LED STRIP STUDIO

REACTIVO 2

User Manual

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TABLE OF CONTENTS

SAFETY INSTRUCTIONS

Installation should be performed only by a competent person or professional electrician. Make sure that the installation complies with the standards and rules that apply in your country.

- **Do not use the device if it seems to be damaged.**
- **Use the device only as described in this user manual. Any other use or use under other operating conditions is improper and may result in personal injury or property damage.**
- **No liability will be assumed for damages resulting from improper use. Never open the controller and do not attempt repairs yourself.**
- **Do not place the device close to heat sources and always ensure enough ventilation.**
- **Do not place the unit on surfaces that are heat sensitive.**

This device has been designed for indoor use only. Do not expose the unit to direct sunlight. Do not allow this device to meet liquids. Electrical shock could result. Also, damage to the device, smoke, and overheating could result from contact with liquids. Clean the device components that are accessible from the outside regularly. The cleaning frequency depends on the operating environment: damp, smoky or particularly dirty environments can cause greater accumulation of dirt on the device components. Clean with a dry soft cloth. Stubborn dirt can be removed with a slightly dampened cloth.

- **Never use solvents or alcohol for cleaning.**
- **Establish all connections when the unit is switched off. Use the shortest possible high-quality cables for all connections. Make sure that cables cannot cause a trip hazard.**
- **Never touch the plug contacts with sharp or metal objects.**
- **Ensure that plastic bags, packaging, etc. are disposed of properly and are not within reach of babies and young children. Choking hazard!**
- **Ensure that children do not detach any small parts (e.g. screws, connectors or the like) from the unit. They could swallow the pieces and choke!**
- **Never let children unattended use electrical devices.**

DEVICE SPECIFICATION

REACTIVO 2

Art-Net™ / Standalone pixel LED controller

Applications

- General illumination
- Decoration illumination
- Events, lounges, clubs
- Scenography
- Theatre
- Light show
- Special effects
- Showcase

Technical specification

Controls over	**Art-Net™ (Wired or Wireless), Stand-alone, HTTP commands, Android/IOS mobile application, Web browser, External triggers, LED Strip Studio protocol (with license)**
Operating voltage	**5-24V DC**
Self power consumption	**5W**
Power input connector	**DC jack 5.5mm/2.1mm**
Wired Ethernet port type	**RJ-45 connector, 10/100 Mbps, Auto-MDIX**
Wireless Ethernet type	**2.4Ghz Wi-Fi 802.11 b/g/n, internal antenna**
SD Card type	**Micro SD Card (FAT32, up to 32GB), push-push**
Trigger Input Channels total	**2**
Trigger Input port connector type	**4-pin pitch 1.5mm JST ZH compatible**
Trigger Input port electrical type	**Analog trigger input 0-3.3V with internal 12k pull-ups**
Trigger Input port contain power	**Yes, output, 3.3V max 50mA**
Trigger Input port protection	**Yes, ESD**
Trigger Input connector pins	**GND, Trigger1, Trigger2, +3.3V**
LED Output port connector type	**4 pole pluggable terminal block pitch 3.5mm**
LED Output port electrical type	**Single ended TTL 5V synchronous/asynchronous**
LED Output port contain power	**Yes, Voltage = power in voltage, max. pass thru current 7A**
LED Output port protection	**Yes, ESD**
LED Output connector pins	**GND, Clock, Data, +POWER**
LED Output communication protocol	**SPI: TM, WS, APA and more (check www.ledstripstudio.com/wiki-category/ic-pixel-led-types/)**
WPS/Reset	**Push button accessible by paper clip**
Status LEDs	**Green & Blue, definition described in manual**
Maximum of RGB/RGBW pixels per Output	**Typ. 1024/768* ((*Extra power supply connection to pixels needed if total current required is higher than maximum pass through current limit))**

Special features/options	**Firmware updatable OTA (over the air) by user, multiple devices can be added to zone and be smoothly synchronized using master/slave operation mode, wide variety of external trigger control like push buttons, switches, potentiometers, sensors, playlist...**
Works with controller/software	**Any Art-Net™ controller/software, LED Strip Studio (with license), Android/IOS mobile application, PC via web interface**
Operating air temperature	**-10°C to 45°C**
Storage air temperature	**-10°C to 60°C**
Relative humidity	**5% to 80% non-condensing**
Waterproof	**No**
Ingress protection	**IP30**
Weight	**47g**
Dimensions	**85 x 40 x 25 mm**
Enclosure	**ABS plastic**

Default package content

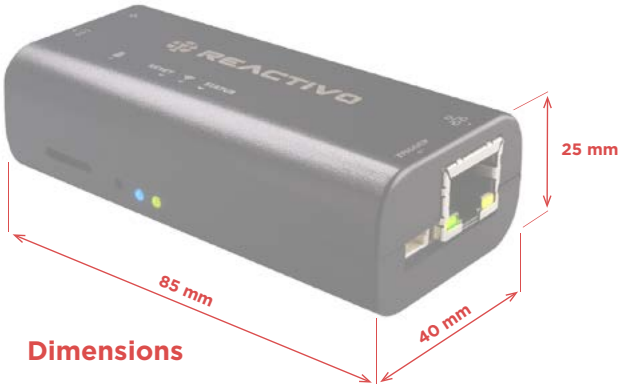
- REACTIVO 2 controller
- USB to DC jack cable
- 4-pole terminal block plug pitch 3.5mm
- Screwdriver
- MicroSD card
- SD card adapter
- USB card reader
- 1M RJ-45 Ethernet cable
- Trigger demo board
- Trigger cable

Front view

Rear view

Side view

Top view



Dimensions

DEVICE VARIANTS

REACTIVO 2 has no hardware variants, however there is an option to “activate” this device that enables you to control device with LED Strip Studio software by our custom Ethernet protocol.
Without activation you can still use LED Strip Studio software using Art-Net™ but purchasing Art-Net™ license for LED Strip Studio is required.

To recognize if device is activated for LED Strip Studio software check status of activation in the device web interface.

DEVICE COMPATIBILITY

REACTIVO 2 can be controlled by any Art-Net™ controller/software.
Few popular ones are:

- **LED Strip Studio software with Art-Net™ license for LED Strip Studio**

- **Madrix™**
- **grandMA™**
- **Resolume**
- **ChamSys™**
- **Madmapper**
- **and many others**

Activated REACTIVO 2 can be also used with LED Strip Studio software without need of Art-Net™ license for LED Strip Studio.

For easier installations can be controlled by our Android/IOS mobile application, web browser, external triggers like push buttons, switches, potentiometers, sensors... or completely stand alone.

REACTIVO 2 can control various types of individually addressable (AKA digital or SPI) LED strips or pixels on its LED output . Check Device details chapter for more details.

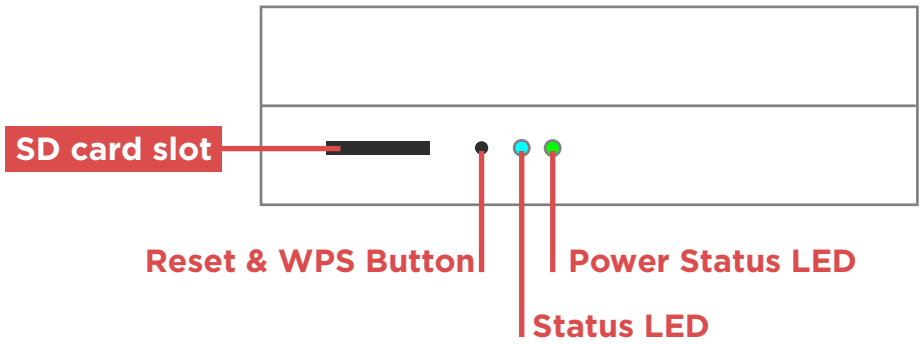
REACTIVO 2 with longer signal cable runs can be used with:

- **THE SYMMETRIZER**
- **TTL SIGNAL BUFFER**
- **MINI TTL SIGNAL BUFFER**
  (ONLY FOR 12V LED STRIPS)

REACTIVO 2 Trigger inputs are compatible with wide variety of switches, push buttons or sensors.

