port, use the 9-pin to 25-pin serial adapter, included with the iPlayer hardware.

To connect iPlayer to your computer

- 1.** Connect one end of the serial cable to iPlayer's serial port.
- 2.** Connect the other end to a serial port on your computer.

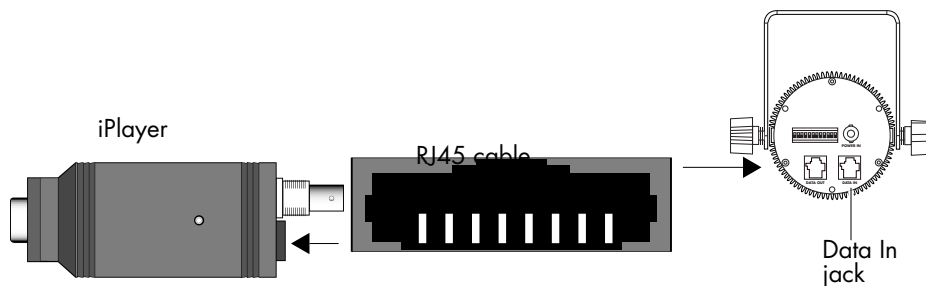


Lights

For details on sending power and data to multiple lights, see the documentation for those lights.

To connect to Color Kinetics lights

1. Connect one end of the RJ45 cable to iPlayer.
2. Connect the other end to the first light's Data In jack.



DMX Lighting Control Console

To record DMX data from lighting control console, you need a Recording RJ45 Cable. If your lighting control console uses 5-pin XLR connectors, you also need a DMX512 Adapter Cable (RJ45 to XLR). Both cables are available from Color Kinetics. (See *Contacting Technical Support* on page 21 for details.)

To connect to a DMX lighting control console

1. Connect one end of the RJ45 cable to iPlayer.
2. Connect the other end to the DMX lighting control console, using the DMX512 adapter cable if necessary.



Installing the iPlayer Software

Before you install the iPlayer software, quit any running applications, turn off virus protection software, and check to make sure your computer has enough memory and free disk space.

System Requirements

- Windows 95 or greater
- 2 MB RAM
- 2 MB free disk space

To install iPlayer software for Windows

- 1.** Insert the iPlayer software CD into the CD-ROM drive.
- 2.** On the CD, double-click iPlayerInstall.
- 3.** Follow the on-screen instructions to install the software.

This installs the iPlayer software and places an iPlayer shortcut in the Start > Programs > Color Kinetics folder.

Starting iPlayer

To start iPlayer

Choose Start > Programs > Color Kinetics > iPlayer.



CHAPTER 3

RECORDING DMX INPUT

While you don't need to understand the DMX protocol to install or use Color Kinetics products, you should know that the iPlayer hardware and software, and the Color Kinetics lights, all "speak" DMX512.

Read the following section for a quick overview of DMX, or skip ahead to page 12 to start recording DMX Input.

What is DMX?

DMX512, also known as DMX, is a data transmission standard for lighting equipment. It was originally developed for theatrical lighting, but is increasingly being used in other areas of lighting design.

DMX allows a lighting control unit to communicate with lights using high-speed, digital data transmission.

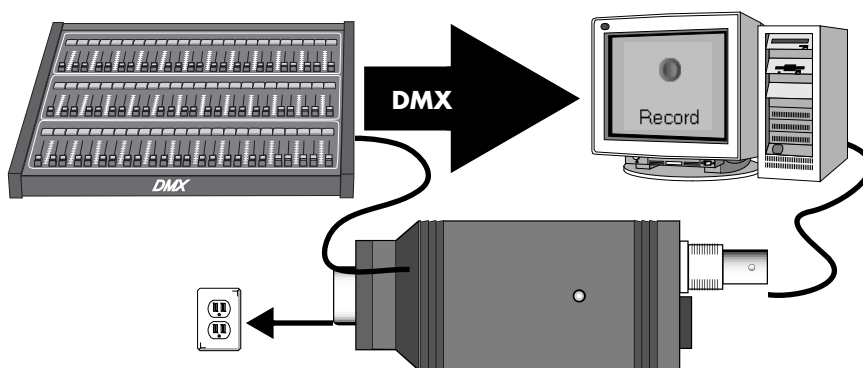
The .dmx File Format

Color Kinetics' .dmx file format lets you save a DMX512 signal as a digital data file that can be saved, copied, and stored to disc, just like any other computer file. You need to save your DMX light shows as .dmx files to download them to iPlayer.

