

# Leona® Digital Controller

Product Data Sheet







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Leona® Digital Controller Product Data Sheet



# Features

- Digital RGB/RGBW LED controller with SPI signal output.
- Leona® Smart app compatible.
- Voice control capable when used with Amazon Alexa or Google Home.
- Compatible with RGB or RGBW strips with 49 types of ICs. Set the IC type and RGB sequence through the Leona<sup>®</sup> Smart app.
- 44 pre-programmed dynamic modes and up to 10 custom dynamic modes.
- Syncs with music.
- Match with an optional handheld RF remote.

# **Mechanical Drawing**



# **Product Specifications**

Input Voltage	Input Current	Output Voltage	Dimming Range	Output Signal	Controllable Pixels	e IP Rating
5-24V DC	8A	5-24V DC	5-100%	SPI (TTL) x 2	1000 pixels	IP20
Input Signal	Output Power		Dynamic Modes	Control Distance	e	Operating Temperature
_eona® Smart app via Wi-Fi + 2.4 GHz RF	Up to 192V (24V DC)	N 44 pr r cu	e-programmed nodes+ 10 stom modes	98 ft (30 m) f (without obst 49 ft (15 m) fo	or RF acles) or WiFi	-22°F to 149°F (-30°C to 65°C)

## System Setup

**WARNING:** Ensure that the power supply's voltage matches the input voltage of the LED strip light. Make sure that the polarities are correct before turning the power on. **Do NOT make or break any connections to the digital LED strip light while power is applied. Make all connections before applying power. Failure to follow this step can result in damage to your strip.** 



- 1. The distances shown in the drawing are based on an environment free of any obstructions
- 2. Ensure that you are using 2.4GHz Wi-Fi as 5GHz Wi-Fi is not compatible with the Leona® Smart app.
- 3. Ensure that your Wi-Fi router is functioning properly and is within 49 feet (15 meters) of your Leona® devices.

#### CAUTION:

- Do not place the controller in any kind of metal enclosure.
- Do not place anything on or around the controller, power supply or strip light that is not intended to be used with the system.
- Do not place in or around water or in a high-humidity environment. Intended for indoor use only.

### System Wiring



#### Notes:

- If the SPI LED pixel strip is single-wire controlled and does not actively use the CLK wire, you can connect up to 4 LED strip lights. If the SPI LED pixel strip is two-wire controlled, you can connect two sets of LED strip lights.
- When the load of the strip light exceeds 8A, the strip light needs to be powered by another power supply (the strip light and the power supply must share the same ground), and only the DATA/CLK and GND lines are connected between the controller and the additional strip light with the help of an SPI signal amplifier. Also, be mindful of the maximum run length of the LED strip light you will be using.
- The output power of the constant voltage power supply should exceed the output load (strip light) by at least 20%, otherwise, the lights may flicker.
- The wire can be solid or stranded, 20 AWG to 16 AWG. Please ensure that the wire is rated for the total current of your setup and all connections are secured before turning the lights on. If the wiring connections are not correctly secured, the contact point resistance

will be too high and the terminals could burn due to heat when used at full load for an extended period of time.

GND → GND (Black wire)

- The wire length of the signal line (DATA/CLK) between the controller and the strip light needs to be 32 feet (10 meters) or shorter. If it exceeds 32 ft (10 m), you will need to add an SPI signal amplifier (common ground) to avoid signal interference.
- The SPI signal lines (DATA/CLK) should be at least 6 inches (15 cm) away from line voltage wires (100-240VAC) to prevent the magnetic field generated by the line voltage lines from interfering with the transmission of the SPI signal.
- Each SPI signal output port (DATA/CLK) can only be connected to one set of strip lights.
- If the strip light is always on and you are not able to control it, it may be that the SPI signal wire (DATA/CLK) is open or the IC chip of the strip light is damaged. It is recommended to replace the SPI signal wire or the strip light.

## Connect to the Leona® Smart App

- 1. Connect to Wi-Fi 2.4GHz and activate Bluetooth to ensure quick pairing is enabled.
- **2. Download "Leona® Smart" app** from the iOS App Store or Google Play Store. The app is compatible with Android 6.0 and iOS 10.0 or higher.
- **3.** Open the Leona<sup>®</sup> Smart app and either **sign up** for a new account or **log in** with an existing account.
- 4. Apply power to your Leona® Digital Controller and strip light.
- 5. Short press the "MATCH" button twice or press and hold the "MATCH" button on the controller for 2 seconds to clear the previous network connection and enter quick pairing mode. The controller's "RUN" indicator light will flash rapidly. If you want to add a new device under AP (Access Point) Mode, please follow steps 1 to 4 above and then press and hold the "MATCH" button on the controller for 5 seconds to clear the previous network connection and enter AP configuration mode. The controller's "RUN" indicator light will flash slowly. Once the app network connection is successful, the "RUN" indicator light will stop flashing and the device will appear in the app. Please allow the indicator light to remain a solid, non-blinking color before moving to the next step.

