![imatest ®]

Lighting Control User Guide

Imatest Master v2020.2

Revision	Date	Change Log
Revision 0	7/23/2020	Imatest 2020.2 includes support for KinoFlo 16-bit DMX control.

Table of Contents

Getting Started

Imatest Light Control allows users to control their setup directly from Imatest via an intuitive interface that accommodates a laboratory environment and supports DMX protocol, and ITI-branded light boxes and panels, and integrates seamlessly with Isolight Puck Light Meters.

Required Software and Equipment

Imatest Version: 2020.1 and later.

Supported Equipment:

- Digital Multiplex Signal (DMX) compatible lights*
- Isolight Puck Meters
- Imatest light boxes and panels (excludes the Modular Test Stand with Wide FOV module).

*DMX lights require a DMX-USB converter that uses an FTDI chip. Recommended converters include Enttec DMXUSB PRO or Enttect OPENDMX USB. Attempting to use Imatest Light Control with an alternative or counterfeit FTDI device may result in irreparable damage to your converter. Imatest is not liable for any damage incurred to counterfeit or unsupported devices.

New Features

Imatest Version 2020.2 includes support for 16-Bit DMX control for KinoFlo lights. This feature may support other 16-bit devices, but has not been tested.

Accessing Light Control

Imatest Light Control can be accessed from the Utilities menu located in the Imatest main window.

DMX Lights

Digital Multiplex Signal ([DMX](#)) is a commonly used lighting protocol that allows users to easily chain together several lights and control them from a single source. A single light is comprised of multiple "channels" that control its behavior. The number of channels assigned to each device and what they control is determined by the specific device model; information regarding each can typically be found in the corresponding user manual.

Each chain of lights is called a "universe" and can contain up to 512 channels. *Imatest Light Control* supports a single DMX universe.
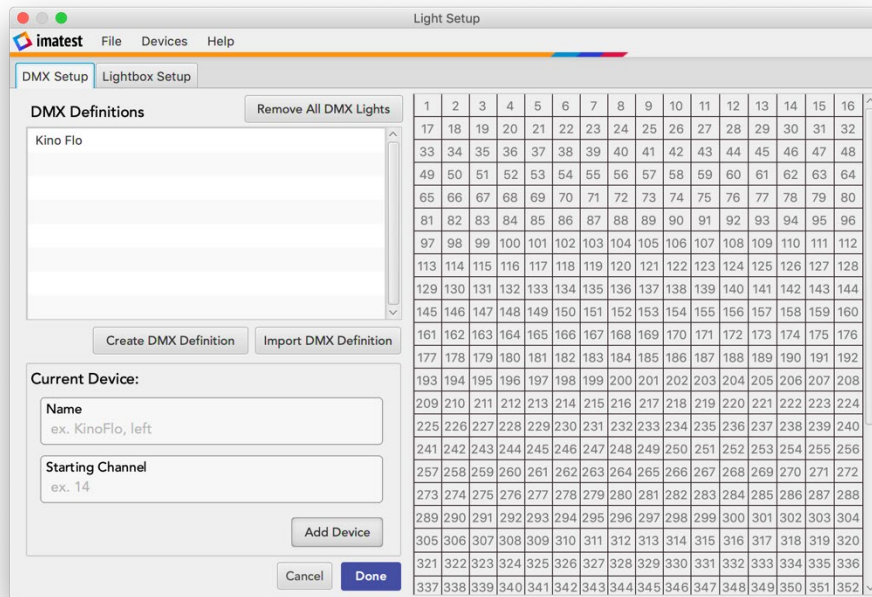

Figure 1. Light Setup Window, DMX view.

Setting up DMX Lights

1. Connect your DMX lights together and set your desired starting channels on each device. Connect them to your computer using an FTDI DMX-USB converter.

2. If you are using Isolight Pucks while also using DMX lights, it is recommended that your pucks are connected first. After opening Imatest Light Control, select the "**+**" icon located on the left side of the top toolbar.

3. If you see the correct device definition in the DMX Definition list, continue to step 5. If you have a device definition *.json file, select **Import Device Definition** and choose the correct file.

4. In the Light Setup window, select **Generate DMX Definition** and enter the specifications of one DMX light. Then create a template for each DMX light type, but not for each individual light.

   For example, if you have two KinoFlo lights chained together in your DMX universe, create just one template. See the *Light Definition Files* section for more information.

5. Select the correct definition file for one DMX light and enter the starting channel for that specific device in the Starting Channel field.

6. Press **Add**. The system displays a light on the right-side grid and fills the appropriate channels.

7. Repeat steps 3 to 6 for each light in your universe. When finished, press **Done** to close the setup window. You should now see controls for each connected device on the main window.

DMX Definition Files

Light definition files, or template files, are defined for each type of light you are using. They may either be imported into Imatest or generated. The required fields are listed Table 1.