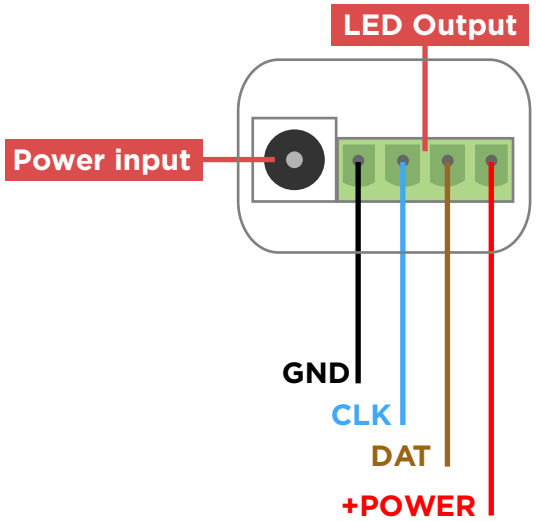
DEVICE DESCRIPTION

Side View

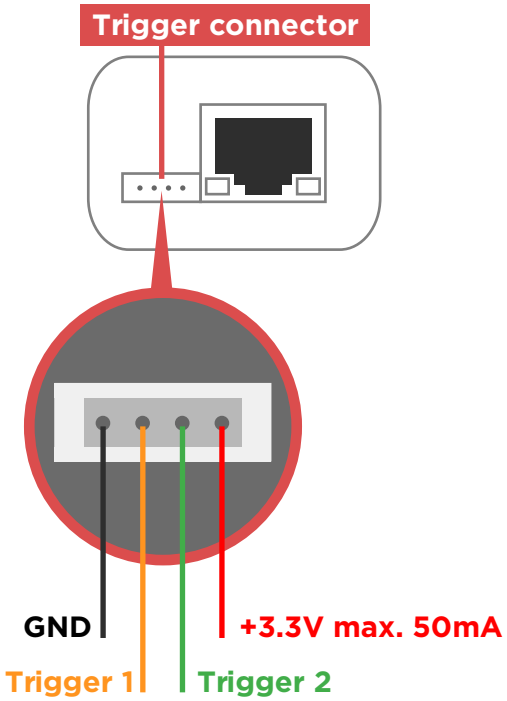


Pinout schemes

Rear View



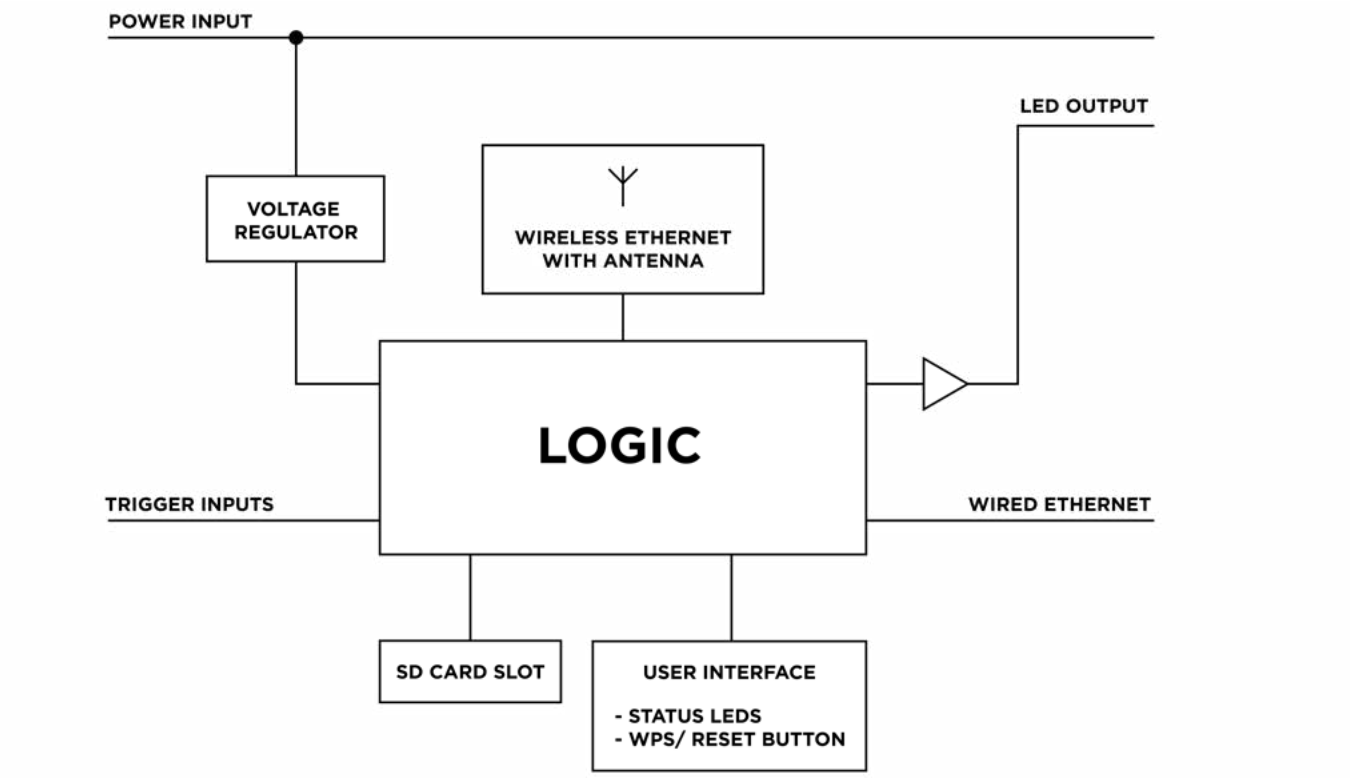
Front View



POWER INPUT connector type: **DC jack 5.5/2.1mm**
LED OUTPUT connector type: **15EDGRC-3.5-04P**
Suitable cable connector for LED output:
15EDGKN-3.5-04P or 15EDGK-3.5/4P

TRIGGER connector type: **4pin JST ZH pitch 1.5mm**
Suitable cable connector: **JST ZHR-4 + contacts SZH-002T-P0.5**
or **SZH-003T-P0.5**
Trigger voltage range: **0-3.3V, internally pulled up by 12k resistor**

DEVICE BLOCK DIAGRAM



DEVICE DETAILS

REACTIVO 2 is very compact versatile device and it has been designed to meet wide variety of use cases.

Main function is to generate signal on its LED output which is able to power and control many kinds of individually addressable (AKA digital or SPI) LED strips or pixels.
Compatible digital LED strips chips are:

- **TM family like TM1809, TM1804....**
- **WS family like WS2801, WS2811, WS2812, WS2812B, WS2813, WS2815....**
- **SK family like SK6812....**
- **APA family like APA 102, APA104....**
- **and many more**

For detailed LED IC compatibility check:
https://ledstripstudio.com/wiki-category/ic-pixel-led-types/

Source of control signal can be:

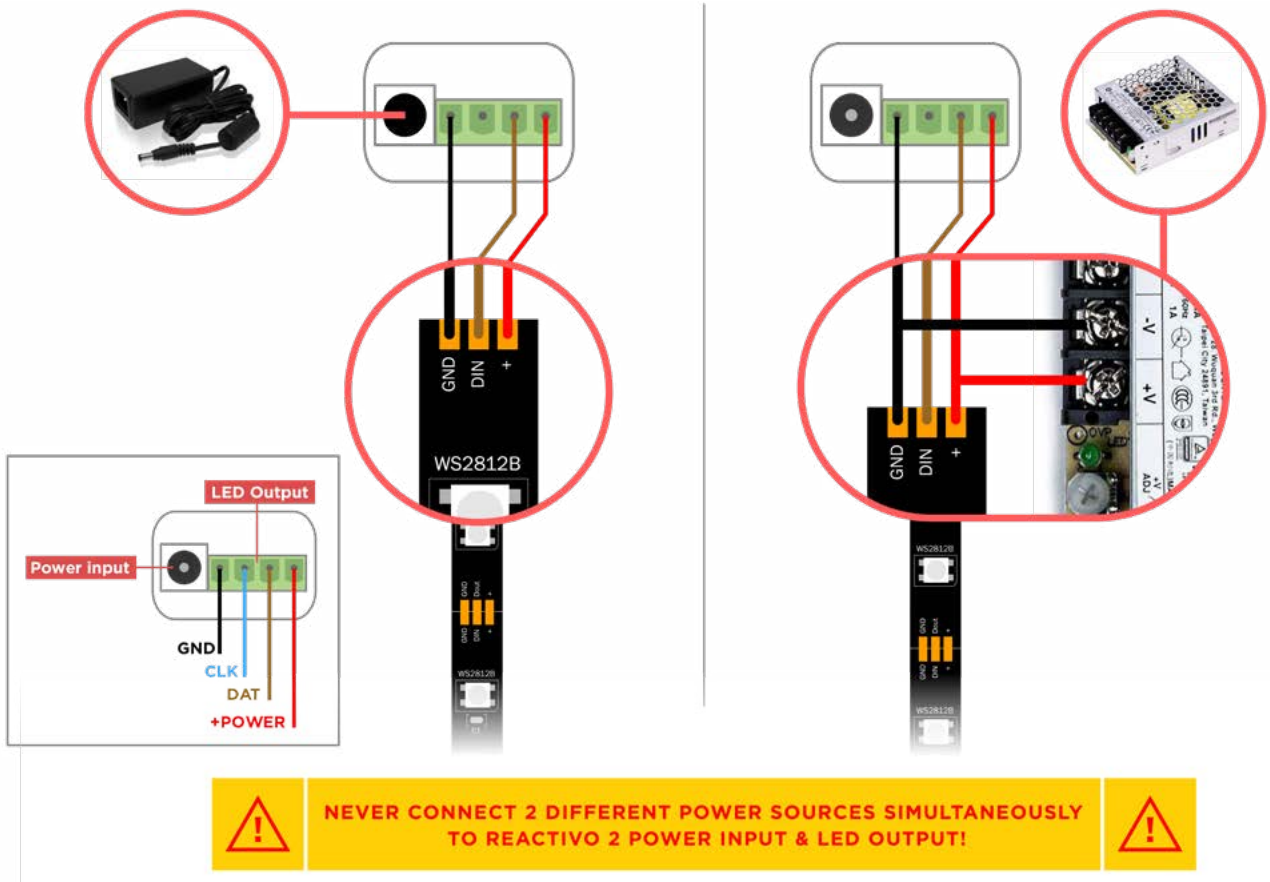
- **LED Strip Studio software**
- **Any Art-Net™ controller/software**
- **our Android/IOS mobile application**
- **User programmable playlist from SD card with preloaded scenes/effects/shows**
- **User programmable events activated by device trigger inputs**
- **Test patterns**
- **Another REACTIVO 2 device with zone synchronization setting enabled**

DEVICE CONNECTION

REACTIVO 2 always needs external DC power supply within its operating voltage range. There are two ways how to provide suitable power for REACTIVO 2:

- **Power provided to Power input connector.**
  This is recommended only if LED output current passing thru REACTIVO 2 will be small (less than about 5 Ampere)

- **Alternatively power can be provided by LED output connector.**
  Recommended without any restrictions.

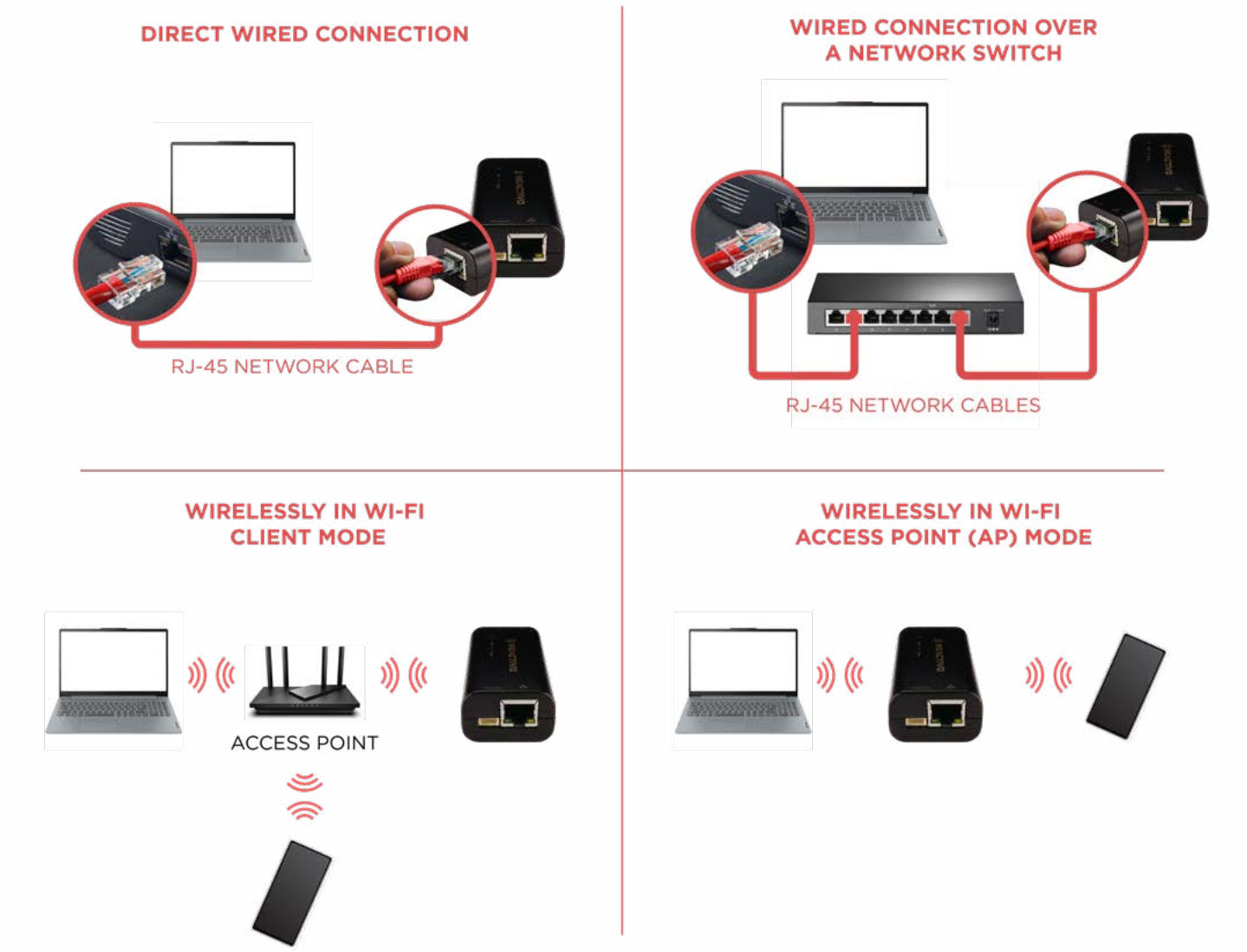


More detailed pixel LED connections are mentioned below in LED output connection diagrams section.

