


LEDBlinky Animation Editor
Version 8.2
Created by Arzoo

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Overview

The LEDBlinky Animation Editor allows you to create and edit LED animations for use with the LEDBlinky Arcade LED Control Software. Use the WYSIWYG interface to build a virtual representation of your control panel. With your actual control panel actively connected to the PC, the animation editor will light both the virtual and real LEDs as you edit the animation. Animations can be tested in real-time; as they will appear when using the LEDBlinky application. Each LED can be turned on or off, faded up or down, or color transitioned (from color A to color B). Groups of frames can be repeated.

See [Appendix A](#) for a list of supported LED controllers.

LEDBlinky Website

For software updates and online support, please visit the [LEDBlinky website](#). I have also documented the software development, along with my MAME project and other arcade related stuff on my [Arcade Addiction](#) site.


Installation

The LEDBlinky Animation Editor is included and installed with the LEDBlinky application. All files should exist within the LEDBlinky folder. If you are using the LEDBlinky Animation Editor as a stand-alone application, unzip the files into any folder.

```
...\Plugins
  ...\Plugins\LEDBlinky
  Animation Editor.pdf
  GenLEDBlinkyInputMap.exe
  HowlerDLL.dll
  LEDBlinkyAnimationEditor.ini
  LEDBlinkyAnimationEditor.exe
  Ledwiz.dll
  PacDrive32.dll
```

How Do I Get This Thing To Work?

Step 1

 Before you can use the LEDBlinky Animation Editor, you must first define the LED controller Input Map. If you're currently using the LEDBlinky LED Control software, then you may already have this file (*LEDBlinkyInputMap.xml*) and you can skip to Step 2. Otherwise, run the Generate LEDBlinky Input Map application (*GenLEDBlinkyInputMap.exe*).

The input map defines each wired port on your LED controller(s) with a Port Label and LED Type. The Port Labels serve two purposes, they tie together three ports for RGB LEDs, and they provide an easy reference to the ports on the virtual control panel layout. The LED Type defines LEDs as Single, Red, Green, or Blue.

Note: For the animation editor, Input Codes are not required. If you are not using the LEDBlinky application or plug-in, you do not need to define the input codes for each port.

For example; let's say LED controller ports 1, 2, and 3 are wired to an RGB LED under a button. That button is wired to the keyboard encoder and assigned to the letter "A". We also have an LED under our TrackBall wired to port 4. The input map would have four entries:

Using LEDBlinky


Port	Port Label	LED Type	Input Codes
1	P1B1	Red	KEYCODE_A
2	P1B1	Green	KEYCODE_A
3	P1B1	Blue	KEYCODE_A
4	TRACKBALL	Single	MOUSECODE_1_ANALOG_X MOUSECODE_1_ANALOG_Y MOUSECO...
5			

Not using LEDBlinky

Port	Port Label	LED Type	Input Codes
1	P1B1	Red	none
2	P1B1	Green	none
3	P1B1	Blue	none
4	TRACKBALL	Single	none
5			

A full description on how to use this application is provided in the LEDBlinky Installation and Configuration Guide (*Install and Config.pdf*).

Step 2

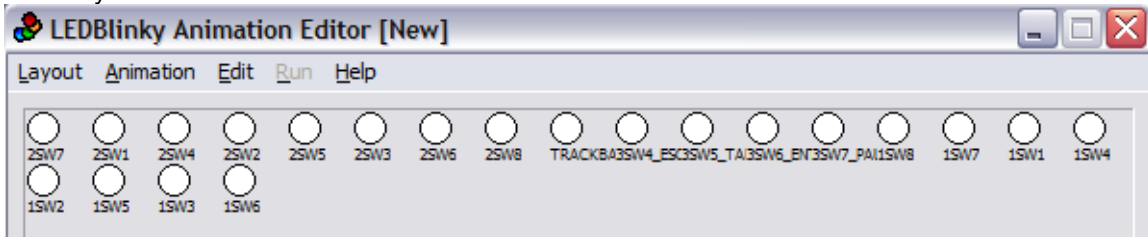
 Run the LEDBlinky Animation Editor. The editor has two basic modes; Layout and Animation. Use Layout Mode to create a virtual representation of your control panel. From the *Layout* menu, select *New*. You will be prompted to select

the Input Map file created from the prior step, after which the LED panel will be populated with the defined LEDs.

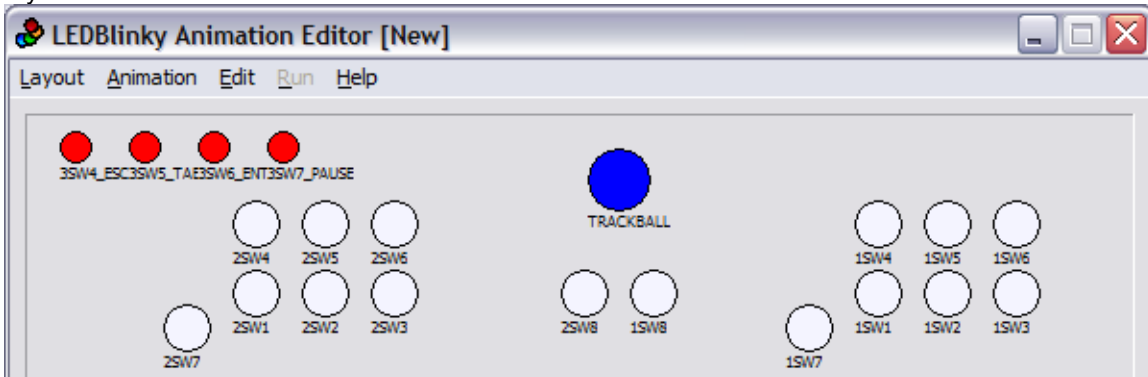
Using the mouse or arrow keys, move the LEDs to match your control panel layout. To select a single LED, left-click with the mouse. To select or deselect multiple LEDs, hold the *ctrl* key while left-clicking with the mouse. You can also select multiple LEDs at one time by dragging a bounding box with the mouse. Hold the *ctrl* key to retain previously selected LEDs.

Right-click on each LED to define the LED Off color (from the Color Sample Box) and LED Size. The LED Off color should match the actual LED colors - for example, Electric Ice Buttons are pearl white. From the *Layout* menu, you can specify other global layout options such as the control panel color, LED border color, LED label color, and LED Label size.