Table 1. Descriptions of the required fields to generate a DMX device definition.

Definition Field	Description
Name	A name for your definition file, which appears in the definition file list in the Light Setup Window.
Total Channels	The total number of DMX channels your device supports.
	Note: This information is typically found in the light's user manual or device specifications.
Relative Brightness Channel	The number of the channels that controls dimming of the light, relative to the total number of channels supported by the device. Select "Single Channel (standard)" for normal 8-bit communication. If you are using the 16-bit mode on a KinoFlo light, please select "KinoFlo 16-bit".
	Note: This number is relative to the device specifications, but not relative to the specific starting channel.
Relative Temperature Channel	The number of the channels that controls the color temperature of the light, relative to the total number of channels supported by the device.
	Note: This number is relative to the device specifications, but not relative to the specific starting channel.

Understanding the Universe Map

After adding your light(s) to the Light Setup Window, corresponding squares in the grid located on the right side of the DMX Light Setup window will change color. A dark blue background indicates a starting channel of a light, while a light blue background indicates a channel that is used by a light. Additionally, yellow numbers indicate dimming channels, while orange numbers indicate color temperature channel (Figure 1).
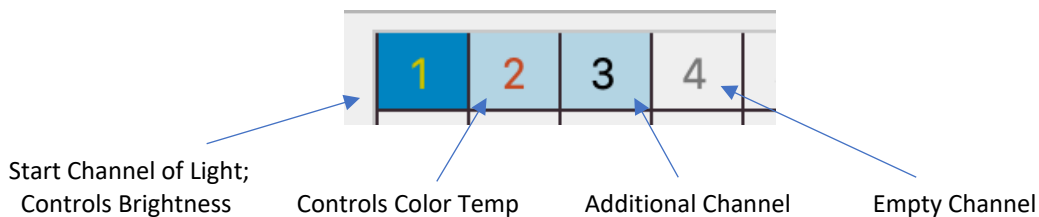
Figure 2. Corresponding squares in the grid on the right side of the DMX Light Setup Window.

Removing a DMX Light

To remove a light from the DMX universe, right-click one of the grid squares assigned to a device and select **Remove**.

Imatest Lightboxes and Panels

The Imatest LED Lightbox produces uniform light with excellent spectral characteristics, which are adjustable over a wide range of brightness for illuminating transparency test charts. The adjustability, uniformity, and high-color quality make the lightbox a superior system to other LED or fluorescent systems.

Imatest allows users to control multiple lightboxes directly from the Lighting Control interface via a USB connection or WIFI without having to manually change light levels and temperature on the device itself.

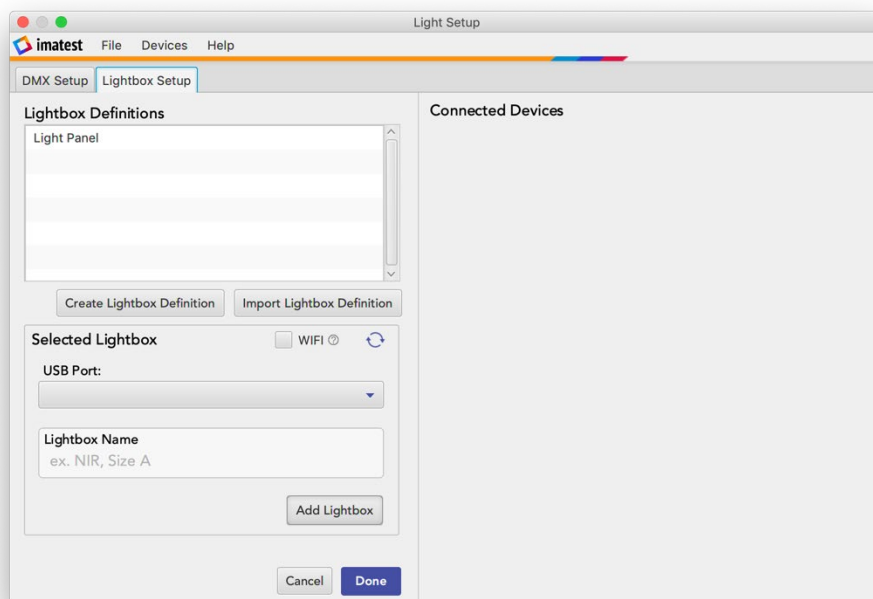**Figure 3. Light Setup Window, Lightbox view.**

Setting up Lightboxes and Panels (USB)

1. After opening *Imatest Light Control,* select the "+" icon on the left side of the top toolbar to open the Setup window.
2. Select the **Lightbox Setup** tab.

3. If the correct device definition is displayed in the Lightbox Definition list, continue to step 5. If you have a device definition *.json file, choose **Import Device Definition** and select the correct file.