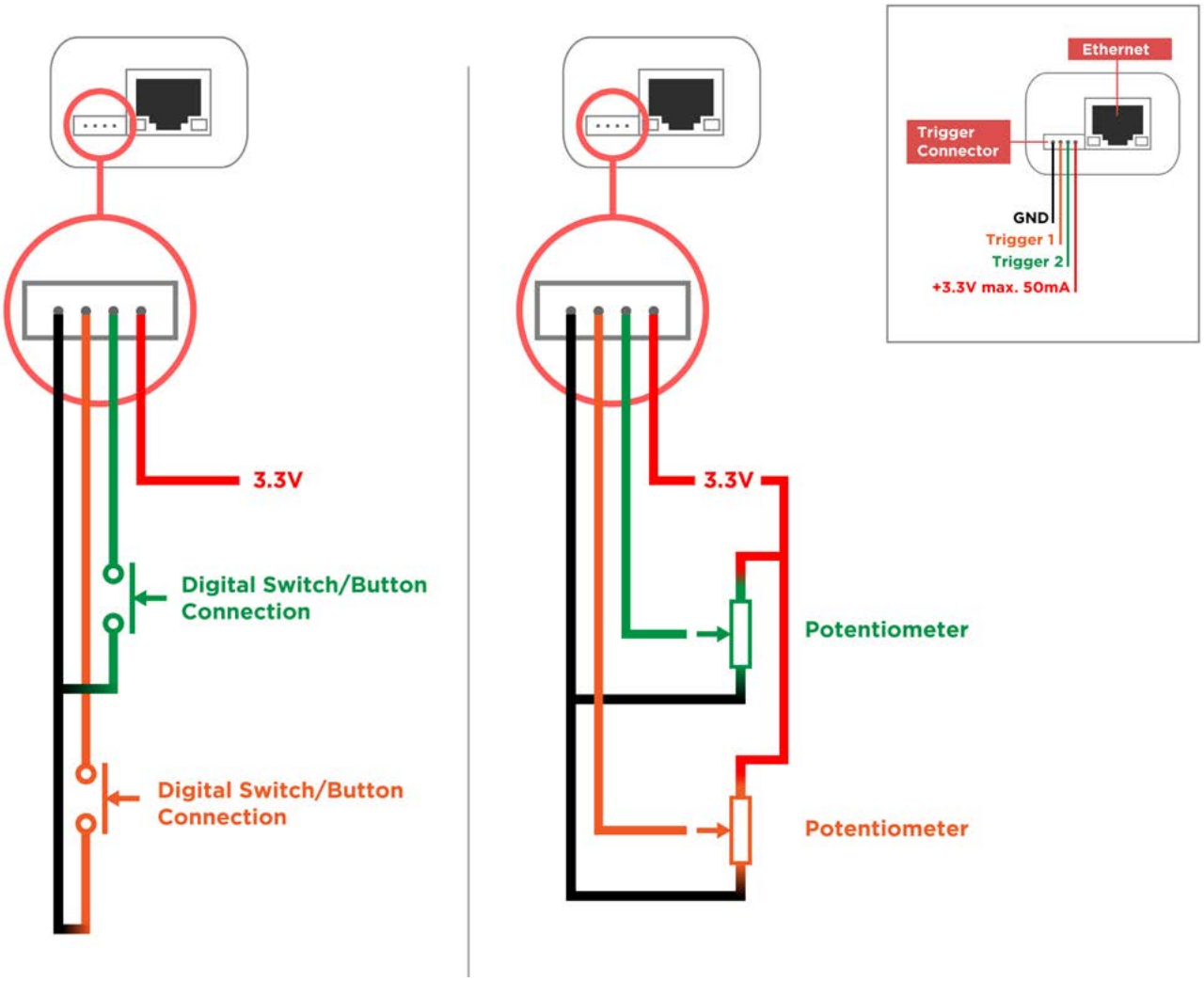
Connecting REACTIVO 2 to network can be done by one of following ways:

- **direct wired connection**
- **wired connection over a network switch**
- **wirelessly in Wi-Fi client mode**
- **wirelessly in Wi-Fi Access point (AP) mode**
  (device is NOT connected to the internet in this mode)

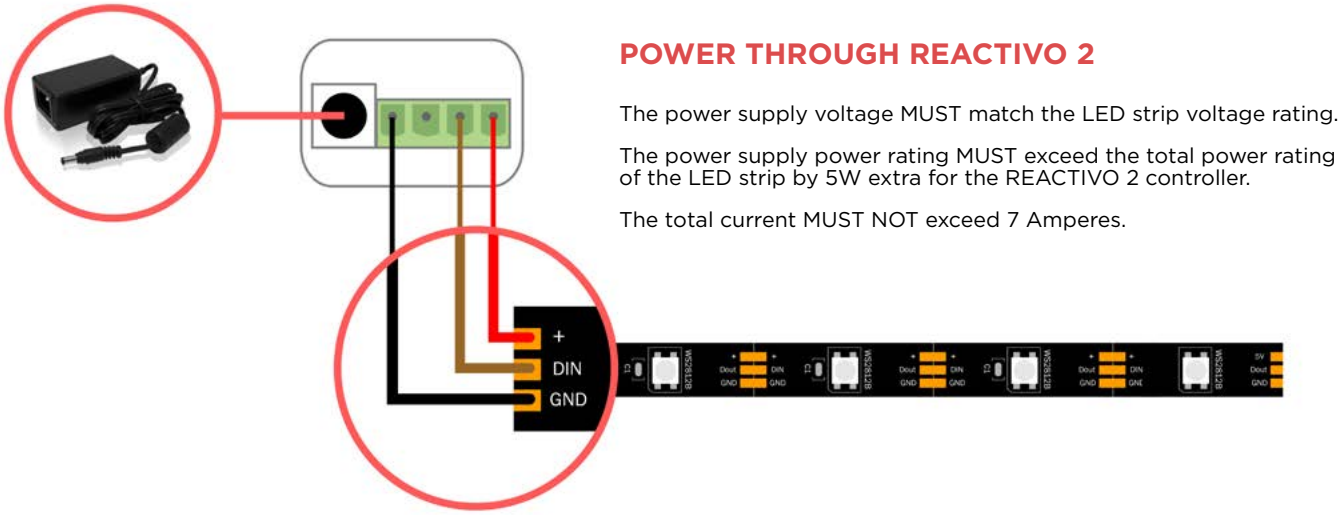
Typical network connection diagram:



REACTIVO 2 trigger inputs connection diagram:



REACTIVO 2 LED output connection example diagrams:

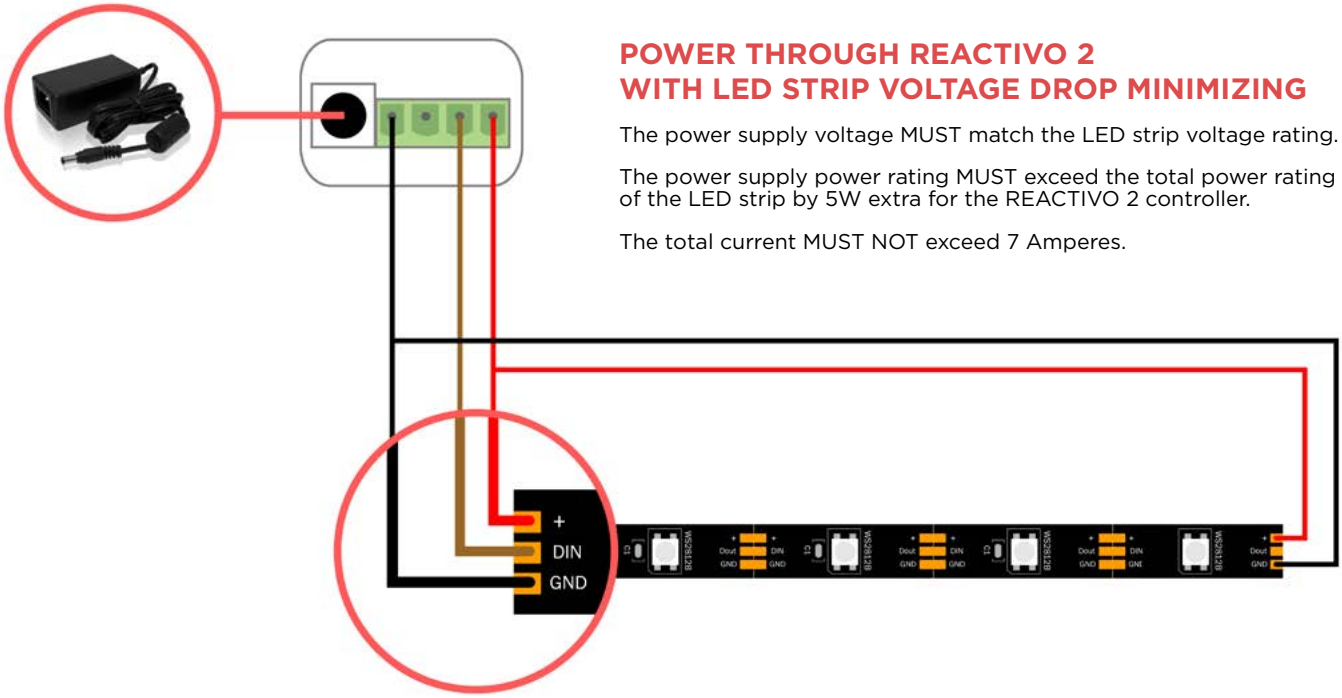


POWER THROUGH REACTIVO 2

The power supply voltage MUST match the LED strip voltage rating.

The power supply power rating MUST exceed the total power rating of the LED strip by 5W extra for the REACTIVO 2 controller.

The total current MUST NOT exceed 7 Amperes.



POWER THROUGH REACTIVO 2 WITH LED STRIP VOLTAGE DROP MINIMIZING

The power supply voltage MUST match the LED strip voltage rating.

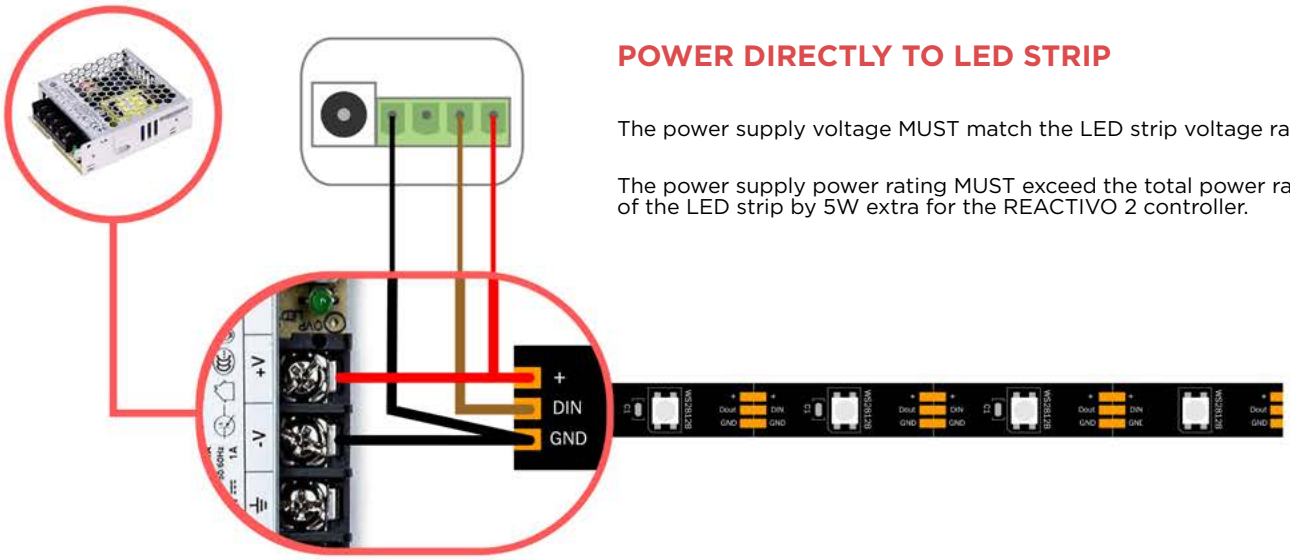
The power supply power rating MUST exceed the total power rating of the LED strip by 5W extra for the REACTIVO 2 controller.