New Layout



My Control Panel



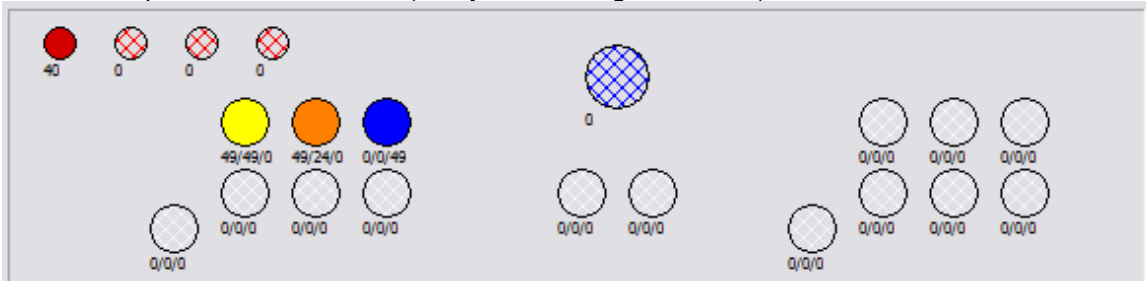
When your layout is complete, select *Save* from the *Layout* menu.

Step 3

From the *Edit* menu, switch to *Animation* mode. LED Animations consist of individual frames. Each frame defines the intensity (for Single LEDs) or color (for RGB LEDs) and the on/off state for each LED. In animation mode, the LED labels switch to intensity values (0-48).

LEDs in the Off state are represented with a diagonal hash pattern in the “off” color specified during the layout design.

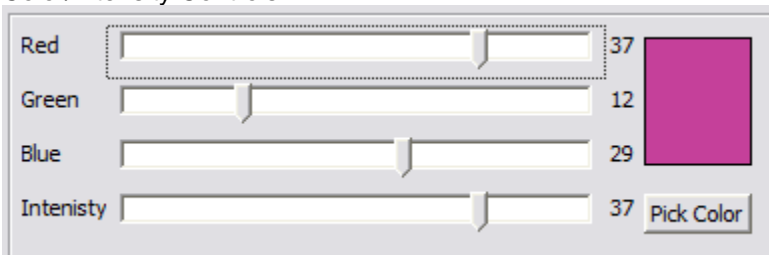
In this example four LEDs are ON (red, yellow, orange, and blue). The rest are OFF.



A new animation starts with a single frame with all LEDs off and set to zero (0) intensity values. Start by setting the intensity and/or color values for each LED. Use the sliders or *Pick Color* button to set the Color Sample Box. Any currently selected LEDs will change intensity/color as the slider values are set. If your control panel is connected to the pc, the actual LEDs will also change intensity/color. You can also select LEDs (using methods discussed in Step 2) and then click the Color Sample Box to set the values. Setting the intensity/color for an LED will change it to the On state. Double-click on an LED to toggle between On and Off.

Note: For LED controllers that do not support intensity values, the initial intensity value will be 48.

Color/Intensity Controls



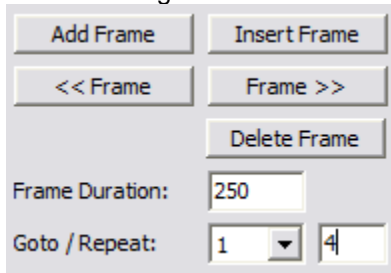
Note: for Single Type LEDs, only the Intensity slider applies.

Tip: Right-click on an LED and select *Get LED Color/Intensity* to set the Color Sample to the current LED color/intensity. The *Get* and *Set LED Color/Intensity* menu options can be used as a copy/paste feature.

A note on visualizing color intensities: Reducing an LED intensity (dimming) will cause the color to turn toward black on the virtual control panel. Low intensity values are not easily distinguished on the virtual control panel – use your actual control panel to visualize these colors.

Continue creating your LED animation using the frame editing buttons. New frames (inserted or added) will always inherit the intensity and on/off values from the prior frame. The duration for each frame (in milliseconds) can be set independently or you can set the duration for all frames from the *Edit* menu. Groups of frames can be repeated using the *Goto* and *Repeat* fields.

Frame Editing Controls



Tip: The LED-Wiz hardware can set the LED state (on or off) faster than it can set the LED intensity value. For smoother animations, you should set the LED intensities as few times as possible. For example, let's say you want to sequence your RGB LEDs in all blue and then in mixed static colors. In the first frame, set all LEDs to blue and then only toggle their on/off state in each frame to create the blue sequence pattern. When the blue sequence is complete, set each LED to its new color and then only toggle the on/off state in each frame to create the next sequence pattern.

As your animation progresses, use the *Frame* controls to move forward or backward. Use the *Frame* slider to select the current frame or to simulate the animation. To run the animation in real-time; use the *Run* menu or the *Run LED Animation* ▶▶ or *Run Virtual Animation* ▶▶ buttons. When your animation is complete, select *Save* from the *Animation* menu.

Functions and Features

Menus

Layout Animation View Edit Run Help

Layout – New

Displays a file dialog to select the Input Map and then loads a new set of LEDs based on the wired ports. If the current layout has been modified, you will be given the option to save prior to starting a new layout.

Layout – Open

Displays a file dialog to select and load an existing layout file. Layout files have a .LAY extension. If the current layout has been modified, you will be given the option to save prior to selecting a different layout.

Layout – LED Controller Independent

Loads a new set of LEDs for creating controller independent (generic) animations. Use this option if you wish to create animations which can be shared with other systems. If the current layout has been modified, you will be given the option to save prior to creating an LED controller independent layout.

LED Controller Independent animations will run on all compatible LED controllers for use with any system regardless of the LED configuration or layout. The LED Controller Independent layout will include a single instance of each compatible LED controller (controller ID1) with a single LED for each port. Multiple additional controllers (ID2, ID3, ID4, etc.) of the same type, although not displayed in the layout, will all run the animation identically.

It is not possible to create a controller independent animation that varies between LED controllers or groups RGB LED ports. RGB buttons will light up as three individual LEDs.

Layout – Save

Saves the current layout.