#### 6.1 Set the strip light length

Select the number of pixels used on your strip light between 10 (0.10\*100) and 1000 (10.00\*100), with 1000 being the longest setting.

#### If you are using our ColorBright<sup>™</sup> RGB Digital Pixel LED Strip Light, please keep in mind that each 16 ft (5 m) reel has 50 pixels (0.50\*100).

#### 6.2 Select the IC type

Select the corresponding IC type in the app according to the IC type of your strip light.

**Note:** When the IC type is selected as RGBW, the fourth channel is fixed W and cannot be switched.

Chip Type	ІС Туре
TM1803	
	TM1804, TM1812, UCS1903,
	UCS1909, UCS1912, SK6813,
TM1809	UCS2903, UCS2909, UCS2912,
	WS2811, WS2812, WS2813,
	WS2815, SM16703P
TM1829	
TLS3001	TLS3002
GW6205	
MBI6120	
TM1814B (RGBW)	
	WS2813 (RGBW),
SKOOTZ (RGBW)	WS2814 (RGBW)
UCS8904B (RGBW)	
	LPD1101, D705, UCS6909,
	UCS6912
LPD8803	LPD8806
WS2801	WS2803
P9813	
SK9822	

TM1914A	
GS8206	GS8208
UCS2904	
SM16804	
SM16825	
SM16714 (RGBW)	
UCS5603	
UCS2603	
SM16714D	
UCS7604 (RGBW)	
UCS7804 (RGBW)	

#### If you are using our ColorBright<sup>™</sup> RGB Digital Pixel LED Strip Light, please select option TM1809 which corresponds to WS2811 IC.

#### 6.3 Select the RGB order

• If you are using an RGB digital strip light, select the corresponding R/G/B order according to the color sequence of your strip light: RGB, RBG, GRB, GBR, BRG, or BGR.

• If you are using an RGBW digital strip light, select the corresponding R/G/B/W order according to the color sequence of your strip light: RGBW, RBGW, GRBW, GBRW, BRGW, BGRW, WRGB, WRBG, WGRB, WGBR, WBRG, or WBGR.

#### If you are using our ColorBright<sup>™</sup> RGB Digital Pixel LED Strip Light, please select RGB.

- 7. Please confirm that the phone and controller are using the same Wi-Fi network and that the Wi-Fi being used is a 2.4GHz signal. Please Note: Leona® Smart products are not compatible with 5GHz Wi-Fi signals.
- 8. Once the setup is complete, you are now able to pair your Leona<sup>®</sup> Digital Controller with third-party smart home apps such as Google Home and Amazon Alexa. Within the Leona<sup>®</sup> Smart app, however, there are a variety of functions such as setting schedules and timers.

# Leona<sup>®</sup> App Interface

#### Light Control: Choose from hundreds of static color options.

Choose a static color by using one of the following features on the app.



saturation of the light.

• Once you select the color of the lights, use the brightness slide to adjust brightness.

temperature of the light.

- Color fill: Change the color of the full segment of the strip light.
- Color pen: Change the color of a single segment of the strip light.
- Eraser: Turn off the color of a single segment of the strip light.

Olor transition: When using multiple colors in the strip light, you can set to turn on or off the color segment gradient transition.

#### Scene Control: Configure dynamic modes and patterns.

• Choose between 44 pre-programmed dynamic modes.

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DIY Scenery		Mi Add +
Iceland Blue	•••••	
Glacier Express		
	******	•••••
Storm Clouds		
Fireworks		
	•••••	*****
Igloo		
	••••••	••••
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1.	Iceland Blue
2.	Glacier Express
З.	Storm Clouds
4.	Fireworks
5.	Igloo
б.	Firefly Night
7.	Northland
8.	Aqua
9.	Northern Lights
10.	Late Autumn
11.	Dream Train
12.	Cherry Blossom Fast
13.	Cherry Blossom Slow
14.	Cool White Chase
15.	Wind Chime
16.	Snowy Night
17.	Marbles
18.	Summer Train
19.	4th of July
20.	Dream Sea
21.	Game
22.	Colorful

23. White Pulse 24. Techno

the strip light.