The total current MUST NOT exceed 7 Amperes.

POWER DIRECTLY TO LED STRIP

The power supply voltage MUST match the LED strip voltage rating.

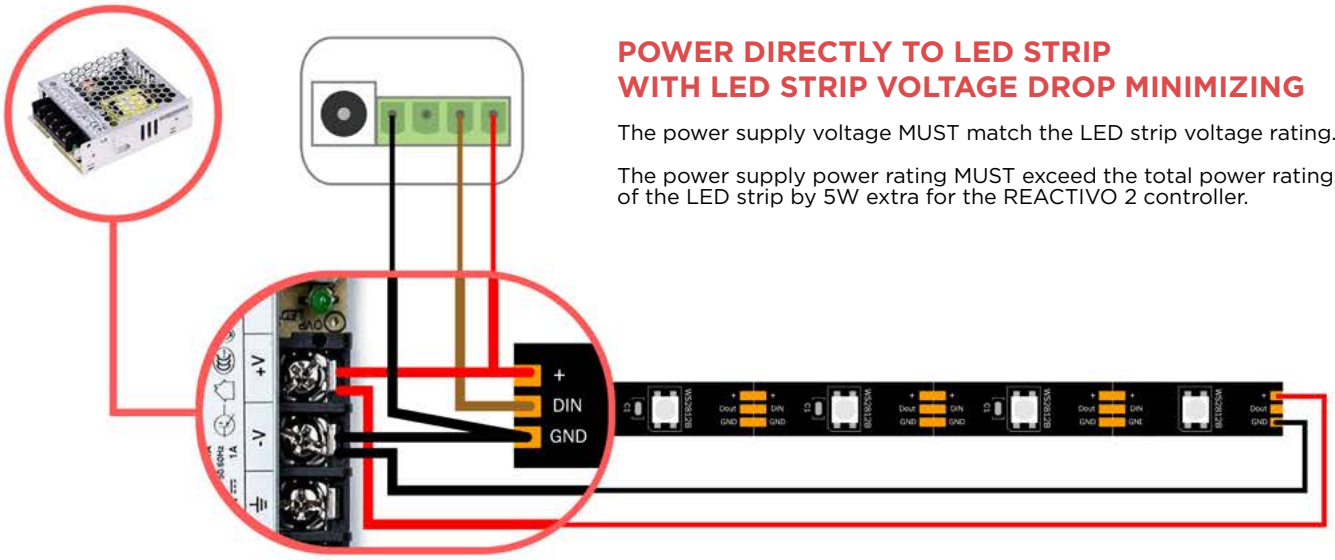
The power supply power rating MUST exceed the total power rating of the LED strip by 5W extra for the REACTIVO 2 controller.



POWER DIRECTLY TO LED STRIP WITH LED STRIP VOLTAGE DROP MINIMIZING

The power supply voltage MUST match the LED strip voltage rating.

The power supply power rating MUST exceed the total power rating of the LED strip by 5W extra for the REACTIVO 2 controller.

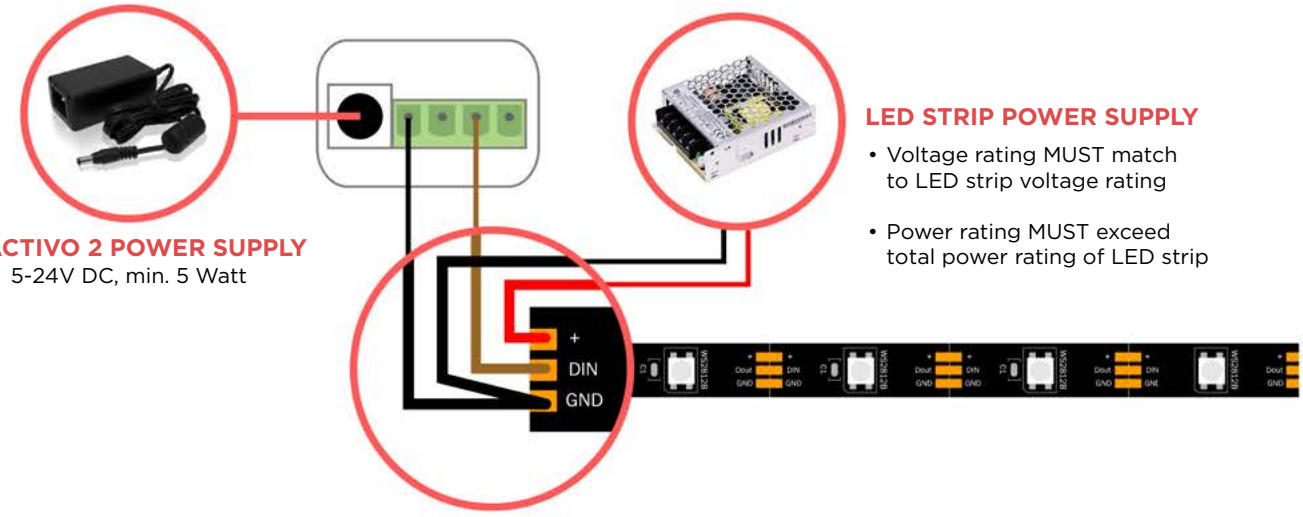


SEPARATE POWER SUPPLY FOR REACTIVO 2 AND LED STRIP

REACTIVO 2 POWER SUPPLY
5-24V DC, min. 5 Watt

LED STRIP POWER SUPPLY

- Voltage rating MUST match to LED strip voltage rating
- Power rating MUST exceed total power rating of LED strip



NEVER CONNECT 2 DIFFERENT POWER SOURCES SIMULTANEOUSLY TO REACTIVO 2 POWER INPUT & LED OUTPUT!

1. DEVICE USER INTERFACES & NETWORK CONDITIONS EXPLANATION

1.1 RESET/WPS PUSH BUTTON

- **Short press:** WPS procedure start/stop
- **Hold for 3-10 seconds:** Reset Wi-Fi credentials (blue LED blinks slowly)
- **Hold for more than 10 seconds:**
  Reset of all settings (blue LED starts to blink rapidly)
- **Hold for more than 15 seconds during power ON cycle:**
  Factory reset (back to original firmware)

1.2 STATUS LEDS

1.2.1. In Wi-Fi Access point (AP) mode

Green: ON
Blue: OFF

1.2.2. In Wi-Fi WPS pairing mode

Green: ON
Blue: blinks 2times per second

1.2.3. In Wi-Fi Client mode

Green: ON
Blue:

- ON = sucessfully connected to Wi-Fi AP
- blinks 2 times per second = connecting to Wi-Fi AP in progress
- blinks 10times per second = connecting to Wi-Fi AP unsuccessful (probably signal is lost, or wrong password is set)

1.2.4. During & after firmware upgrade from SD card

When firmware update is in progress:
Green: blinks
Blue: OFF

For short time after firmware update:
Green: OFF
Blue: ON

1.2.5. Slave mode (device is in active zone)

Green: blinks 10times per second

Blue: ON (Wi-Fi connected), OFF (wired network)

1.3 Wi-Fi

- REACTIVO 2 can operate as Wi-Fi Access point (AP mode) or Wi-Fi client (client mode)

- REACTIVO 2 is set to Wi-Fi AP mode by default

- in Wi-Fi AP mode
  - DHCP server is enabled, and its IP address is 192.168.4.1
  - when Wi-Fi credentials are set, device will be switched to Wi-Fi client mode
  - **IMPORTANT! Android devices requires connection confirmation to establish network connection to REACTIVO 2**
  - it is possible to connect another REACTIVO 2 device(s) as clients

- in Wi-Fi client mode
  - device is ALWAYS DHCP client

- Once active wired Ethernet connection is established (RJ45 cable connected to switch, router, PC...) Wi-Fi on REACTIVO 2 device is **automatically switched OFF**

1.4 WIRED ETHERNET CONNECTION (RJ45)

- Once active wired Ethernet connection is established (RJ45 cable connected to switch, router, PC...) Wi-Fi on REACTIVO 2 device is **automatically switched OFF**

- In wired Ethernet mode REACTIVO 2 device can be set as DHCP client, DHCP server (192.168.3.1), or static IP

2.CONTROL OPTIONS (LISTED FROM HIGHEST TO LOWEST PRIORITY)

2.1 TEST (HIGHEST PRIORITY)

- Device generate a predefined color or animation for functional testing of connected pixel LEDs

- Always generate maximum possible pixel count signal for selected IC type

2.2 "ETHERNET" = LED STRIP STUDIO PROTOCOL (FROM LED STRIP STUDIO 3 SOFTWARE AKA LSS)

- Device generate signal for pixel LEDs from LSS, which allows live controlled pixels on multiple devices from PC.

- **IMPORTANT! This feature requires activation - request at info@ledstripstudio.com**

2.3 NETWORK SYNCHRONIZATION

- Mode when device is controlled/synchronized by another master device and it is used for smooth synchronization of multiple devices on same network and zone setting.
  Note: Multiple zones (up to 255) may coexist on single network

- In order to use this mode, each Zone has to have one "Master" device

- In order to use this mode, device has to be set to "Slave" in Player synchronization setting

- In this mode device play same animation as master of same zone, with synchronized time stamp. So if brightness/contrast or speed of animation is changed on master, slave also apply same setting

- **IMPORTANT! Synchronization accuracy is network dependent. Network should be collision free, fast speed and low latency in order to achieve perfect results.**

2.4 ART-NET™

2.4.1. Art-Net™ Pixel mode

Incoming Art-Net™ data are sent to pixel LEDs on device LED output based on settings.

2.4.2. Art-Net™ SD card mode

Incoming Art-Net™ data are used to trigger desired animation file from SD card and effect parameters like speed, brightness and recolor.

Channel list from starting address is following:

1. **Brightness**
2. **Animation index from SD-card**
3. **Speed of animation (0-stop, 128=100%, 255=300%)**
4. **Recolor animation to Red**
5. **Recolor animation to Green**
6. **Recolor animation to Blue**
7. **Recolor animation to White (this channel is received also in case when RGBW IC type is not selected)**

- Red, Green, Blue and White recolor channels are used to set the color (it is not the intensity of color channels). Every color can be changed to value defined by recolor channel values (the brightness is transferred from the original color). In case all 4 recolor channels are set to 0, colors defined on SD card file are used = original colors from animation file without change.