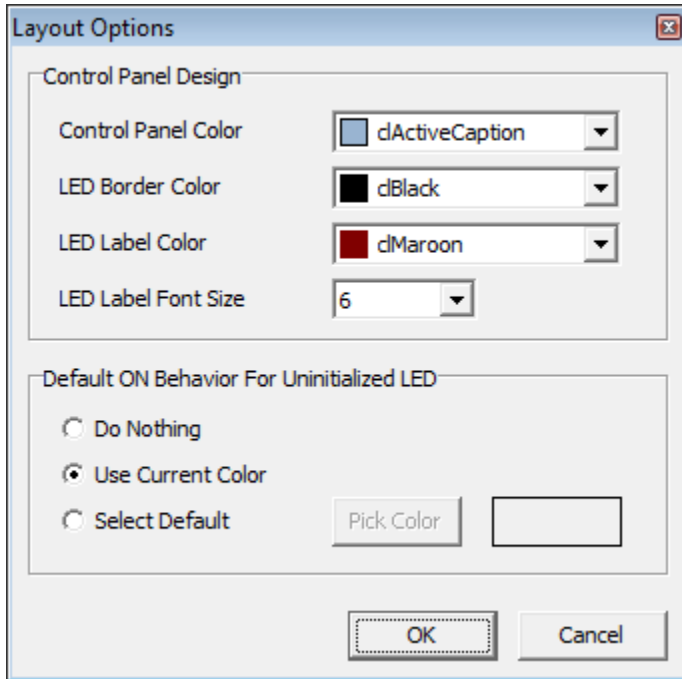
Layout – Save As

Displays a file dialog to save the current layout file. Layout files have a .LAY extension.

Layout – Layout Options

Displays the Layout Options window. The layout options allow you to specify the Control Panel Color, LED Border Color, LED Label Color, and LED Label Font Size.

You can also define the Default On Behavior for Uninitialized LEDs. Turning On (double-clicking) an LED which does not yet have a color or intensity assigned can be handled one of three ways; “Do Nothing” will leave the LED as is with no indication if the LED is On or Off. “Use Current Color” will set the LED color to the currently selected value. And “Select Default” will allow you to define a default On color.



Animation – New

Start a new animation with a single frame, all LEDs off, and intensity values set to zero (0). If the current animation has been modified, you will be given the option to save prior to starting a new animation.

Animation – Open

Displays a file dialog to select and load an existing animation file. Animation files have a .LWAX. You can also open animations which use the LWA format, but they will be converted and saved in the LWAX format. If the current animation has been modified, you will be given the option to save prior to selecting a different animation.

Animation – Save

Saves the current animation. Animation files can only be saved in the .LWAX format.

Animation – Save As

Displays a file dialog to save the current animation file. Animation files can only be saved in the .LWAX format.

Animation – Import – Insert

Import another animation file, inserting it in the current animation file after the current frame. A message will be displayed if the two animations are not compatible due to nested Goto/Repeat loops and provide the option to remove the loop(s) from the imported animation.

Animation – Import – Overlay with Parent Priority

Import another animation file, overlaying it in the current animation file starting with the current frame.

When overlaying with Parent Priority, LED state and intensity will only be imported if the corresponding LED in the current (parent) animation is OFF. Duration and Goto/Repeat loops will not be imported.

Animation – Import – Overlay with Import Priority

Import another animation file, overlaying it in the current animation file starting with the current frame. A message will be displayed if the two animations are not compatible due to nested Goto/Repeat loops and provide the option to remove the loop(s) from the imported animation.

When overlaying with Import Priority, All LEDs in an ON state will be imported, overwriting the corresponding LEDs in the current (parent) animation. The imported frame Duration will overwrite the corresponding frame Duration in the current (parent) animation.

View – Show LED Values

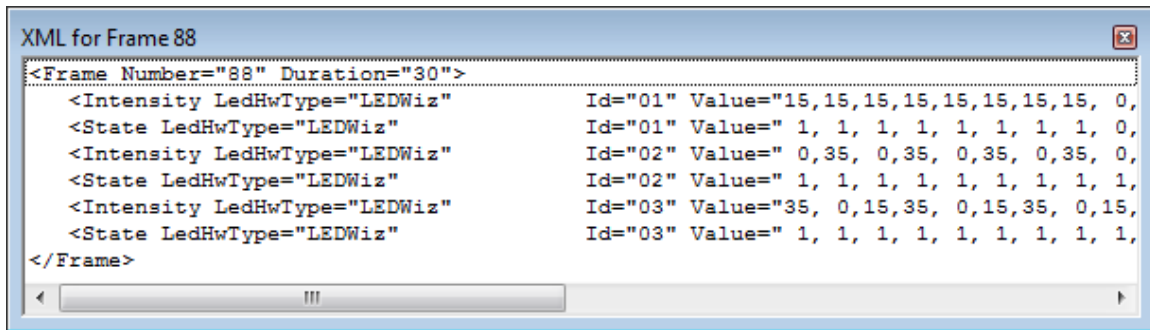
View – Show LED Name

View – Hide LED Labels

Show or hide the LED labels under each LED. In Layout Mode, the LED labels display the LED names as defined in the Input Map file. In Animation Mode, the LED labels can display the intensity value(s) or LED names as defined in the Input Map file.

View – Show Frame XML

Displays the Frame XML window. The Frame XML window displays the output xml for a single frame. This window can remain open while editing an animation. The xml will be updated as you make changes to the animation or change frames.



```

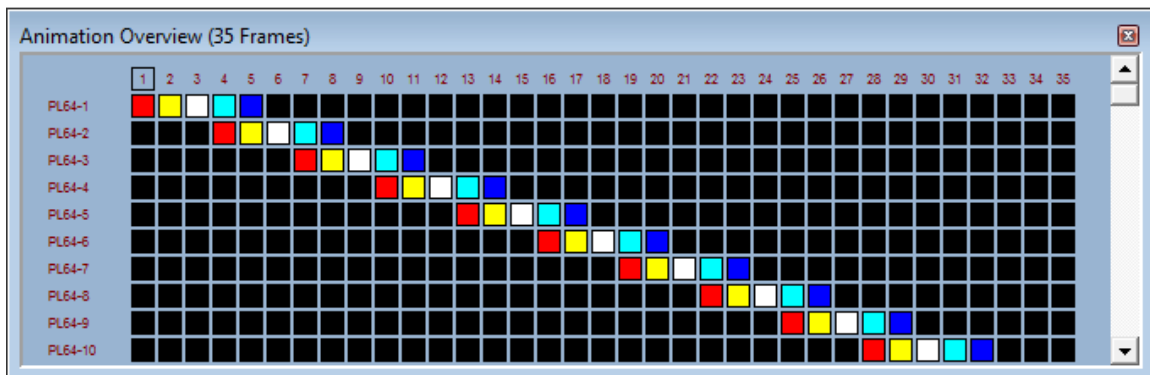
XML for Frame 88
<Frame Number="88" Duration="30">
  <Intensity LedHwType="LEDWiz" Id="01" Value="15,15,15,15,15,15,15,15, 0,
  <State LedHwType="LEDWiz" Id="01" Value=" 1, 1, 1, 1, 1, 1, 1, 1, 0,
  <Intensity LedHwType="LEDWiz" Id="02" Value=" 0,35, 0,35, 0,35, 0,35, 0,
  <State LedHwType="LEDWiz" Id="02" Value=" 1, 1, 1, 1, 1, 1, 1, 1, 1,
  <Intensity LedHwType="LEDWiz" Id="03" Value="35, 0,15,35, 0,15,35, 0,15,
  <State LedHwType="LEDWiz" Id="03" Value=" 1, 1, 1, 1, 1, 1, 1, 1, 1,
</Frame>

```

A note about animation optimization; When displaying the xml for an individual frame, both the Intensity and State values are listed for each LED controller. When the animation is saved to a .LWAX file, the Intensity values are optimized – they are only included for a frame if the values differ from the prior frame.