Recording DMX Input

You can use iPlayer to record a show from a DMX lighting control console. To do this, you need to connect iPlayer to the computer and to the DMX console. (See page 8 for details.)

When you record a light show from a lighting control console, the signal is sent through iPlayer to your computer, where you can save it as a .dmx file.



Note: To record DMX data from lighting control console, you need a Recording RJ45 Cable. If your lighting control console uses 5-pin XLR connectors, you also need a DMX512 Adapter Cable (RJ45 to XLR). Both cables are available from Color Kinetics.

To record DMX input from a lighting control console

1. Make sure iPlayer is powered on and connected to the computer and the DMX console. (See page 6 for details.)
2. Start the iPlayer software, and click Record DMX Data.
This opens the DMX Record Customization dialog box.
3. Set the options in the DMX Record Customization dialog box. (See *DMX Record Customization* on page 13, for details.)
4. Click OK to start recording.
iPlayer's LED turns magenta to indicate that it is recording.
5. Start the show on the DMX lighting control console.

DMX Record Customization

This section describes the options in the DMX Record Customization dialog box.

Recording Options

Real Time

Choose this option to start and stop recording manually.

When you record in real time, iPlayer starts recording as soon as you click OK, and continues until you click Stop Recording.

Fixed Time

Select the Fixed Time option to specify an exact start time and duration for Light Speed to record.

- **Units:** Choose Seconds or Minutes.
- **Start:** Set the start time.
- **Duration:** Set the duration.

For example, with the Units option set to Seconds, if you set the start time to 0 and the duration to 60, iPlayer will start recording as soon as you click OK, and stop recording after 60 seconds. To delay recording for 15 seconds after you click OK, set the start time to 15.

Data Range

Number of Lights

Enter the number of lights for which you want to record data. iPlayer can record data for up to 64 Color Kinetics lights (192 DMX channels).

iPlayer always starts recording from DMX channel number 1. For example, if you are recording a show that is designed for ten lights, but you only want to record data for five lights, set the Number of Lights to 5. iPlayer will record data for lights 1–5 only. To record data for lights 6–10, you need to set the Number of Lights to 10.

Viewing Options

Memory Usage

Select this option if you want iPlayer to display the size of the recorded DMX file.

DMX Recording Tips

Keep the following tips in mind when you record with iPlayer:

- In order to make sure you record the very beginning of the show, you should start Recording before you start the show on the DMX lighting control console.
- When iPlayer records DMX data, it stores the data in your computer's random access memory (RAM), not on the hard drive. The amount of space available for recording the DMX stream depends on your computer's available RAM.
- DMX lighting control consoles typically send a constant stream of data, even when there is no show playing. Because of this, if your show begins with "black," or all lights off, it might be difficult for you to distinguish the beginning of the show from the stream of blank data that precedes it. Try marking the beginning of the show with a brief flash of light. (You can edit the flash out later in the Edit DMX Stream dialog box.)
- Whenever iPlayer records, it uses RAM, even if it is recording "blank" data.

For Advanced DMX Users

- According to the DMX512 standard, dimmer level data must be marked with a "Null Start" code (all zeros). The standard also allows the use of optional, non-zero start codes to indicate other types of data. iPlayer can record and send non-zero start codes, but Color Kinetics lights will ignore data marked with any start code other than Null Start.