- Can be used also as a "Zone" control if device has set "Player synchronization mode" to "Master"

2.5 AUTOPLAY (LOWEST PRIORITY)

- Mode in which device play animation file(s) from SD card or static color

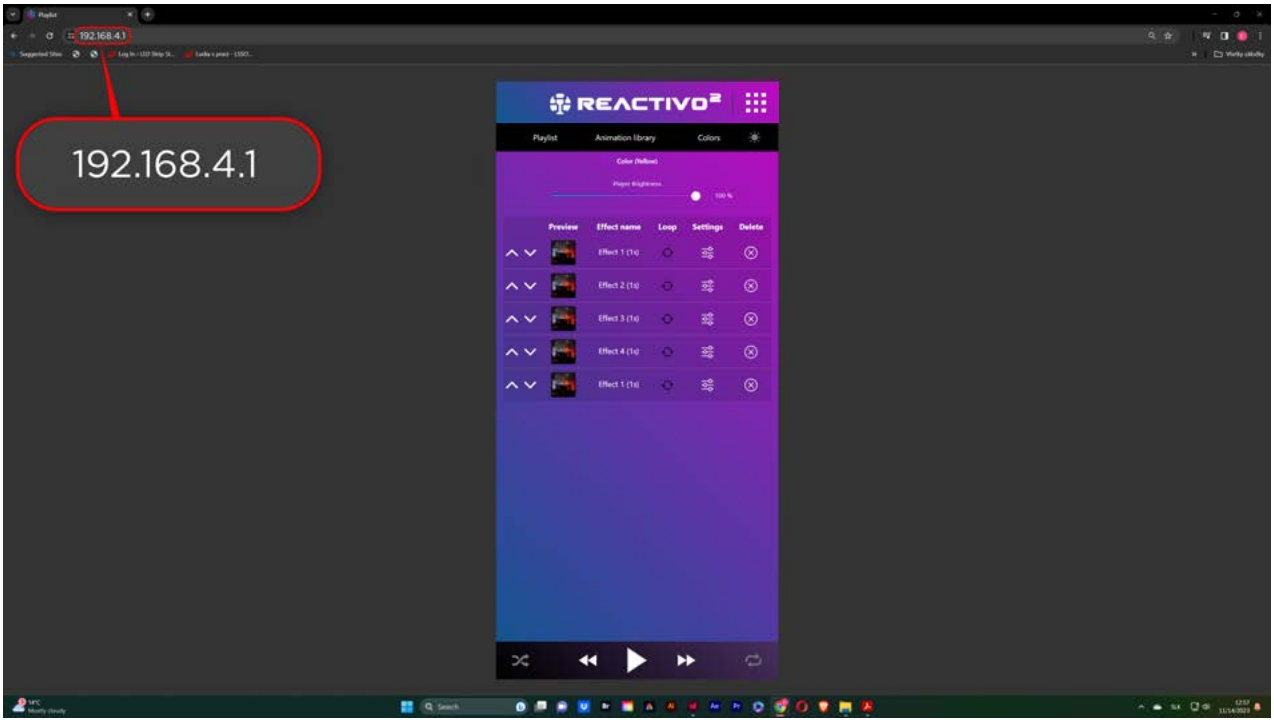
- Following options exist:
  - **Playlist (user programable sequence of animations including looping, shuffle and few user settings)**
  - **Animation library (single animation file)**
  - **Colors (static color from color list)**

- Control can be done by:
  - **Web interface**
  - **HTTP commands**
  - **external trigger sources (like push buttons, switches, sensors...)**
  - **Android/IOS mobile application**
  - **Autoplay control options has equivalent priority and latest takes precedence, so for example animation triggered by web interface can be changed by HTTP command and vice versa**
  - **Can be used also as a "Zone" control if device has set "Player synchronization mode" to "Master"**

3. WEB INTERFACE

3.1 HOW TO OPEN WEB INTERFACE

- Use PC or mobile/tablet connected to same local network as REACTIVO 2. Run web browser (e.g. Chrome) and type in a device address in navigation bar. For example http://192.168.4.1



If you don't know device IP address, use our Android or IOS application which is able to search all devices on same local network. IP address can be also searched by LSS 3 Software and many Art-Net™ software or consoles.

3.2 PAGE “PLAYER”

- Is used to control Autoplay mode and it is divided into sub-pages (Playlist, Animation library, Colors)

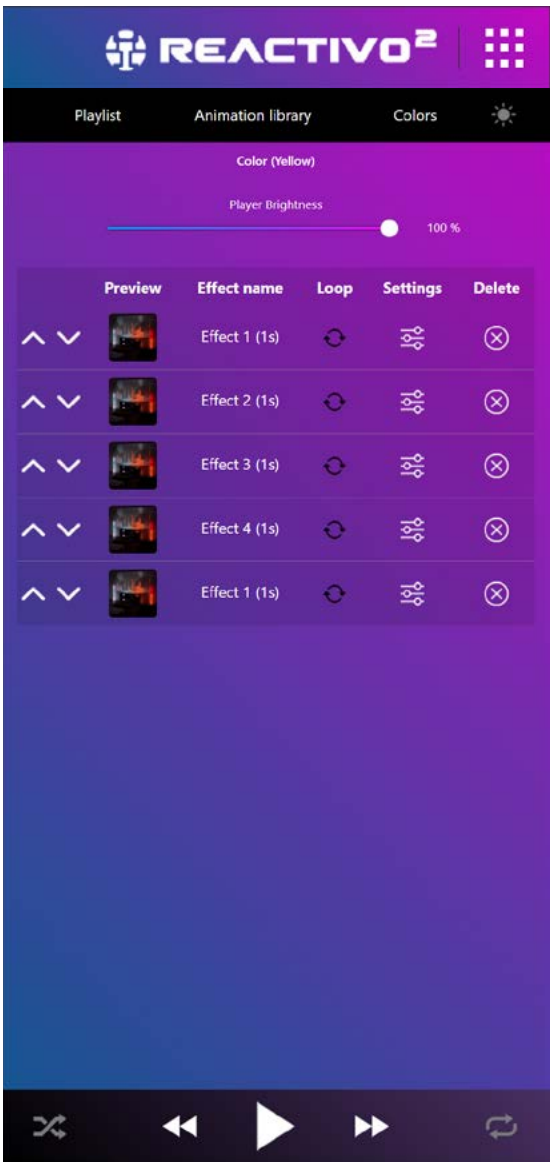
- Can be used ONLY in Autoplay (lowest priority) mode.

- Operations performed are automatically saved to SD card if inserted. When the SD card is not inserted, all changes will disappear.

- During device power-on sequence last state is loaded from SD card and applied. Few exceptions exist on last state loading:
  - If playlist was used, it will start always from beginning
  - If playlist was used and paused, pause will be ignored and playlist will start always from beginning
  - If “Default file” is set in device settings, then default file defined will be started after device power on

- Sub-page contains:
  - **“output enable” button for autoplay which force blackout on device pixel LED output (animation still play in background)**
  - **“output enable” can be also set by external trigger, setting page, or Android/IOS mobile application**
  - **real time preview of pixel LED output content (this require MAPPING.ls2 file on SD card)**
  - **real time preview of pixel LED output content is refreshed about 5-times per second**
  - **Active device operation mode incl details (actually played file, or IP address of content source)**
  - **Actual brightness setting (this brightness is independent of “HW brightness” set in device settings)**

3.2.1. Player Sub-page “Playlist”

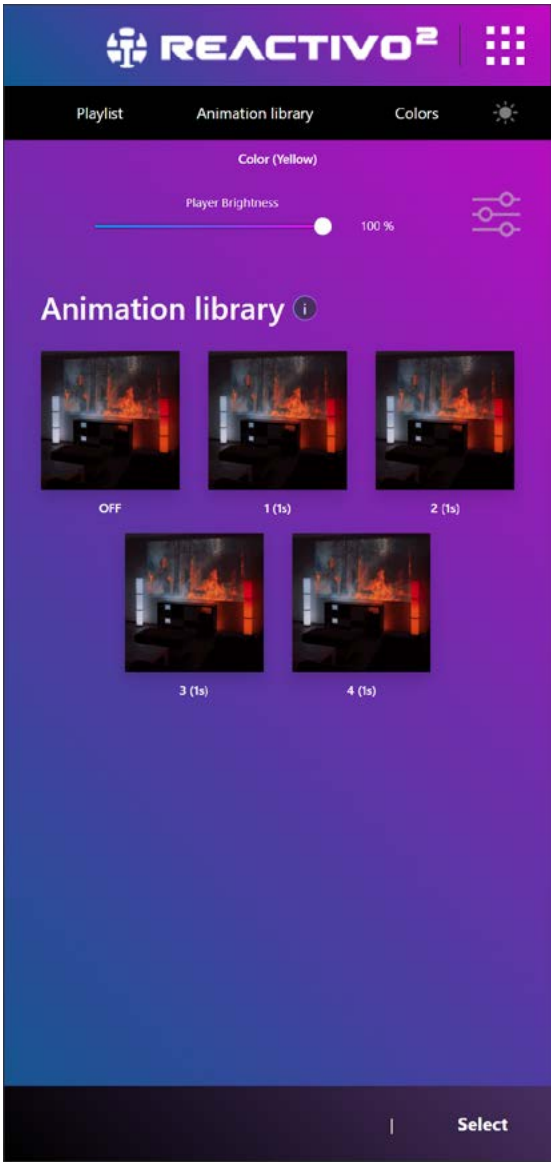


Playlist Sub-page

- Is used to create a short Playlist (from animation files on SD card)
- Playlist is fully user programmable/ manageable.
- In order to add files to Playlist use Select button on the bottom of sub-page “Animation library”
- Playlist can be used “once” or “loop” or “shuffle” or even with infinite loop on desired animation
- With shuffle enabled, but loop disabled, Playlist will stop once last animation from Playlist is executed
- User can add same animation multiple times
- Each Playlist entry contain also following settings:
  - **animation “LOOP”**
    can be set on single animation entry in Playlist
  - **individual settings (speed, contrast)**
    applied for all identical animations simultaneously.
    These settings are shared with the “Animation library”.

3.2.2. Player Sub-page “Animation library”

- Display all available .ln2 files based on their index on SD card and their duration in seconds
- Is used for fast trigger of animation from SD card
- Has “individual setting” for selected animation (contrast, speed)
- Bottom part of this sub-page has Select button which is used to copy animations to sub-page “Playlist”



Animation Library Sub-page

3.2.3. Player Sub-page “Colors”

- Display list of few basic static color presets
- Is used to quick run static color to device pixel LED output
- Static color is sent to ALL pixels on device pixel LED output
- Has setting to adjust brightness
- This mode is automatically selected in Autoplay mode if SD card is not inserted

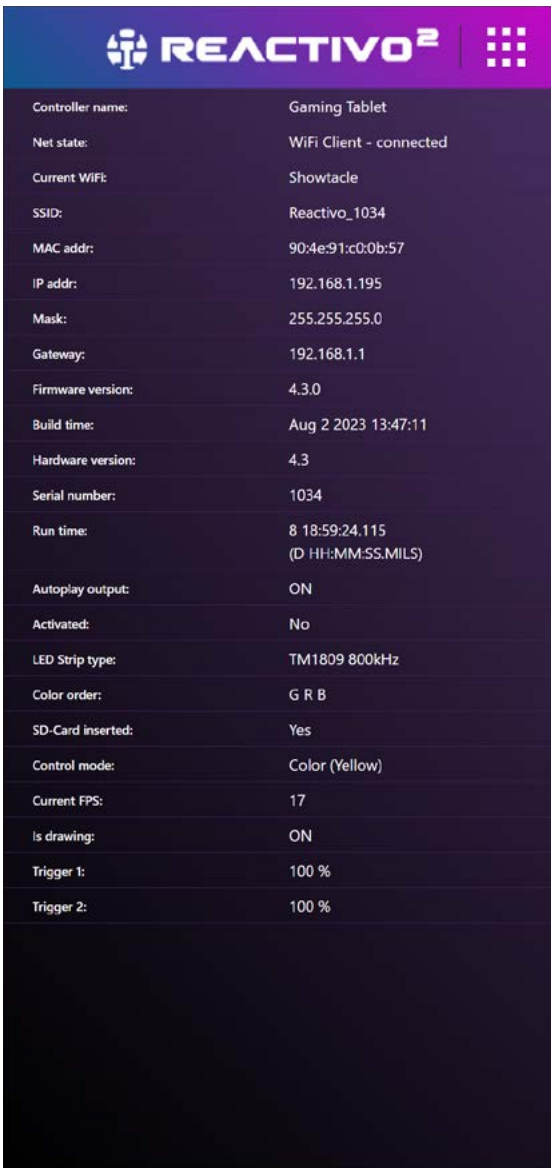
Colors Sub-page

R	G	B	W	Name
0	0	0	0	Black
255 (0)	255 (0)	255 (0)	0 (255)	12% White*
255 (0)	255 (0)	255 (0)	0 (255)	24% White*
255 (0)	255 (0)	255 (0)	0 (255)	37% White*
255 (0)	255 (0)	255 (0)	0 (255)	50% White*
255 (0)	255 (0)	255 (0)	0 (255)	62% White*
255 (0)	255 (0)	255 (0)	0 (255)	75% White*
255 (0)	255 (0)	255 (0)	0 (255)	87% White*
255 (0)	255 (0)	255 (0)	0 (255)	100% White*
255	0	0	0	Red
255	165	0	0	Orange
255	191	0	0	Amber
255	255	0	0	Yellow
127	255	0	0	Chartreuse
0	255	0	0	Green
0	255	63	0	Malachite
0	255	159	0	Spring Green
0	255	255	0	Cyan
0	127	255	0	Azure
0	63	255	0	Blue Ribbon
0	0	255	0	Blue
127	0	255	0	Violet
223	0	255	0	Phlox
255	0	191	0	Purple
255	0	127	0	Rose