View – Show Animation Overview

Displays the Animation Overview window. The Animation Overview is a grid representation of the entire animation. Each row represents an LED and each column represents a Frame. Clicking on any cell will move the animation to the that frame and select the LED. This window can remain open while editing an animation. The overview will be updated as you make changes to the animation or change frames.



View – Display 640 x 480

Resize application window to fit on a 640 x 480 display resolution.

View – Display 1024 x 768

Resize application window to fit on a 1024 x 768 display resolution. Layouts created at a higher display resolution may not fit on a lower display resolution.

View – Display 1280 x 960

Resize application window to fit on a 1280 x 960 display resolution. Layouts created at a higher display resolution may not fit on a lower display resolution.

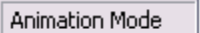
Edit – Layout (Ctrl+L)

Switches to Layout Edit mode. In layout mode, all LEDs are displayed in their “Off” color. The Frame slider and all frame editing buttons are disabled. The current edit mode is displayed in the status bar.

A small rectangular box with a light gray background and a thin border, containing the text "Layout Mode".

Edit – Animation (Ctrl+N)

Switches to Animation Edit mode. In animation mode, LEDs are displayed with a solid fill for the “On” state and a diagonal line fill for the “Off” state. The current edit mode is displayed in the status bar.

A small rectangular box with a light gray background and a thin border, containing the text "Animation Mode".

Edit – Undo (Ctrl+Z)

Undo most recent edit in Animation mode. All animation edits including imports and fades can be undone. The editor buffers the last 50 animation edits. Undo is not available in Layout mode.

Edit – Redo (Ctrl+Alt+Z)

Redo previous undone edit in Animation mode. The editor buffers the last 50 animation edits. Redo is not available in Layout mode.

Edit – Snap To Grid

Use *Snap To Grid* to easily align the LEDs when arranging your virtual control panel in layout editing mode.

Edit – Select All LEDs (Ctrl+A)

Selects all LEDs on the virtual control panel. When an LED is selected, its border is bold.

Edit – Deselect All LEDs (Ctrl+D)

Un-selects all LEDs on the virtual control panel.

Edit – Selected LEDs – Toggle LEDs On/Off

All selected LEDs in the “On” state are turned “Off” and all selected LEDs in the “Off” state are turned “On”.

Edit – Selected LEDs – Set LEDs Color/Intensity Current Frame

All selected Single Type LEDs in the current frame have their intensity set to the value of the Intensity Slider. All selected RGB Type LEDs in the current frame have their color set to the values of the Red, Green, and Blue Color Sliders (the color in the Color Sample Box).

Edit – Selected LEDs – Set LEDs Color/Intensity Frames To End

All selected Single Type LEDs from the current frame to the last frame have their intensity set to the value of the Intensity Slider. All selected RGB Type LEDs from

the current frame to the last frame have their color set to the values of the Red, Green, and Blue Color Sliders (the color in the Color Sample Box).

Edit – Selected LEDs – Set LEDs Color/Intensity All Frames

All selected Single Type LEDs in all frames have their intensity set to the value of the Intensity Slider. All selected RGB Type LEDs in all frames have their color set to the values of the Red, Green, and Blue Color Sliders (the color in the Color Sample Box).

Edit – Selected LEDs – Copy LED Frames To End (Ctrl+C)

Copy the color/intensity for a single selected LED from the current frame to the last frame. The status bar will indicate which frames were copied.

Edit – Selected LEDs – Copy LED Frames Wrap

Copy the color/intensity for a single selected LED for all frames starting from the current frame and ending with the frame prior to the current. The status bar will indicate which frames were copied.

Edit – Selected LEDs – Paste LED Frames To End (Ctrl+V)

Paste the color/intensity values (from a prior Copy action) onto a single selected LED from the current frame to the last frame. If the copy buffer has fewer frames than required, the remaining frames will not be pasted. If the copy buffer has more frames than required, not all from the buffer will be used. The selected LED must be the same type (Single or RGB) as the LED that was copied. Pasting will overwrite the color/intensity value of the selected LED. The paste buffer can be used multiple times. The status bar will indicate which frames were pasted.

Edit – Selected LEDs – Paste LED Frames Extend (Ctrl+Alt+V)

Paste the color/intensity values (from a prior Copy action) onto a single selected LED from the current frame for as many frames as the copy buffer currently holds. If the copy buffer has fewer frames than required, the remaining frames will not be pasted. If the copy buffer has more frames than required, the animation will be extended. The selected LED must be the same type (Single or RGB) as the LED that was copied. Pasting will overwrite the color/intensity value of the selected LED. The paste buffer can be used multiple times. The status bar will indicate which frames were pasted.

Edit – Selected LEDs – Paste LED Frames Wrap

Paste the color/intensity values (from a prior Copy action) onto a single selected LED from the current frame, ending with the frame prior to the current. If the copy buffer has fewer frames than required, the remaining frames will not be pasted. If the copy buffer has more frames than required, not all from the buffer will be used. The selected LED must be the same type (Single or RGB) as the LED that was copied. Pasting will overwrite the color/intensity value of the selected LED. The paste buffer can be used multiple times. The status bar will indicate which frames were pasted.

Edit – Turn On All LEDs

Changes the state of all LEDs to “On”. See [Default On Behavior](#).

Edit – Turn Off All LEDs

Changes the state of all LEDs to “Off”.

Edit – Fade Up... (Ctrl+U)

Generates a fade up effect across selected (or all) buttons. Both single and RGB type LEDs can be faded from a starting intensity to an end intensity. Alternately, the current button intensity can be used for start or end. The new frames required for the fade will be inserted or overlaid into the current animation. If you wish to fade specific buttons, remember to select them prior to displaying the Fade dialog. See below for a full description of the [Fade Up effect](#).