4. In the Light Setup window, select **Generate Lightbox Definition** and enter the specifications of the lightbox. You will only need to create one template for each lightbox type, but not for each individual light. For more information, see the *Light Definition Files* section below.

5. If you have not done so already, plug your lightbox into your computer via a USB-USB cable and power on the device.

6. Select the correct definition from the Lightbox Definition list and select the correct port to which your light is connected. Name the device (this can be changed later) and press **Add Device**.

7. Repeat steps 3 through 6 until all light boxes are added. When finished, press **Done**.

   The system now displays sliders on the main window for controlling your light boxes.

Setting up Lightboxes and Panels (WIFI)

1. If setting up a device via WIFI for the first time, you will need to download and install the [appropriate drivers](#) for your operating system.

2. If the correct drivers are added to your system, power on the device and locate the WIFI network named *IMGTECH_32*. Connect to this network using the password *imgtech2004*.

3. After opening *Imatest Light Control,* select the "**+**" icon on the left side of the top toolbar to open the Setup window.

4. Select the **Lightbox Setup** tab

5. If you see the correct device definition in the Lightbox Definition list, continue to step 5. If you already have a device definition *.json file*, select **Import Device Definition** and choose the correct file.

6. In the Light Setup window, select **Generate Lightbox Definition** and enter the specifications of your lightbox. You only need to create one template for each lightbox type, but not for each individual light. More information on this process can be found in the *Light Definition Files* section detailed below.

7. Select your definition file from the Lightbox Definition list, select the **WIFI checkbox** and provide a name (this can be changed later). Press **Add Lightbox**.

8. You may only control one device at a time via WIFI, but other lightboxes can be controlled via USB connections. When finished adding your lightbox(s), press **Done**. The system then displays sliders used to control your devices from on the main Imatest window.

Lightbox Definition Files

Light definition files, or template files, are defined for each type of light you are using. They may either be imported into Imatest or generated within Light Control. When generating your own light definition, the following fields are necessary (Table 2).

Table 2. Descriptions of the required fields to generate a lightbox device definition.

Definition Field	Description
Name	A name for your definition file. This will appear in the definition file list in the Setup window.
Power Level	The power level of your device: *High*, *Low*, or *N/A*.
Channels	The number of channels on your lightbox or panel. A single channel light controls only the dimming level of the box. Dual, Discrete-Channel lights are able to be toggled back and forth between two set-color temperature settings. Dual, Mixed-Mode lights allow users to set the color temperature of their light.
Luminance Channel Steps	This is the number of steps for the brightness channel on the lightbox. If unsure, turn up the device to its maximum setting and select the value displayed on the device. If you do not see a corresponding value on the drop-down menu, please contact Imatest Support at support@imatest.com.
Color Temperature Steps	For Dual, Mixed-Mode lights, this is the number of steps for the color temperature channel on the lightbox. If you are unsure what value this is, turn the device up to its maximum setting and select that value from the list. If you do not see the corresponding value on the drop-down menu, please contact Imatest Support at support@imatest.com.

Removing a Lightbox

1. To remove a lightbox, open the Light Setup Window.

2. Select the **Lightbox Setup** tab.

3. Right-click the lightbox you want to remove, and click **Delete**. The lightbox should disappear from the setup window and the controls will be removed from the main Imatest window.

Sensors

Isolight Puck Light Meters

Isolight puck light meters feature a CIE XYZ accurate color sensor and a programmable, multicolor status indicator ring. Imatest offers a convenient way to read the current luminance and color temperature readings of up to four connected sensors.

Setting up Isolight Pucks

1. Connect the puck to your computer using a USB cable.

2. After opening Imatest Light Control, select the "**+**" icon located on the right side of the Sensors toolbar.

3. Select the port to which your device is connected and name the device (this can be changed later). Press **Add Sensor**.

4. The sensor will be displayed on the bottom portion of the main window. It may take a few moments for the device to configure itself. When live numbers begin appearing on the sensor panel, the device is ready to use.

Locating Sensors

To quickly determine which puck is connected to each widget displayed on the Imatest main control window, press the radar icon on the bottom-left of the widget. The connected device will temporarily turn off all visual alarms and flash blue. Press the radar icon a second time to turn off the blinking light and re-enable any set visual alarms.

Removing Sensors

1. Select the "–" icon on the right side of the Sensors toolbar.

2. Select the puck you want to remove and press **Remove**.

3. When you're finished removing sensors, press **Done**.

General Device Control

Controlling Lights

Slider Panels

Individual lights can be quickly and easily controlled by using the dedicated set of sliders for each connected device. Depending on the device, one or two sliders will be allocated per light, controlling the luminance and color temperature, respectively.