* based on IC setting RGB (RGBW)

3.3 PAGE “STATUS”

- Displays following device parameters:
  - Controller name
    The name or identifier of the controller device
  - Net state (variable)
    The current state of the network connection, indicating whether it is connected or disconnected
  - Wi-Fi is (variable, hidable)
    A variable indicating the status of the Wi-Fi connection, with the option to hide this information
  - Current Wi-Fi (variable, hidable)
    Information about the currently connected Wi-Fi network, with the option to hide this information
  - SSID
    The name of the Wi-Fi network
  - MAC addr
    A unique identifier assigned to the network interface for communications
  - IP addr
    The current IP address assigned to the device on the network



Status Page

  - Mask
    The subnet mask used to divide an IP address into network and host portions
  - Gateway
    The IP address of the network gateway through which the device accesses other networks
  - Firmware version
    The version of the firmware software running on the controller
  - Build time
    The timestamp indicating when the firmware was compiled or built
  - Hardware version
    The version or model of the physical hardware of the controller
  - Serial number
    The unique identifier assigned to the controller device

- Run time
  The duration for which the controller has been continuously running since the last reset
- Autoplay output (variable)
  A variable indicating whether the device is set to automatically play output
- Activated (variable)
  A variable indicating whether the controller is activated to comunicate with LED Strip Studio 3 Software
- LED Strip type (variable)
  The type of the LED strip connected to the controller
- Color order (variable)
  The order in which color information is arranged for the LED strip (e.g., RGB, GRB)
- SD-Card inserted (variable)
  A variable indicating whether an SD card is currently inserted into the controller
- Control mode (variable)
  The current mode of control for the device
- Current FPS (variable)
  The current frames per second (FPS) setting for the device
- Is drawing (variable)
  A variable indicating whether the device is currently in a drawing or active state
- Trigger 1 (variable)
  Value of the first trigger input, with a note that the value represents the actual analog input on Trigger 1
- Trigger 2 (variable)
  Value of the second trigger input, with a note that the value represents the actual analog input on Trigger 2

- parameters marked as “variable” are automatically refreshed when web page is opened

- parameters marked as “hidable” are not always shown

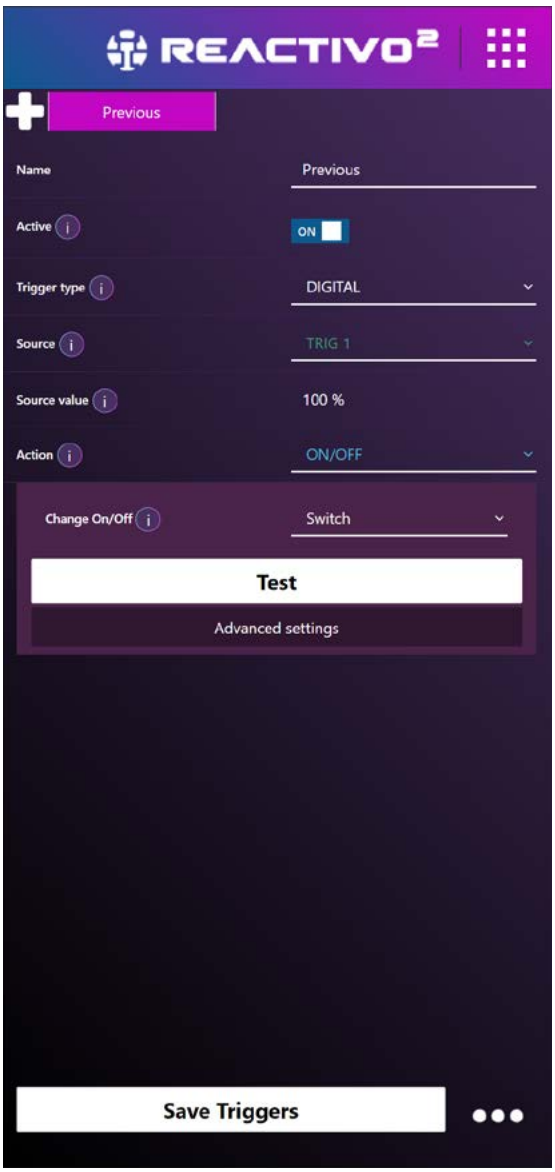
3.4 PAGE “TRIGGERS”

- Allows user to add, remove, configure and reset trigger options

- Allows user to set up various (and multiple) events based on external trigger input events

- Each event is defined by following settings:
  - **Source**
    defines trigger input using which event should be executed
  - **Trigger type**
    defines a method of processing value gotten from a source
  - **Action**
    defines what event to be executed once a valid trigger occurs

- Each trigger entry has:
  - Name (up to 32 characters)
    A user-defined name for a particular trigger setting, limited to a maximum of 32 characters
  - Active
    Enbables selected Trigger
  - Trigger type
    Type of the Trigger (Digital, Analog, On Press, ...)
  - Source
    Select Trigger for Event
  - Source value
    Shows to user actual reading of corresponding Trigger input in % or absolute value (displaying % or absolute value is based on device setting)
  - Action
    Select type of Action for your Trigger
  - Standard settings



Triggers Page

- Advanced settings (only shown if desired)
  are separated from standard setting by a tab and are also color separated with following meaning:
  - **dark purple:** Trigger type
  - **green:** Source
  - **blue:** Action

  Default triggers are set to:

  Source: TRIG 1, Trigger type: press,
  Action: ANIMATION NEXT/PREV (NEXT)
  - connecting trigger1 input to GND will play next animation in library

  Source: TRIG 2, Trigger type: analog,
  Action: BRIGHTNESS
  - connecting trigger2 input to voltage 0-3.3V (for example by potentiometer) in respect to GND will adjust pixel LED output brightness 0-100%

3.4.1. Trigger Source

- Defines trigger input using which event should be executed (trigger input 1 or 2)
- One trigger source can be used for multiple events
- Setting options are independent from *Trigger type* and *Action*
- Setting options:
  - **TRIG 1 – represent physical Trigger1 pin on device trigger connector**
  - **TRIG 2 – represent physical Trigger2 pin on device trigger connector**

When using one trigger input for multiple events, conflicts may occur!
User has to pay attention to NOT set contradictory events.

- Standard settings:
  - nothing to set

- Advanced settings options are dependent on *Trigger type*, but independent on *Action*

- Advanced settings are:
  - **INVERT**
    Used to invert incoming value. So value used = 255 – incoming value.

  - **PRESS**
    - **Press Delay [ms]**
      Time window between pressing button multiple times.

  - **DIGITAL**
    - **Minimal active time [ms]**
      Minimal duration of the trigger pulse to activate the trigger. Prevents accidental signal interruption (noise).

3.4.2. Trigger type

- Defines a method of processing value received from a source

- Setting options are independent from *Source* and *Action* settings

- Setting options are:

  - **DIGITAL**
    Incoming values 0-127 are processed as “true” other values as “false”

  - **ANALOG**
    Incoming values 0-255 are used “as they are”
    [0-255 or 0-100% respectively]

  - **PRESS**
    Similar to “DIGITAL” but counts toggles from state False to state True. (useful for defining events on let’s say 3 button presses)

- Trigger type settings options are independent on Source settings, but dependent on Action settings

- Standard settings:
  - nothing to set

- Advanced settings:

  - **DIGITAL**
    - **Delay [ms]**
      Defines an event *Action* execution postponed in milliseconds

- **Duration [ms]**
  Defines how long (in milliseconds) an event *Action* is performed

- **ANALOG**
  - **Smooth (feature which provides input signal filtering)**
    when enabled, value used is average of last 16 measurements

  - **values dependent on Action:**

BRIGHTNESS/SPEED

- Min Trigger [0-255 or 0-100% respectively]
  - Sets minimum threshold value on which Action reacts
  - Together with “Max Trigger” defines an sensitivity range, in which incoming trigger value is calculated by interpolation to value used, based on “Min Value” a “Max Value” setting.
  - Values lower than “Min Trigger” will be used as “Min Value”
- Max Trigger [0-255 or 0-100% respectively]
  - Sets maximum threshold value on which Action is performed
  - Together with “Min Trigger” defines sensitivity range, in which incoming trigger value is calculated by interpolation to value used, based on “Min Value” a “Max Value” setting.
  - Values higher than “Max Trigger” will be used as “Max Value”
- Set current value as Min
  - Will set current value as “Min Trigger”
- Set current value as Max
  - Will set current value as “Max Trigger”
- Min Value [0-255 or 0-100% respectively]
  - Together with “Max Value” defines threshold levels of used value, which will be calculated by interpolation from range defined by “Min Trigger” and “Max Trigger”

- Max Value [0-255 or 0-100% respectively]
  - Together with “Min Value” defines an threshold levels of used value, which will be calculated by interpolation from range defined by “Min Trigger” and “Max Trigger”

- **ON/OFF**
  Hysteresis - Range of a safe interval when both the bottom and top thresholds are triggered. This is particularly useful when the input signal is not stable.

- **PRESS**
  - **Delay [ms]**
    Defines an event *Action* execution postponed in milliseconds

  - **Duration [ms]**
    Defines how long (in milliseconds) an event *Action* is performed

  - **Press count [1-65535]**
    Defines after how many PRESSES required event is executed if same *Source* and *Action* has been set.

3.5 TRIGGER ACTION

- Declare what event to execute when valid *Source* occur

- Multiple events with same *Action* settings can exist

- Settings options are dependent on *Trigger type*, but independent on *Source*

- Settings options:
  - **DIGITAL, PRESS**
    - **BRIGHTNESS**
      will set brightness to desired value

    - **BRIGHTNESS UP/DOWN**
      will change brightness by defined step value

    - **ANIMATION**
      will change actual animation/color to desired animation/color

    - **ANIMATION NEXT/PREV**
      will change actual animation/color to next or previous in order

- **SPEED**
  will set speed to desired value

- **SPEED UP/DOWN**
  will change speed by defined step value
- **ON/OFF**
  will disable/enable output blackout for Autoplay

- **ANALOG**
  - **BRIGHTNESS**
    will set brightness to trigger input value
  - **SPEED**
    will set speed to trigger input value
  - **ON/OFF**
    will disable/enable output blackout for Autoplay

- Standard settings:
  - **DIGITAL, PRESS** has option to:

    - **BRIGHTNESS**
      - Brightness [0-255 or 0-100% respectively]
        will set user defined value

      - Test
        it will cause to force *Action* with desired value
        (used to test the trigger and action)

    - **BRIGHTNESS UP/DOWN**
      - Change Behavior
        this setting is to define a various behavior on change
        - options are:
          - **Increase:** causes to increase value up to max
          - **Decrease:** causes to decrease value up to min
          - **Switch:** causes to increase up to max or decrease value up to min, and will change its direction when it hits its max or min. (ping pong effect)
    - **ANIMATION**
      - Player mode
        defines if animation will be used from *Animation library* or from *Colors*

- Main animation
  - is shown only when “Player mode” is set to *Animation*
  - shows only file indexes which exist on SD card
  - it is used to select animation to play

- Select Color
  - is shown only when “Player mode” is set to *Colors*
  - it is used to select color to use

- **ANIMATION NEXT/PREV**
  - Player mode
    defines what to send to pixel LED output.
    File from *Animation library* or static color from *Colors*

  - Following Animation
    defines if next or previous animation to use.
    Relatively to actually used.