Edit – Fade Down... (Ctrl+J)

Generates a fade down effect across selected (or all) buttons. Both single and RGB type LEDs can be faded from a starting intensity to an end intensity. Alternately, the current button intensity can be used for start or end. The new frames required for the fade will be inserted or overlaid into the current animation. If you wish to fade specific buttons, remember to select them prior to displaying the Fade dialog. See below for a full description of the [Fade Down effect](#).

Edit – Color Transition... (Ctrl+T)

Generates a color transition effect across selected RGB buttons. The button color can be transitioned from a starting color to an end color. Alternately, the current button color can be used for the start or end. The new frames required for the color transition will be inserted or overlaid into the current animation. See below for a full description of the [Color Transition effect](#).

Edit – Set Duration For All Frames

Displays a dialog to enter a frame duration time (in milliseconds) which is applied to all frames. The current duration values will be overwritten.

Show Last Copy/Paste

Display the source LED and frames from the last copy operation and the destination LED and frames from the last paste operation (if any).

Run – Run LED Animation/Stop

Run or Stop the current animation in real-time on your control panel. The animation will start from the current frame. This feature can be used to visually test how an animation will look when run by the LEDBlinky application. The Run LED Animation/Stop menu option is only enabled in animation edit mode. The Run LED Animation/Stop menu option is not available if you do not have any LED controllers connected to your pc.

Run – Run Virtual Animation/Stop

Run or Stop the current animation in simulated-time on your virtual control panel. The animation will start from the current frame. The virtual control panel animation timing may not be as accurate as the LED Animation due to hardware and software variances. This feature is useful for testing without any actual LED controllers connected. The Run Virtual Animation/Stop menu option is only enabled in animation edit mode.

Help

Displays this document.

LED Pop-up Menus

Set LED Off Color

In layout mode, right-click on an LED to set the “Off” color from the Color Sample Box. The LED Off colors can be set so that your virtual control panel better represents your actual control panel. For example, Electric Ice Buttons are pearl white when not lit (off).

Set LED Size – Small/Medium/Large

In layout mode, right-click on an LED to set the LED size. The LED sizes can be set so that your virtual control panel better represents your actual control panel.

Toggle LED On/Off

In animation mode, right-click on an LED to toggle the state from “On” to “Off” or “Off” to “On”. See [Default On Behavior](#).

Get LED Color/Intensity

In animation mode, right-click on an LED to set the Color and Intensity sliders to the value(s) from the LED. In effect, you are copying the LED color/intensity to the Color Sample Box. *Get* and *Set LED Color/Intensity* can be used as a copy and paste function.

Set LED Color/Intensity Current Frame

In animation mode, right-click on an LED to set in the current frame the LED’s color/intensity to the value(s) of the color and intensity sliders (Color Sample Box).

Set LED Color/Intensity Frames To End

In animation mode, right-click on an LED to set from the current frame to the last frame the LED’s color/intensity to the value(s) of the color and intensity sliders (Color Sample Box).

Set LED Color/Intensity All Frames

In animation mode, right-click on an LED to set in all frames the LED’s color/intensity to the value(s) of the color and intensity sliders (Color Sample Box).

Copy LED Frames To End (Ctrl+C)

In animation mode, right-click on an LED to copy the color/intensity from the current frame to the last frame. The status bar will indicate which frames were copied.

Copy LED Frames Wrap

In animation mode, right-click on an LED to copy the color/intensity for all frames starting from the current frame and ending with the frame prior to the current. The status bar will indicate which frames were copied.

Paste LED Frames To End (Ctrl+V)

In animation mode, right-click on an LED to paste the color/intensity values (from a prior Copy action) from the current frame to the last frame. If the copy buffer has fewer frames than required, the remaining frames will not be pasted. If the copy buffer has more frames than required, not all from the buffer will be used. The selected LED must be the same type (Single or RGB) as the LED that was copied. Pasting will overwrite the color/intensity value of the selected LED. The paste buffer can be used multiple times. The status bar will indicate which frames were pasted.

Paste LED Frames Extend (Ctrl+Alt+V)

In animation mode, right-click on an LED to paste the color/intensity values (from a prior Copy action) from the current frame for as many frames as the copy buffer currently holds. If the copy buffer has fewer frames than required, the remaining frames will not be pasted. If the copy buffer has more frames than required, the animation will be extended. The selected LED must be the same type (Single or RGB) as the LED that was copied. Pasting will overwrite the color/intensity value of the selected LED. The paste buffer can be used multiple times. The status bar will indicate which frames were pasted.

Paste LED Frames Wrap

In animation mode, right-click on an LED to paste the color/intensity values (from a prior Copy action) from the current frame, ending with the frame prior to the current. If the copy buffer has fewer frames than required, the remaining frames will not be pasted. If the copy buffer has more frames than required, not all from the buffer will be used. The selected LED must be the same type (Single or RGB) as the LED that was copied. Pasting will overwrite the color/intensity value of the selected LED. The paste buffer can be used multiple times. The status bar will indicate which frames were pasted.

Color / Intensity Controls



Red / Green / Blue Sliders

Adjust the *Red*, *Green*, and *Blue* slider controls to set the color of the Color Sample Box. If any RGB Type LEDs are selected, changing the R/G/B sliders will also update then LED colors. R/G/B slider values range from 0 to 48.

Intensity Slider

Adjust the *Intensity* slider control to set the intensity of the Color Sample Box. If any Single Type LEDs are selected, changing the Intensity slider will also update the LED intensities. The intensity value ranges from 0 to 48.

A note on LED Brightness: The intensity of an LED can also be considered its brightness value. Increasing or decreasing the intensity value will also affect the red, green, and blue values and vice versa – they are all linked. The intensity value cannot be greater than the maximum of the R/G/B values. So if you set the color to “orange”, and then move the *Intensity* slider, the *Red*, *Green*, and *Blue* slider controls will move in sync to increase or decrease the “orange” brightness. Low intensities on the virtual LEDs tend toward “black” and are not easily distinguishable.

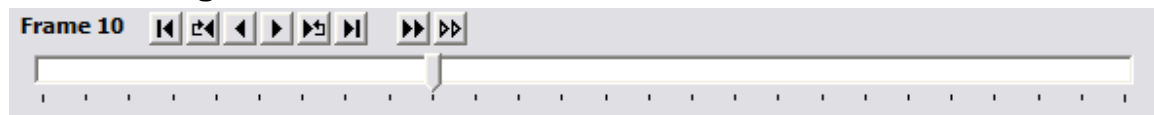
Color Sample Box

The *Color Sample Box* represents the color set by the *Red*, *Green*, and *Blue* slider controls. Click on the Color Sample Box to set the color/intensity values for all selected LEDs.