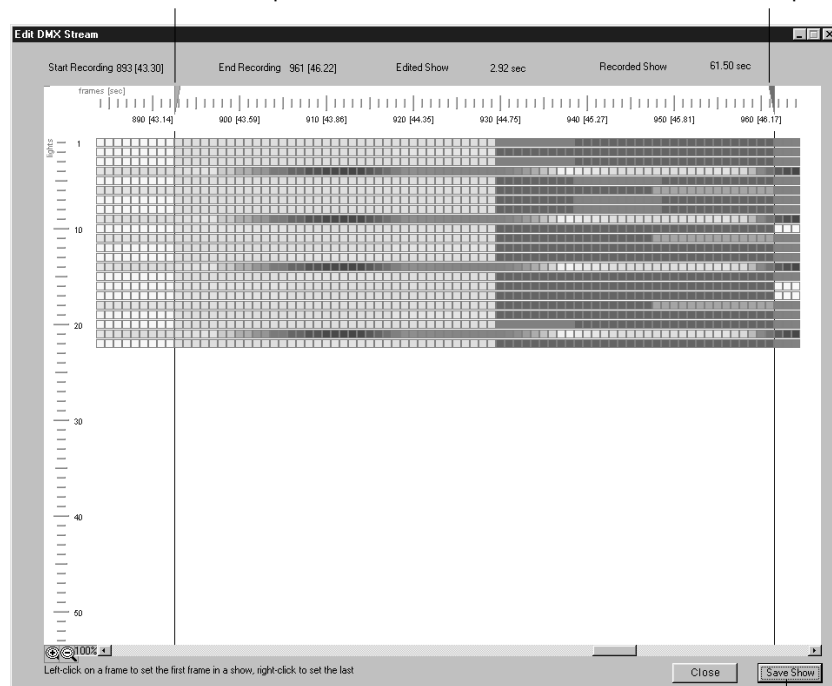
Editing the Show

When iPlayer stops recording, it displays the Edit DMX Stream dialog box. This is where you refine the data you recorded so it begins and ends exactly where you want.

The Edit DMX Stream dialog box displays a grid of colored squares, which represents the DMX data you just recorded. Each row in the grid represents one Color Kinetics light, and each column represents one frame of data.

1. Set the first frame by left-clicking on the colored frame square.

2. Set the last frame by right-clicking on the colored frame square.



3. Click Save Show to save the edited DMX file.

Note: DMX data that uses optional, non-zero start codes will appear in the Edit DMX Stream dialog box as a gray frame with yellow stripes:



(See *For Advanced DMX Users* on page 14 for details.)

To edit the show

- 1.** Left-click on a frame to set the first frame of the show.
- 2.** Right-click on a frame to set the last frame of the show.
- 3.** Click Save Show to save the edited show. In the Save As dialog box, choose a name and location for the file, and click Save. (iPlayer automatically adds the .dmx suffix to the file name.)

The Edit DMX Stream dialog box stays open after you save the .dmx file. You can continue working with the DMX stream, or you can close the dialog box.

Note: After you close the Edit DMX Stream dialog box, you can not open it again. It will open automatically when you record a new DMX stream.

iPlayer Capacity

When you edit the show, keep in mind that iPlayer has a finite amount of memory. If a show is too long or uses too many DMX channels, it might not fit on iPlayer.

The following table shows iPlayer capacity for a range of show sizes. (The amount of compression varies according to the effects used in your show. Most shows will fall somewhere between the maximum and minimum compression shown in this table.)

Lights	DMX channels	Frames per second	Capacity at minimum compression	Capacity at maximum compression
8	24	50	26 minutes	78 minutes
32	96	50	7.1 minutes	21.3 minutes
64	192	50	3.6 minutes	10.8 minutes

50 frames per second is sufficient for most light shows. Higher frame rates require more memory, and therefore reduce the maximum time that can fit on iPlayer.

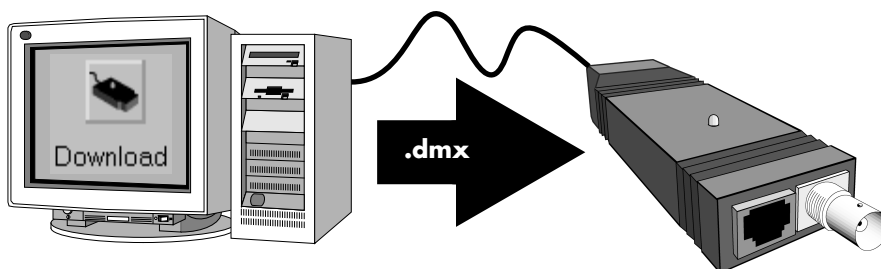
See Appendix C, *iPlayer Capacity*, for more information.

CHAPTER 4

DOWNLOADING AND PLAYING SHOWS

Downloading Shows to iPlayer

After you save the light show as a .dmx file, you can download it to iPlayer's permanent memory.



iPlayer stores one show at a time. If there is already a show saved on iPlayer, it will be erased when you download a new show.

To download to iPlayer

1. Make sure iPlayer is powered on and connected to the computer. (See page 6 for details.)
2. Start the iPlayer software, and click Download.

The software warns you if there is a show saved on iPlayer, and displays any comments associated with that show.

3. Click Yes to continue downloading.

4. Select the .dmx file and click Open.
5. In the New Show Comments dialog box, enter your own comments for future reference.
6. Set the Continuous Loop option as follows:
 - Leave it selected if you want the show to play on a continuous loop.
 - De-select it if you want the show to stop playing when it reaches the end. (When the show ends, the lights will hold the final color.)
7. Click Yes to continue downloading.