- **SPEED**
  - Speed [0-255 or 0-100% respectively]
    – set a value to use

- **SPEED UP/DOWN**
  - Change Behavior
    this setting is to define a various behavior on change
    - options are:
      - **Increase:** causes to increase value up to max
      - **Decrease:** causes to decrease value up to min
      - **Switch:** causes to increase up to max or decrease value up to min, and will change its direction when it hits its max or min. (ping pong effect)

- **ON/OFF**
  - Change On/Off
    this setting is to define a behavior on change
    - options are:
      - **On**
      - **Off**
      - **Switch:** Causes to toggle actual state to opposite state

- **ANALOG**

  For each option Source value will be used as desired value (modified based on *Trigger type* settings)

  - **BRIGHTNESS**
    - nothing to set

  - **SPEED**
    - nothing to set

  - **ON/OFF**
    - nothing to set

- Advanced settings:

  - **DIGITAL, PRESS**
    - **BRIGHTNESS**
      - nothing to set

    - **BRIGHTNESS UP/DOWN**
      - **Min** - lowest possible value for parameter
      - **Max** - highest possible value for parameter
      - **Step** - value step size for parameter

    - **ANIMATION (Animation library)**
      - Start Animation

      - animation to play prior to desired animation (like intro animation)

      - duration is counted only for main animation (without intro or outro animation)

      - End Animation

      - animation to play after desired animation (like outro animation)

      - Any next animation will be started only after end of “End Animation”

      - Repeat count [0-1024]

      - define how many times a main animation will be played

      - in case this parameter is set, parameter “Duration” from trigger type is ignored (not used, not shown)

      - Main Animation play till end

      - this will force animation to be played till the end of animation without interruption by another trigger

- **ANIMATION (Color)**
  - nothing to set

- **ANIMATION NEXT/PREV**
  - nothing to set

- **SPEED**
  - nothing to set

- **SPEED UP/DOWN**
  - **Min** - lowest possible value for parameter
  - **Max** - highest possible value for parameter
  - **Step** - value step size for parameter

- **ON/OFF**
  - nothing to set

- **ANALOG**
  - **BRIGHTNESS**
    - nothing to set

  - **SPEED**
    - nothing to set

  - **ON/OFF**
    - Threshold bottom [0-255 or 0-100% respectively]
      Together with “Threshold top” defines range, in which output blackout for Autoplay will disabled/enabled

    - Threshold top [0-255 or 0-100% respectively]
      Together with “Threshold bottom” defines range, in which output blackout for Autoplay will disabled/enabled

    - Set current value as TH bottom
      Will set current value as “Threshold bottom”

    - Set current value as TH top
      Will set current value as “Threshold top”

3.6 SETTINGS

- Used to set all REACTIVO 2 settings
- Any change any change will be applied immediately (except network setting change)
- **Changes MUST be saved by user**
- All “save” buttons save all settings
- An Android/iOS app can be also used to change Settings
- Available settings are:
    - **General**
        - Controller name

- User can change the name of the device in Android/IOS mobile application
- Can be up to 18 characters long
- By default controller name consist of Controller type and its serial number (example.: Reactivo 2_1234)

Settings Page

- LED Strip type

- Defines pixel LED output data format/protocol for supported IC chips
- List of supported ICs can be found here
- Default setting is: TM1804 800kHz (same as most common WS2811, WS2812B, SK6812 etc...)

- Color order

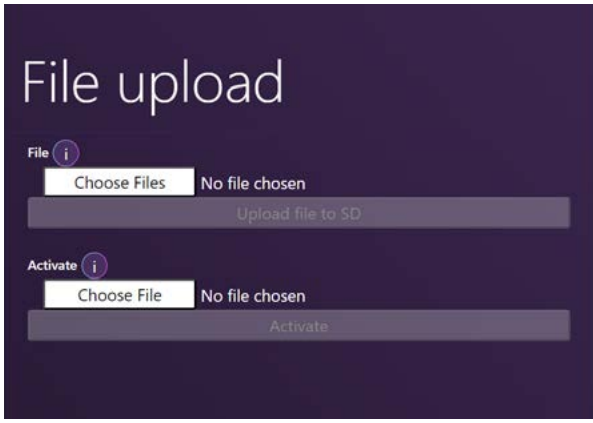
- Defines color order on pixel LED output
- Can be set to any combination of RGB. Like RBG, GRB etc...
- If RGBW strip type is used, then W is always sent as last
- Default value is: GRB

- Color testing

- Will generate simple test patterns to pixel LED output, with maximum pixel count for currently selected IC
- Test patterns which contain W channel (RGBW) are deactivated when non-RGBW strip type is selected

- Test patterns are:
  - **solid: R, G, B, W, all**
  - **dimming: R, G, B, W, all**
  - **and snake test patterns**

- **File upload**



File Upload and Activate Section

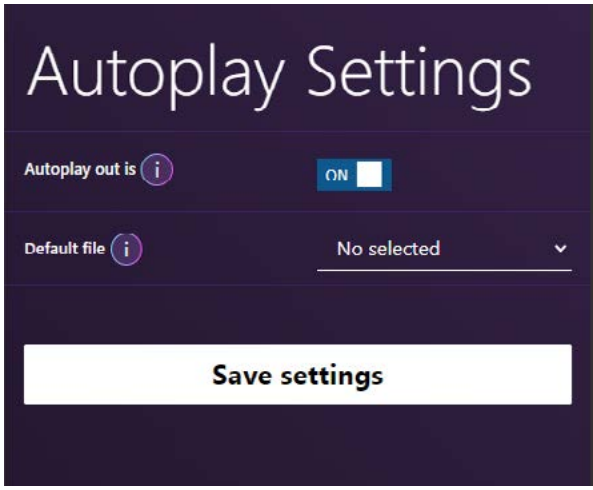
  - File

- to use this feature, SD card must be inserted
- transfer of multiple files at one time is possible
- default filter is set to LN2 files, but with filter disabled, user may upload to SD card any file/files. (Example: Firmware file)
- files with same name are automatically overwritten
- during the transfer, a tmp.bin file is created and then automatically renamed, making it possible to replace the playing file without stopping.

  - Activate

- used to load special activation file (sold on request), which enables to use device with LED Strip Studio 3 software
- SD card not required for the activation
- **Once the device is activated, the 'Activate' feature is not visible anymore**

- **Autoplay settings**



Autoplay Settings Section

  - Autoplay out

- enables user to enable/disable pixel LED output in Autoplay mode (also known as blackout)
- this item is shared with the blackout from the Autoplay page, it is saved to the card, and it is not necessary to press the save button
- Default value is: ON

- Default file

- defines which file from Animation library play after device power on when no file is chosen, device will play last Autoplay state is used (SD card must be inserted)

- Default value is: No selected

o **Art-Net™ settings**

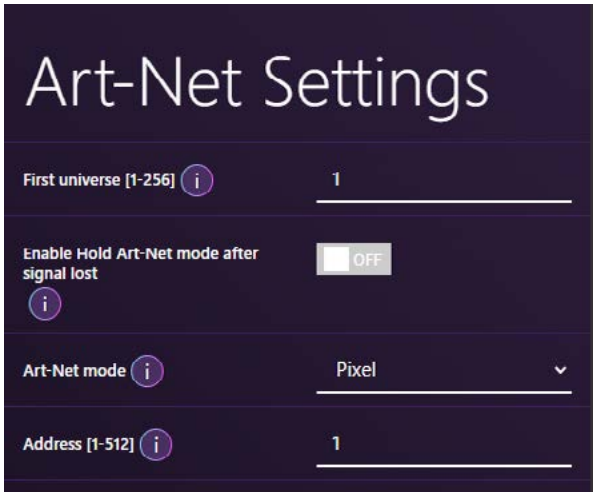
- used to set parameters for Art-Net™ communication

- following options are always visible:

- First universe [1-256]

- defines first Art-Net™ universe to be received by device

- default value is: 1



Art-Net Settings Section

- Enable Hold Art-Net™ mode after signal lost

- when enabled, device will stay Art-Net™ mode even after Art-Net™ signal is lost

- lower priority modes are then disabled

- in Pixel mode, last frame received is freezed on pixel LED output

- in SD card mode, last animation selected by Art-Net™ keeps playing on pixel LED output

- default value is: OFF

- Art-Net™ mode:

SD card

Incoming Art-Net™ signal is used to select file to play from SD card, and control various aspects of animations such as Speed, Brightness and more

Pixel

Incoming Art-Net™ signal is translated to pixel LED output as RGB/ RGBW data based on selected parameters

- default setting is: Pixel

- Address [1-512]

define what address to use from device First universe

default value is: 1

o **SD card mode section**

this section is shown only when “Art-Net™ mode” is set to SD card

- Animation step size [1-255]

- determine “width” value of animation control channel.

- used for easier operation with physical sliders on Art-Net™ console.

- Animation index played equals to value received divided by Animation step size

- default value is: 1

- Use Art-Net™ animation delay

- used to stabilize short glitches on animation control channel

- changes on animation control channel shorter than defined time will be ignored if this feature is ON

default value is: OFF

- Art-Net™ animation delay time [ms] [100-65535]

- determine for how long value received need to be stable to take place

- this setting is shown only when “Art-Net™ animation delay time” is ON

- default value is: 250

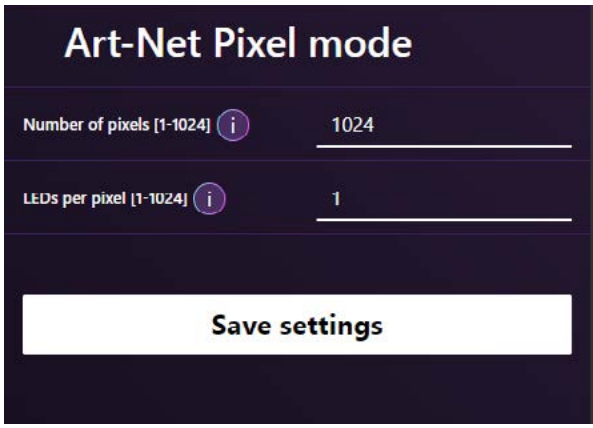
o **Pixel Mode section**

this section is shown only when “Art-Net™ mode” is set to Pixel

- Number of pixels [1-1024]

- define how many pixels from incoming Art-Net™ stream to process by REACTIVO 2 device

- 1 pixel are 3 channels when RGB strip type is used or 4 channels when RGBW strip type is used



Art-Net Pixel mode Settings Section

- Number of pixels * LEDs per pixel is limited by current LED strip type (IC) used

- default value is: 1024

- LEDs per pixel [1-1024]

- defines how many pixels on REACTIVO 2 pixel LED output will act as 1 pixel of incoming data