Pick Color Button

Displays a color dialog to select from a standard color palette. After a color has been selected, R/G/B and Intensity slider values will be updated and all selected LEDs will be assigned the color/intensity values.

Frame Navigation Controls



First Frame ⏪

Jump to the first frame in the animation.

Previous Goto/Repeat Frame ⏮

Jump to the previous frame with goto/repeat values.

Previous Frame ⏪

Move one frame back in the animation.

Next Frame ⏩

Move one frame forward in the animation.

Next Goto/Repeat Frame ⏭

Jump to the next frame with goto/repeat values.

Last Frame ⏩

Jump to the last frame in the animation.

Run LED Animation ▶▶

Run or Stop the current animation in real-time on your control panel. The animation will start from the current frame. This feature can be used to visually test how an animation will look when run by the LEDBlinky application. The Run LED Animation/Stop menu option is only enabled in animation edit mode. The Run LED Animation/Stop menu option is not available if you do not have any LED controllers connected to your pc.

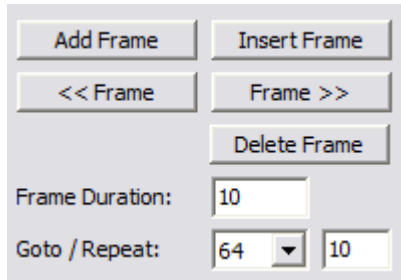
Run Virtual Animation ▶▶

Run or Stop the current animation in simulated-time on your virtual control panel. The animation will start from the current frame. The virtual control panel animation timing may not be as accurate as the LED Animation due to hardware and software variances. This feature is useful for testing without any actual LED controllers connected. The Run Virtual Animation/Stop menu option is only enabled in animation edit mode.

Frame Slider

Use the *Frame* slider control to switch between frames. The slider can also be used to simulate the animation.

Frame Editing Controls



Add Frame Button

Click the *Add Frame* button to add a new frame to the end of the animation. The new frame will inherit the intensity and on/off values from the prior frame.

Insert Frame Button

Click the *Insert Frame* button to add a new frame after the current frame. The new frame will inherit the intensity and on/off values from the prior frame.

Move Frame Left <<

Click the *Move Frame Left* button to shift the current frame one position to the left. Note: If the current frame has a *Goto* value and moving the frame to the left places it before the goto frame value, then the goto value will be removed.

Move Frame Right >>

Click the *Move Frame Right* button to shift the current frame one position to the right.

Delete Frame Button

Click the *Delete Frame* button to delete the current frame.

Frame Duration

Enter the *Frame Duration* in milliseconds (1000 milliseconds = 1 second).

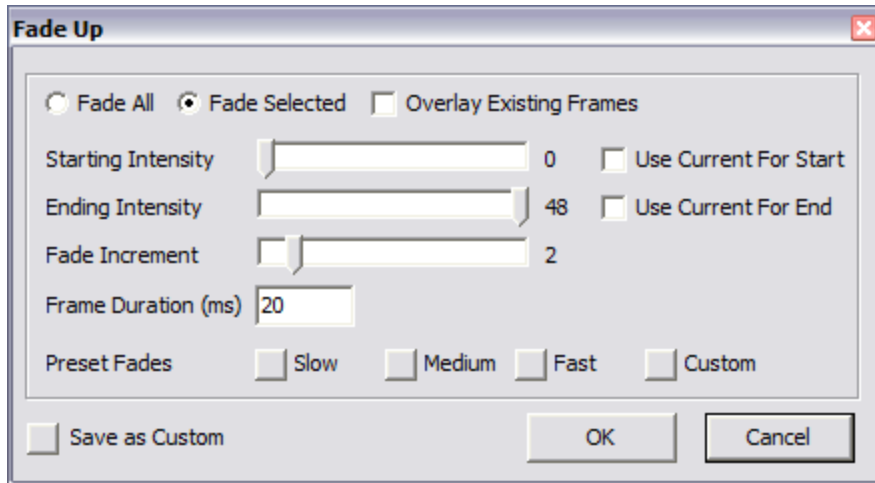
Goto Frame

The *Goto* and *Repeat* fields can be used to repeat a group of frames. The *Goto* frame value is always prior to the current frame. Multiple *Goto* groups can be defined in the animation, but groups should not overlap.

Repeat

Enter the number of times to repeat the frame group.

Fade Up/Down Controls



Fade All / Fade Selected

Select which buttons to fade, *All* or currently *Selected*. If you wish to fade selected buttons, they must be selected prior to displaying the Fade dialog.

Overlay Existing Frames

The Fade effect generates as many as 48 new frames. Normally the new frames will be inserted into the animation after the current frame. Optionally you may wish to overlay the new frames onto the animation starting with the current frame. Only the buttons participating in the fade will be overlaid – all other buttons will remain at their current intensity/color.

The *Overlay Existing Frames* option is useful when you want to apply different fade effects at the same time in the animation. Select the button(s) for the first fade and insert the fade normally (without the overlay option). Then reset the current frame to the start of the fade, select the button(s) for the next fade effect and use the overlay option.

Note: The *Fade Duration* for the overlay fade will overwrite the frame duration for the overlaid frames in the current animation. All overlay fades must use the same *Fade Duration*. If an overlay fade requires frames beyond the end of the animation, the animation will be extended.

Starting Intensity / Ending Intensity

Specify the intensity to start the fade and the intensity to end the fade.

Note: For RGB type buttons, when the *Use Current* option is not selected, the *Color Sample Box* will be used for the fade color.

Use Current For Start / Use Current For End

Optionally select to start or end the fade with the button's current intensity.

Note: When fading multiple buttons with the *Use Current* option, each button may not require the same number of frames to complete its fade – the inserted/overlaid fade will use the maximum frames to complete the fade for all selected buttons. For RGB type buttons, when the *Use Current* option is not selected, the *Color Sample Box* will be used for the fade color.

Fade Increment

The *Fade Increment* defines the change in intensity/color between frames. Higher values may cause a choppy fade effect. Lower values will slow down the fade. A smooth fade requires a balance between the *Fade Increment* and the *Fade Duration*.

Fade Duration

The *Fade Duration* defines the frame duration used throughout the fade. The value is specified in milliseconds. Values smaller than 10ms may not have any noticeable effect on the speed of the animation. Higher values may cause a choppy fade effect. A smooth fade requires a balance between the *Fade Increment* and the *Fade Duration*.

Note: When using the *Overlay Existing Frames* option, the *Fade Duration* will overwrite the frame duration for the overlaid frames in the current animation.