The software erases any previously stored data, then downloads the show to iPlayer.

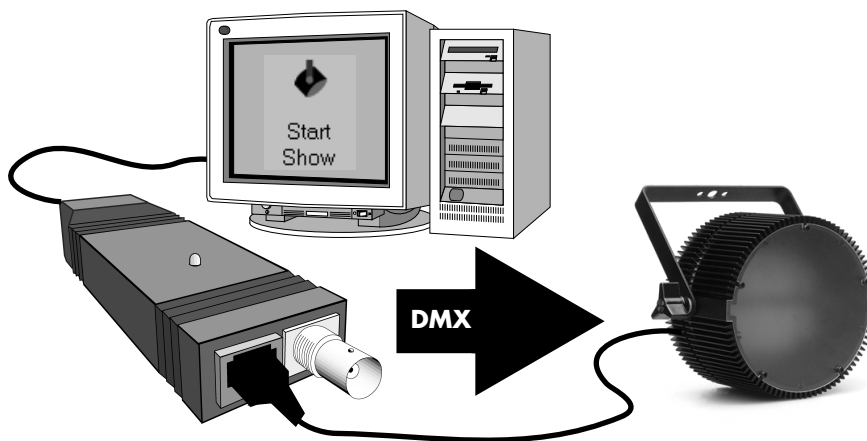
While the show is downloading, the feedback LED flashes red and green. When it's finished downloading, the LED turns solid blue to indicate that it's standing by, ready to play the show.

Playing Light Shows

After you download a show to iPlayer, you're ready for "live" playback on your Color Kinetics lights.

Showtime

During live playback, iPlayer sends the light show to the lights as a DMX stream.



iPlayer can send data to up to 64 Color Kinetics lights, each with its own, unique DMX address. To play a light show on more than 64 lights, set multiple lights to the same DMX address. (For information about setting DMX addresses on the lights, refer to the documentation that came with the lights.)

To play a light show on Color Kinetics lights

- 1.** Make sure iPlayer is powered on and connected to the computer and the lights. (See page 8 for details.)
- 2.** Make sure the lights are powered on and configured for Networked Control. (Refer to the documentation that came with your lights for more information.)
- 3.** Start the iPlayer software, and click Start Show.

iPlayer's feedback LED turns green to indicate that iPlayer is in playback mode, and the light show begins playing.

During Playback

- During playback, you can quit the iPlayer software, shut down the computer, and disconnect the serial cable from iPlayer without interrupting the light show.
- If iPlayer is unplugged or turned off, it will automatically resume playing the show from the beginning when it is powered on again.



APPENDIX A

TROUBLESHOOTING

Contacting Technical Support

Contact Color Kinetics technical support if you have problems with iPlayer hardware or software, or if you need to order additional parts or supplies.

phone # 617-423-9999

fax # 617-423-9998

email # support@colorkinetics.com

web address www.colorkinetics.com

Alerts, Warnings, and Error Messages

The following table lists, in alphabetical order, messages that iPlayer might display if there is a problem, and gives steps you can take to fix the problem.

Problem	Solution
Cannot open specified show file!	Make sure the show file is in DMX format, (.dmx.) Show files must be in DMX format for iPlayer to recognize them.
Communication error	Make sure all hardware is connected correctly. (See <i>Installing iPlayer Hardware</i> on page 5.) Close all programs using the serial port that iPlayer is connected to. Make sure only one copy of iPlayer is running on your computer.
Error communicating with iPlayer!	Make sure all hardware is connected correctly. (See <i>Installing iPlayer Hardware</i> on page 5.) Close all programs using the serial port that iPlayer is connected to. Make sure only one copy of iPlayer is running on your computer.
Error Reading Input Show File	Make sure the show file is in DMX format, (.dmx.) Show files must be in DMX format for iPlayer to recognize them.
Incorrect file type of input show file!	Make sure the show file is in DMX format, (.dmx.) Show files must be in DMX format for iPlayer to recognize them.
Incorrect input data format!	Make sure the show file is in DMX format, (.dmx.) Show files must be in DMX format for iPlayer to recognize them.
Insufficient memory	Quit any other running applications. Make sure only one copy of iPlayer is running.