Advanced Control Panel

The advanced control panel appears on the right side of the main control window upon selecting a specific light. The control panel is intended to give users more control over their settings as well as facilitate placing a device into a group or temporarily "blacking out" a light or set of lights.
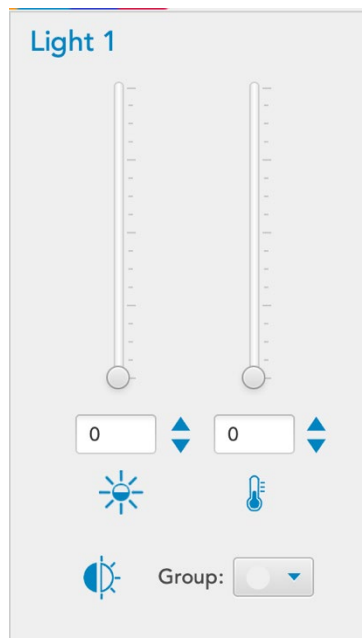

Figure 4. Advanced Light Control Panel

Grouping Lights

Light groups allow users to simultaneously change the settings of multiple lights. Light groups link the sliders relatively, such that they act as a typical switchboard does.

To place a light in a group, do the following:

1. Click the desired light in the main control window to display its advanced controls.

2. In the group drop-down box, select a group color to assign the light to. The system displays a small circle in the upper-right corner of the light's slider panel, indicating to which group it belongs.

3. Repeat the process with any other lights you'd like to group, placing it into the same group color.

Lights can be removed from a group by selecting **None** in the group dropdown of the Advanced Control Panel. To remove all lights from their groups, select **Lights** and choose **Reset all Groups** from the main menu bar.

Note: Both DMX lights and Lightboxes and Panels support grouping; however, these items may not be grouped to each other. For example: any two DMX lights may be grouped together, but a DMX light and a Lightbox cannot be grouped.

Light Scenes

Imatest allows users to switch between preset lighting conditions through the use of "scenes." To save a scene for your current light settings:

1. Set each light to the desired value.

2. Once the light is set to the desired settings, press the **Save** icon on the upper toolbar. A new scene will appear in the lower-right corner of the window, in the Scene list.

After changing the setting for a light, double-click the desired scene to return the light to that designated setting. Alternatively, you can right-click the scene and select **Set to Scene** from the context menu.

To save over a scene:

1. Set the lights to the desired settings for the new scene.

2. Right-click the scene you would like to overwrite and select **Replace with Current Settings** from the context menu.

To rename the scene:

1. Ctrl+click the scene name.

2. Enter a new name.

To delete the scene:

1. Right click the scene.

2. Select **Delete**.

Note: Like groups, scenes may only be saved for DMX lights or Lightboxes/panels, but not both in the same scene. If you need a scene for both types of lights, select a DMX light in the main window and save the scene. Then select a lightbox and save the scene.

In this case, to return to the scene once changes have been made, double-click on the DMX scene to set the DMX lights back to the desired settings, and on the Lightbox scene to return the Lightboxes and Panels back to the desired settings.

Renaming Lights

Lights can be easily renamed by double-clicking their names on the main control window— either on the small sliders or in the Advanced Control Panel.

Using Sensors

After it has finished its configuration, the device will begin to display live values on the sensor panel. Luminance values are reported in lux; color temperature values are reported in Kelvin.

Locating Sensors

To keep track of which sensor corresponds to each control panel, click the radar icon in the lower-left side of the panel. The puck that corresponds to that port will begin blinking blue until the radar icon is pressed a second time.

Renaming Sensors

Sensors can be renamed by double clicking on the name in their designated sensor panel in the main window, either on the small sliders or in the advanced control panel.

FAQs

I added a DMX light, but it's not doing anything when I try to control it.

- Make sure your device is plugged in, turned on, and set to the correct channel (on the device and in Imatest).
- Make sure you are using the correct device definition.
- Try restarting Imatest.
- If problems persist, contact Imatest Support at support@imatest.com.

I added a DMX light, but it turns black as soon as I change the channel.

- There is likely a mix-up between the channels defined in Imatest and the ones set on your DMX device.
- Ensure your device template is correct and the starting channel defined in the Universe Map matches the starting channel set on the device.

I added a DMX light, but the controls are changing the wrong channel.

- There is likely an error in your Device Definition file. Generate a new light definition file and try connecting the light again.

I can't reach the maximum values on the lightbox, or the value range on the slider does seems to match the value range of the lightbox.

- There might be an error in your device definition file, specifically in the number of steps for each channel.
- Create a new definition file, verifying the inputs with the device you have.

I created an incorrect device definition file. Is there any way to edit it?

- The easiest way to change a definition file is to delete the incorrect one by right-clicking it and selecting **Delete.**
- Generate a new definition file.

I don't see the correct port listed.

- If your device is plugged in and not displaying on the port dropdown, press the refresh button (two rotating arrows) and try again.
- If you are using a VM, make sure the port is forwarded correctly to the VM.