Preset Fades

Preset Fade settings are provided for slow, medium, and fast fades by setting the *Fade Increment* and *Fade Duration* to default values.

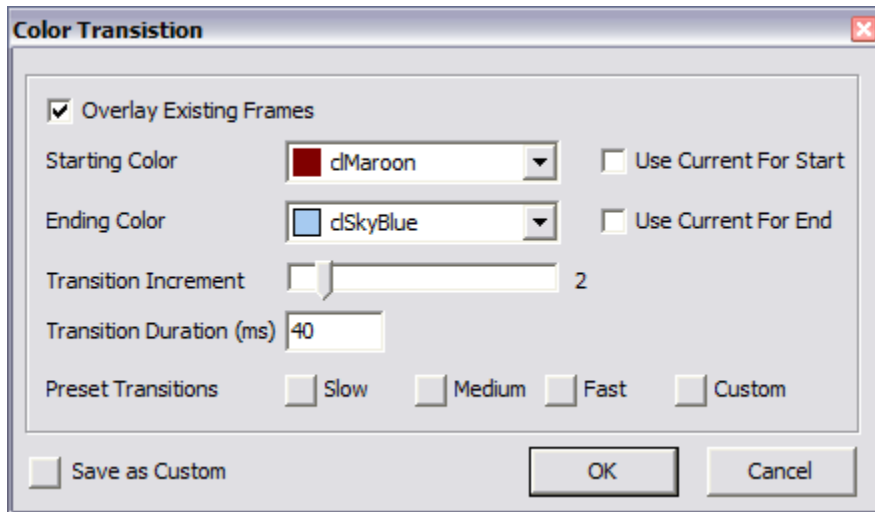
You may also store and recall a custom fade setting. The *Preset Fade Custom* button recalls the *Starting Intensity*, *Ending Intensity*, *Use Current For Start*, *Use Current For End*, *Fade Increment*, and *Fade Duration* values as last stored using the *Save As Custom* button.

Note: Depending on CPU and other performance issues, the *Slow/Medium/Fast* preset values may not provide desired results.

Save As Custom

The *Save As Custom* button stores the current *Starting Intensity*, *Ending Intensity*, *Use Current For Start*, *Use Current For End*, *Fade Increment*, and *Fade Duration* values.

Color Transition Controls



Overlay Existing Frames

The Color Transition effect generates as many as 48 new frames. Normally the new frames will be inserted into the animation after the current frame. Optionally you may wish to overlay the new frames onto the animation starting with the current frame. Only the buttons participating in the color transition will be overlaid – all other buttons will remain at their current color.

The *Overlay Existing Frames* option is useful when you want to apply different color transition effects at the same time in the animation. Select the button(s) for the first color transition and insert the transition normally (without the overlay option). Then reset the current frame to the start of the color transition, select the button(s) for the next color transition effect and use the overlay option.

Note: The *Transition Duration* for the overlay color transition will overwrite the frame duration for the overlaid frames in the current animation. All overlay color transitions must use the same *Transition Duration*. If an overlay color transition requires frames beyond the end of the animation, the animation will be extended.

Starting Color / Ending Color

Specify the color to start the transition and the color to end the transition.

To specify a custom color (not in the drop-down list), select the first item in the list – “custom...”. This will display the custom color dialog. Next, click on any one of the Basic Color boxes (you must do this – not sure why), then click the *Define Custom Colors* button. Define your custom color, then click the *Add To Custom Colors* button. Lastly, click your newly defined Custom Color box on the lower left, then click *Ok*. Your custom color will remain in the drop-down list until you define a new custom color or close the application. If you wish to retain the custom color for future use, store it as a *Custom Preset Transition*.

Use Current For Start / Use Current For End

Optionally select to start or end the color transition with the button's current color.

Note: When color transitioning multiple buttons with the *Use Current* option, each button may not require the same number of frames to complete its transition – the inserted/overlaid color transition will use the maximum frames to complete the transition for all selected buttons.

Transition Increment

The *Transition Increment* defines the change in color between frames. Higher values may cause a choppy color transition effect. Lower values will slow down the transition. A smooth color transition requires a balance between the *Transition Increment* and the *Transition Duration*.

Transition Duration

The *Transition Duration* defines the frame duration used throughout the color transition. The value is specified in milliseconds. Values smaller than 10ms may not have any noticeable effect on the speed of the animation. Higher values may cause a choppy color transition effect. A smooth color transition requires a balance between the *Transition Increment* and the *Transition Duration*.

Note: When using the *Overlay Existing Frames* option, the *Transition Duration* will overwrite the frame duration for the overlaid frames in the current animation.

Preset Transitions

Preset Transition settings are provided for slow, medium, and fast transitions by setting the *Transition Increment* and *Transition Duration* to default values.

You may also store and recall a custom color transition setting. The *Preset Transition Custom* button recalls the *Starting Color*, *Ending Color*, *Use Current For Start*, *Use Current For End*, *Transition Increment*, and *Transition Duration* values as last stored using the *Save As Custom* button.

Note: Depending on CPU and other performance issues, the *Slow/Medium/Fast* preset values may not provide desired results.

Save As Custom

The *Save As Custom* button stores the current *Starting Color*, *Ending Color*, *Use Current For Start*, *Use Current For End*, *Transition Increment*, and *Transition Duration* values.

Status Bar



The first section on the *Status Bar* displays information on the selected LED. If multiple LEDs are selected, the total number is displayed. The most recent copy or paste action may also be displayed.

The second section on the *Status Bar* displays the current Frame number and Total Frames.

The third section on the *Status Bar* displays the edit mode; Layout or Animation.

Using Single Frame Animations

LEDBlinky provides features to light your control panel LEDs based on the currently active buttons used by the front-end or the selected game. But what if you want to light some or all of the buttons independent from those that are active? That's where the single frame animation can be useful.

A single frame animation is not really an animation at all – with only one frame, nothing changes! But by assigning a single frame animation to an LEDBlinky event you will effectively set your own button layout.

For example, you can create a single frame animation and assign it as the “FE Active” animation or the “Game Play” animation. Using LEDBlinky’s feature to assign game specific animations, you could theoretically create your own custom button layout for one or more selected game.

Note: When a “Game Play” animation is used in conjunction with the “Light Game Controls” option, the active buttons will take precedence over the animated buttons. In this scenario, the single frame animation would only be used to light the inactive buttons.

Appendix A: Supported LED Controllers

The LEDBlinky Configuration Help Menu has an option to display the list of supported LED Controller names and abbreviations.