Problem	Solution
Selected Light number is out of allowed range (1-64)!	iPlayer can record data for a maximum of 64 Color Kinetics lights (192 DMX channels). In the DMX Record Customization dialog box, make sure the Number of Lights is set within the allowed range, (1–64).
Show data in [filename] is too large for iPlayer! Please choose another show file.	iPlayer can hold a maximum of 2 MB of DMX data. If the show was created in ColorPlay, try making the show shorter, using fewer channels, or saving at a lower frame rate. If the show was recorded from a DMX lighting control console, try recording a smaller number of lights or for a shorter duration.
Specified show file does not contain data! Do you wish to continue downloading?	Show files must be in DMX format (.dmx) for iPlayer to recognize them. Make sure show's duration is greater than zero seconds.
Timeout waiting for DMX data!	iPlayer expected DMX data, but none was sent. If iPlayer has already recorded data, it will display the data in the Edit DMX Stream dialog box.
Too many channels in [filename]! Please choose another show file with 192 channels or fewer.	iPlayer can send data to a maximum of 192 DMX channels. Make sure the show file contains data for 192 channels or fewer.



APPENDIX B

GLOSSARY

brightness	Also known as intensity or luminance. A measure of the rate of flow of light energy (luminous flux) per unit area leaving a surface in a particular direction.
color	Color specification can be described in many ways, but in general, three qualities describe color: hue, (the wavelength which determines how similar it is to one or a combination of the perceived colors red, yellow, green or blue,) saturation, (the amount of white light mixed in,) and brightness, (the intensity of the color.) We can see approximately 200 hues with the naked eye. The other colors we can identify are due to variations in brightness and saturation.
color wash	A color wash effect moves sequentially around the spectrum of colors in either clockwise (ROYGBIV) or counterclockwise (VIBGYOR) Cycle Direction.
control	For Color Kinetics lights, control refers to the method used to produce the desired effect or show. There are two main methods of control: Stand Alone control, which uses the on-board effects built into each light, and Networked control, which allows lights to be controlled by a Color Kinetics controller or a PC.
cross fade	Cross fade effects slowly increase the intensity of one color of light while simultaneously reducing the intensity of another color.
cycle direction	The sequence in which colors move through the spectrum. The cycle direction can be clockwise (ROYGBIV) or counterclockwise (VIBGYOR).

DMX512	Also known as DMX, a shortened form of <i>digital multiplex</i>. It describes a standard method of data transmission that makes possible the interconnection of lighting control equipment by different manufacturers. The DMX512 protocol was developed in 1986 by a committee of the USITT (United States Institute for Theater Technology) to provide a standard interface for controlling lights. Color Kinetics lights can be controlled via DMX networks.
effect	The output, or show, displayed by a Color Kinetics light. Built-in effects include Fixed Color, Color Wash, Cross fade, Random Color, Fixed Color Strobe, and Variable Color Strobe. (See also: variation.)
end color	This effect property lets you define the ending color of the cross fade effect. For instance, if a cross fade goes from red to blue, the start color property would be set to red and the end color would be set to blue.
fixed color	The fixed color effect allows the static display of any one of 16.7 million possible colors. Fixed color is generated by blending (or independently displaying) any of the primary colors (Red—256 shades of red, Green—256 shades of green, and Blue—256 shades of blue). White light will be produced when all colors (Red, Green and Blue) are added together.
HSB	Acronym for hue, saturation, and brightness. In the HSB color model, all colors are defined by their hue, (the wavelength which determines how similar it is to one or a combination of the perceived colors red, yellow, green or blue,) saturation, (the amount of white light mixed in,) and brightness, (the intensity of the color.) (See also: color.)
LED	(Light Emitting Diode) The source of light used by Color Kinetics lights. LEDs have a predicted source life rated at 100,000 hours under normal operating conditions—that's 11.4 years of continuous use! An LED is a p-n junction, solid-state diode that emits light through the combination of specially prepared high purity semiconductor material and two additives. One additive produces negatively charged output (excess electrons) and the other produces positively charged material (a shortage of electrons, or holes, which act as positive charges).
networked	Refers to a method of control. Networked control utilizes the units's data interface ports for external direction of the units. Information is digitally channeled from an external source such as a DMX controller or PC instead of from the on-board microprocessor.