- 25. Trance
- 26. Colorful 2
- 27. Meditation
- 28. Marble Chase
- 29. Color Block Chase
- 30. Valentine's Day
- 31. Color Block Pulse
- 32. Halloween
- 33. Forest Day
- 34. Shades of Violet
- 35. Ice Fishing
- 36. RGB Pulse
- 37. Aqua Pulse
- 38. Sea Dream Pulse 39. Violet Pulse
- 40. Minerals
- 41. Marble Flow
- 42. Dreamland
- 43. Summer Wind
- 44. Chasing Journey

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  Lancel Edit Sava (Gradient) Juno Breache Flachino 11 New scene 2 Colour Color Card Colour Color Card Brightness 100% Brightness 100% Farsgraph Parsgraph Parsgraph Parsgraph Septed - 50
- Select from 16 types of dynamic effects that include: Gradient, Jump, Pulse, Flash, Flow, Rainbow, Meteor, PileUp, Falling, Follow, Flutter, Flash 2, Rebound, Shuttle, Random, and Switch.
- Assign a custom name to your custom dynamic mode.
- Choose up to 8 custom colors for your custom dynamic effects by sliding your finger through the color rectangle.
- Adjust the brightness of the light from 1% up to 100%.
- Select between full or segmented options.
- Adjust the speed of the mode from 1 to 100.

#### Music Rhythm: Sync strip light to music

Create up to 10 completely custom dynamic modes.



Enjoy the Music Rhythm feature by choosing from the available options. The lights will follow the music using your smartphone's microphone.

B Setup: Set timers, choose strip light length, the IC type and the RGB order.



- Schedule:
- Countdown Timer: Turn off your lights in a set amount of time.
- Schedule: Turn on/off your lights at a specific day and time. The lights will turn on in the last configuration used.

Refer to "Connect to the Leona<sup>®</sup> Smart App" section in this instruction guide to set up the Strip Light Length, IC Type, and RGB Color Sequence.

### Connect to a Leona<sup>®</sup> Digital Remote (sold separately)

#### To Pair a Leona® Digital Remote

Short press the "MATCH" button on the controller and then immediately press the on/off button of the remote. The LED "RUN" indicator flashing rapidly for a few seconds means that the match was successful.

#### To Delete Paired Leona® Digital Remotes

Press and hold the match key for 10s to delete all matches. The LED indicator fast flash a few times means all matched remotes were deleted.

For more specific information about the remote and its individual functions, please refer to the Leona® Digital Remote User Guide.

### **Warranty Information**

This product has a 5-year limited warranty from the date of shipment. This warranty only includes the main product outlined in this specification sheet and does not include the additional accessories that are used as a reference. Complete warranty details for fixtures and additional accessories are available at: https://www.flexfireleds.com/warranties/ within the Policies section. For warranty-related questions please contact the product support team at support@flexfireleds.com/

#### **Consumer's Acknowledgement**

Flexfire LEDs, Inc. stands behind its products when they are used properly and according to our specifications. When you purchase our products, you are agreeing to the terms and conditions outlined in our warranty section. We try our best to make recommendations, but the burden of proper installation, design, and maintenance relies on the purchaser. This limited warranty does not include product failures that are the result of: Not using a voltage-regulated power supply to connect the LED product or controls; Connecting LED products to the wrong output voltage; Improper connection of power supplies, LED products, or controls; Connecting LED products or controls directly to any AC power source if they are stated for DC only input; Connecting power supplies backwards to an AC power source; Products used in an inappropriate location or in environmental conditions (temperature, humidity, moisture, etc.) outside the normal specified range; Water damage to products not specifically sold as waterproof products; Electrical power surges and spikes; Damage from hail, flooding, tornado, fire, wind, earthquake, lightning, electrical storm, or any other natural disasters or "force majeure" incidences; Damage caused by a vehicle or other accident; Damage caused when transporting the item; Damage to any products that were modified by the user, used for purposes other than as intended or directed, or connected to LED systems or components not purchased from Flexfire LEDs; Products that have been subjected to misuse, mishandling, misapplication or accident. Products used in connection with any components, devices or systems other than those explicitly approved as compatible with Company's products and listed on Company's website. Excessive wear and tear and/or physical or accidental abuse, loss, or theft. Improper repairs or warranty services performed by someone other than Flexfire LEDs will void this warranty.