Groovy Game Gear LED-Wiz

32 LED ports, variable intensity.

Ultimarc PacDrive

16 LED ports, on/off.

Ultimarc U-HID

16 LED ports, on/off

Ultimarc PacLED64

64 ports, variable intensity.

Ultimarc iPac Ultimate I/O

96 ports, variable intensity.

Wolfware Tech Howler

96 ports, variable intensity.

Appendix B: Menu Options For LED-Wiz Hardware Only

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Single – Ramp Up / Ramp Down

All selected Single Type LEDs have their intensity set to the LED-Wiz built-in blinking effect. *Ramp Up / Ramp Down* sets the intensity value to 129.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Single – On / Off

All selected Single Type LEDs have their intensity set to the LED-Wiz built-in blinking effect. *On/Off* sets the intensity value to 130.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Single – On / Ramp Down

All selected Single Type LEDs have their intensity set to the LED-Wiz built-in blinking effect. *On / Ramp Down* sets the intensity value to 131.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Single – Ramp Up / On

All selected Single Type LEDs have their intensity set to the LED-Wiz built-in blinking effect. *Ramp Up / On* sets the intensity value to 132.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Red – Ramp Up / Ramp Down

All selected RGB Type LEDs have their Red intensity set to the LED-Wiz built-in blinking effect. *Ramp Up / Ramp Down* sets the intensity value to 129.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Red – On / Off

All selected RGB Type LEDs have their Red intensity set to the LED-Wiz built-in blinking effect. *On/Off* sets the intensity value to 130.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Red – On / Ramp Down

All selected RGB Type LEDs have their Red intensity set to the LED-Wiz built-in blinking effect. *On / Ramp Down* sets the intensity value to 131.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Red – Ramp Up / On

All selected RGB Type LEDs have their Red intensity set to the LED-Wiz built-in blinking effect. *Ramp Up / On* sets the intensity value to 132.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Green – Ramp Up / Ramp Down

All selected RGB Type LEDs have their Green intensity set to the LED-Wiz built-in blinking effect. *Ramp Up / Ramp Down* sets the intensity value to 129.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Green – On / Off

All selected RGB Type LEDs have their Green intensity set to the LED-Wiz built-in blinking effect. *On/Off* sets the intensity value to 130.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Green – On / Ramp Down

All selected RGB Type LEDs have their Green intensity set to the LED-Wiz built-in blinking effect. *On / Ramp Down* sets the intensity value to 131.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Green – Ramp Up / On

All selected RGB Type LEDs have their Green intensity set to the LED-Wiz built-in blinking effect. *Ramp Up / On* sets the intensity value to 132.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Blue – Ramp Up / Ramp Down

All selected RGB Type LEDs have their Blue intensity set to the LED-Wiz built-in blinking effect. *Ramp Up / Ramp Down* sets the intensity value to 129.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Blue – On / Off

All selected RGB Type LEDs have their Blue intensity set to the LED-Wiz built-in blinking effect. *On/Off* sets the intensity value to 130.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Blue – On / Ramp Down

All selected RGB Type LEDs have their Blue intensity set to the LED-Wiz built-in blinking effect. *On / Ramp Down* sets the intensity value to 131.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Blue – Ramp Up / On

All selected RGB Type LEDs have their Blue intensity set to the LED-Wiz built-in blinking effect. *Ramp Up / On* sets the intensity value to 132.

Edit – Selected LEDs – LED-Wiz Build-in Blinking – Set Frame Global Pulse Speed

Set the LED-Wiz built-in blinking global pulse speed for the current frame. This applies to all LEDs (not just the selected LEDs).

LED-Wiz Build-in Blinking – Single – Ramp Up / Ramp Down

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the Single Type LED intensity. *Ramp Up / Ramp Down* sets the intensity value to 129.

LED-Wiz Build-in Blinking – Single – On / Off

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the Single Type LED intensity. *On/Off* sets the intensity value to 130.

LED-Wiz Build-in Blinking – Single – On / Ramp Down

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the Single Type LED intensity. *On / Ramp Down* sets the intensity value to 131.

LED-Wiz Build-in Blinking – Single – Ramp Up / On

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the Single Type LED intensity. *Ramp Up / On* sets the intensity value to 132.

LED-Wiz Build-in Blinking – Red – Ramp Up / Ramp Down

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the RGB Type LED Red intensity. *Ramp Up / Ramp Down* sets the intensity value to 129.

LED-Wiz Build-in Blinking – Red – On / Off

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the RGB Type LED Red intensity. *On/Off* sets the intensity value to 130.

LED-Wiz Build-in Blinking – Red – On / Ramp Down

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the RGB Type LED Red intensity. *On / Ramp Down* sets the intensity value to 131.

LED-Wiz Build-in Blinking – Red – Ramp Up / On

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the RGB Type LED Red intensity. *Ramp Up / On* sets the intensity value to 132.

LED-Wiz Build-in Blinking – Green – Ramp Up / Ramp Down

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the RGB Type LED Green intensity. *Ramp Up / Ramp Down* sets the intensity value to 129.

LED-Wiz Build-in Blinking – Green – On / Off

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the RGB Type LED Green intensity. *On/Off* sets the intensity value to 130.

LED-Wiz Build-in Blinking – Green – On / Ramp Down

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the RGB Type LED Green intensity. *On / Ramp Down* sets the intensity value to 131.

LED-Wiz Build-in Blinking – Green – Ramp Up / On

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the RGB Type LED Green intensity. *Ramp Up / On* sets the intensity value to 132.

LED-Wiz Build-in Blinking – Blue – Ramp Up / Ramp Down

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the RGB Type LED Blue intensity. *Ramp Up / Ramp Down* sets the intensity value to 129.

LED-Wiz Build-in Blinking – Blue – On / Off

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the RGB Type LED Blue intensity. *On/Off* sets the intensity value to 130.

LED-Wiz Build-in Blinking – Blue – On / Ramp Down

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the RGB Type LED Blue intensity. *On / Ramp Down* sets the intensity value to 131.

LED-Wiz Build-in Blinking – Blue – Ramp Up / On

In animation mode, right-click on an LED to select from the LED-Wiz built-in blinking effects and set the RGB Type LED Blue intensity. *Ramp Up / On* sets the intensity value to 132.

A note on the LED-Wiz built-in blinking effects: This feature of the LED-Wiz has little use with LED animations – the hardware controlled blinking cannot be synced between multiple LED controllers or with animation timing. This feature is not available for any other LED controller.

LED-Wiz Build-in Blinking – Set Frame Global Pulse Speed

Set the LED-Wiz built-in blinking global pulse speed for the current frame. This applies to all LEDs.