random color	Each Random Color effect produces a randomly generated set of colors at user definable speeds. Colors step (in discrete increments) from one hue to the next in increments of at least 25% of the color spectrum so no two colors in a row will have similar values.
reverse wash	A color wash effect that moves around the spectrum of colors in a counterclockwise direction (VIBGYOR). (See also: color wash.)
RGB	Acronym for red, green, blue. In the RGB color model, all colors are produced by combining various levels of red, green, and blue. (See also: color)
roy g. biv	An acronym used to remember the order of the longest to the shortest wavelengths of the visible spectrum (R=red, O=orange, Y=yellow, G=green, B=blue, I=indigo, V=violet).
saturation	This refers to the purity of color, or the amount of white light which has been mixed into a color. More technically, it describes how much of a color is near the dominant wavelength. Primary colors are fully saturated, while pastels are less saturated.
starting color	Allows the user to define the beginning color of an Effect. For instance, if a Cross Fade goes from red to blue, the Starting Color Variation would be set to red and the Ending Color would be set to blue. Each time the unit is repowered with this Effect, it will begin with red.
strobe	The Strobe effect produces a series of light flashes. Very short, bright flashes can produce a “stop action” effect, where actions seem intermittent.
strobe rate	Refers to the number of flashes per second, or how many times in one second the light is illuminated.
variation	For Color Kinetics lights, variations refer to user-definable parameters for each effect, including Color, Speed, Brightness, Saturation, Strobe Rate, and Cycle Direction. Not every variation is available for every effect.

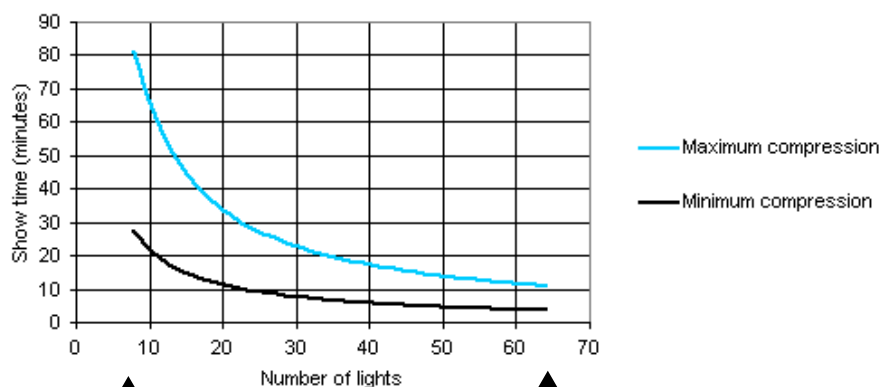
APPENDIX C

IPLAYER CAPACITY

The following graph shows the range of show sizes that will fit on iPlayer, for shows at 50 frames per second. (50 frames per second is sufficient for most light shows. Higher frame rates require more memory, and therefore reduce the maximum time that can fit on iPlayer.)

Note: The amount of compression will vary according to the effects used in your show. Most shows will fall somewhere between the maximum and minimum compression shown on this graph.

iPlayer capacity at 50 frames per second



↑
All DMX light shows use a minimum of 24 channels, (8 Color Kinetics lights.)

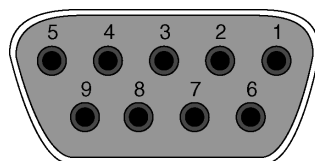
↑
iPlayer can record data for up to 64 Color Kinetics lights, each with its own, unique DMX address.

APPENDIX D

IPLAYER PINOUTS

The iPlayer hardware includes all power and data cables necessary for standard installation. The following information might be useful if your installation requires adapters or custom cables.

Serial Port: DB9F

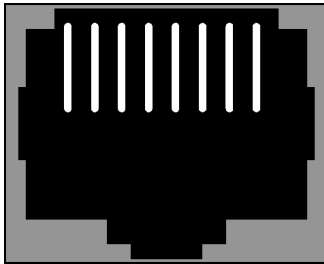


Serial port pinouts

1	No connection
2	TxD
3	RxD
4	No connection
5	Ground
6	No connection
7	CTS (Not currently used)
8	RTS (Not currently used)
9	No connection

DMX: RJ45-8

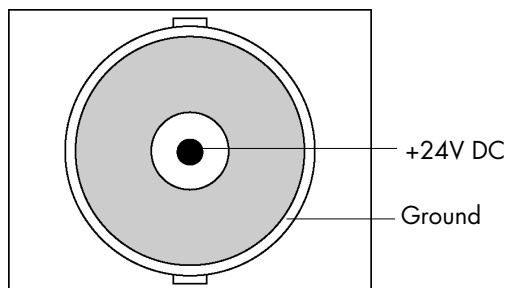
1 2 3 4 5 6 7 8



DMX pinouts

1	Data out -
2	Data out +
3	Ground
4	Data in -
5	Data in +
6	Ground
7	No connection
8	No connection

Power: BNC



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