- Number of pixels * LEDs per pixel is limited by current led strip type (IC) used

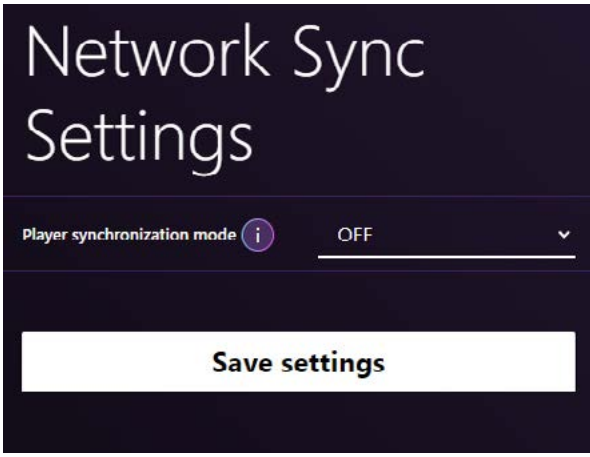
- default value is: 1

- **Network Sync Settings**

- feature which enables you to synchronize multiple devices by using zone

- synchronization is used to eliminate little time offsets of multiple devices which should play same content (or synchronized split content)

- following entries are always shown:



Network Sync Settings Section

- Player synchronization mode

OFF

- REACTIVO 2 zone synchronization is disabled

- this is default value

MASTER

- Zone mode in which device send its current Player settings to network independently on source of start signal (Autoplay, Art-Net™ – SD card)

- In Master zone setting device has not limited usability

- Synchronization signal is broadcast-ed to network to all devices on same local area network

SLAVE

- Zone mode in which device is listening to Synchronization signal on its local area network and its behavior is based on signal from master

- Synchronization signal is processed based on Synchronization parameters

- In Slave zone setting device has limited usability

- **Master settings section**
  - Zone name

- User adjustable zone name which is used for easy user zone identification in Android/IOS mobile application

- Can be up to 18 characters

- default value is: Zone #ID (Zone 1)

  - Player synchronization zone [1-256]

- ID of synchronization zone

- Multiple masters with same player synchronization zone setting on single local area network will cause unexpected behavior and collisions!

- default value is: 1

- **Slave settings section**
  - Player synchronization zone [1-256]

- defines what zone ID to receive

- Slave devices with same ID as master ID receives synchronization signal from Master device within local area network

- any Master signal with different ID is ignored

- once valid synchronization signal is received, device can be controlled ONLY by master, thus is not possible to control directly

- default value is: 1

  - Apply master settings

- when set to ON, all parameters from Master device are used

- when set to OFF, only animation type. timecode and animation index to play from master is used. This means you can change Speed, Brightness and Contrast independently. Please note that changing the speed might de-synchronize the animation

- default value is: ON

- Turn off after master signal lost

- determine if device will be set to standard mode once synchronization signal is lost or not

- when set to OFF, current animation triggered by master continues but is no more synchronized

- when set to ON, device will exit synchronization mode after time specified (by synchronization keep alive duration) elapses and then it is possible to control device normally/manually till synchronization signal is not present

- default value is: OFF

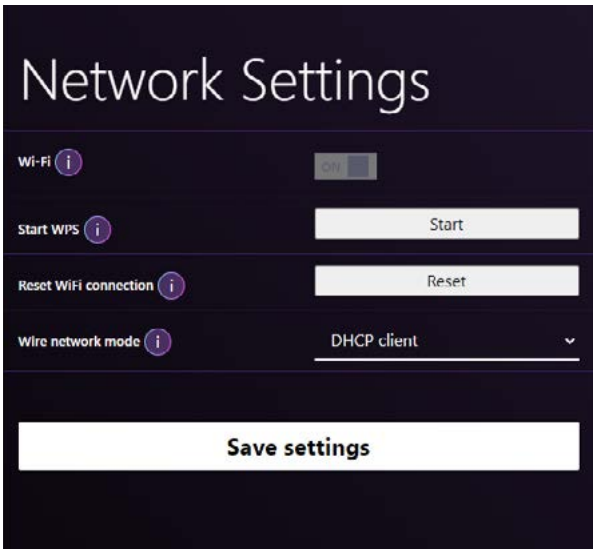
- Synchronization keep alive duration [s] [1-255]

- shown only when "Turn off after master signal lost" is set to "ON"

- specifies time to exit synchronization mode after synchronization signal is lost

o Network Settings

All changes in network settings are applied ONLY after changes are saved and device is restarted !



Network Settings Section

- AP mode

- IP address of device is 192.168.4.1

- Wi-Fi
  - is not possible to turn OFF if in use
  - use password for AP
  - user can setup password for AP
  - default value is: OFF

- Wi-Fi AP password
  - is shown only when Use password for AP is ON
  - password length must be 8 to 64 characters

- Start WPS
  - will set device to WPS connection mode (read your Wi-Fi router user manual on how to use WPS). After successful WPS connection, device will be switched to Wi-Fi client mode

- Reset Wi-Fi connection
  - performs all Wi-Fi related settings reset to default

- Show SSID
  - determine if SSID of REACTIVO 2 is shown or hidden
  - default value is: ON

- Wire network mode
  - determine wired network behavior/settings

  Options are:

  - DHCP client
    - REACTIVO 2 will obtain its IP address, sub-net mask and gateway address from DHCP server

  - DHCP SERVER
    - enables DHCP server on REACTIVO 2 wired network
    - **It is important that on physical network only ONE DHCP server exist! Otherwise network issues may occur**
    - IP address of REACTIVO 2 device is 192.168.3.1 and cannot be changed while its DHCP server is enabled

  - STATIC IP
    - enables user to set any IP address, sub-net mask and gate way address to device wired network adapter
    - possibility to load all current settings exist (let's say to set IP settings obtained from DHCP server to static IP)
    - **device sub-net mask has to be correctly set! Typically same as all other devices on same local area network**
    - **device IP address has to be correctly set! Typically with respect to sub-net mask setting**
    - **device IP address has to be different from all other devices on same local area network !!!**

- Client mode

- Wi-Fi
  - is not possible to turn OFF if in use

- Start WPS
  - will set device to WPS connection mode

  (read your Wi-Fi router user manual on how to use WPS)

RESET WI-FI CONNECTION

- performs all Wi-Fi related settings reset to default

- Wire network mode

- determine wired network behavior/settings
- options are:

  - DHCP client
    - REACTIVO 2 will obtain its IP address, sub-net mask and gateway address from DHCP server

  - DHCP server
    - enables DHCP server on REACTIVO 2 wired network
    - **It is important that on physical network only ONE DHCP server exist! Otherwise network issues may occur**
    - IP address of REACTIVO 2 device is 192.168.3.1 and cannot be changed while its DHCP server is enabled

  - Static IP
    - enables user to set any IP address, sub-net mask and gateway address to device wired network adapter
    - possibility to load all current settings exist (let's say to set IP settings obtained from DHCP server to static IP)
    - **device sub-net mask has to be correctly set! Typically same as all other devices on same local area network**
    - **device IP address has to be correctly set! Typically with respect to sub-net mask setting**
    - **device IP address has to be different from all other devices on same local area network !!!**

- Wire connected

- Wi-Fi
  - determine if device Wi-Fi network adapter is enabled after wired network link is down
  - default value is: ON

- Start WPS
  - is shown only when "Wi-Fi" setting is set to "ON" and wired network is not connected
  - will set device to WPS connection mode (read your Wi-Fi router user manual on how to use WPS). After successful WPS connection, device will be switched to Wi-Fi client mode

- Reset Wi-Fi connection
  - is shown only when “Wi-Fi” setting is set to “ON”
  - performs all Wi-Fi related settings reset to default

- Wire network mode
  - determine wired network behavior/settings
    Options are:

  - DHCP client
    - REACTIVO 2 will obtain its IP address, sub-net mask and gateway address from DHCP server

  - DHCP server
    - enables DHCP server on REACTIVO 2 wired network
    - **It is important that on physical network only ONE DHCP server exist! Otherwise network issues may occur**
    - IP address of REACTIVO 2 device is 192.168.3.1 and cannot be changed while its DHCP server is enabled

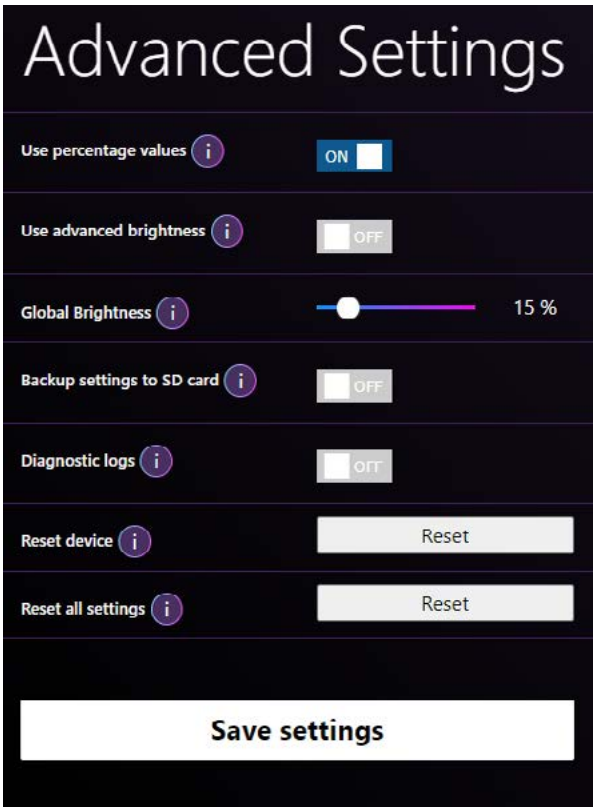
  - Static IP
    - enables user to set any IP address, sub-net mask and gate way address to device wired network adapter
    - possibility to load all current settings exist (let’s say to set IP settings obtained from DHCP server to static IP)
    - **device sub-net mask has to be correctly set! Typically same as all other devices on same local area network**
    - **device IP address has to be correctly set! Typically with respect to sub-net mask setting**

Device IP address has to be different from all other devices on same local area network !!!

- **Advanced settings**
  - Use percentage values
  - determine if some values will be in percentage or numeric values
  - default value is: ON

  - Use advanced brightness
  - used to enable/disable advanced brightness setting options:
    - OFF:

      Global Brightness
      sets Hardware and Software brightness together based on strip type (based on how any brightness steps currently selected strip type supports)



Advanced Settings section

      - **on some specific strip type IC settings strange behavior may occur. If this is the case, it is recommended to use "Advanced Settings = ON " where Hardware and Software brightness can be individually set**

    - ON:
      - Hardware and Software brightness can be individually set

      Hardware brightness
      - must be supported by currently selected strip type causes that usable software brightness steps are not lowered

      - the range (either in percentage or 0-255) is interpolated to a range according to the IC (which can be 0-4, 0-16... or none)

      - some strip type ICs has low count of Hardware (global) brightness steps and thus small changes on Hardware brightness may not be visible

      Software brightness
      - causes lowering usable brightness steps

      - is not dependent on strip type used

- Backup settings to SD card

- causes that all settings/changes are automatically stored on SD card
- backup is stored to file:
  REACTIVO 2: „R2_XXXX.bcp“, where xxxx is device serial number
- backup file is related to serial number and IS NOT usable on any other device
- **causes slightly longer time to save when user hits “save” buttons**

- Diagnostic logs

- enables to save diagnostic logs to SD card
- to use, SD card MUST be inserted
- **may cause device slowdown, including lagging on pixel LED output. It is highly recommended to use ONLY when diagnostic is needed**
- **may cause SD card wear out sooner**

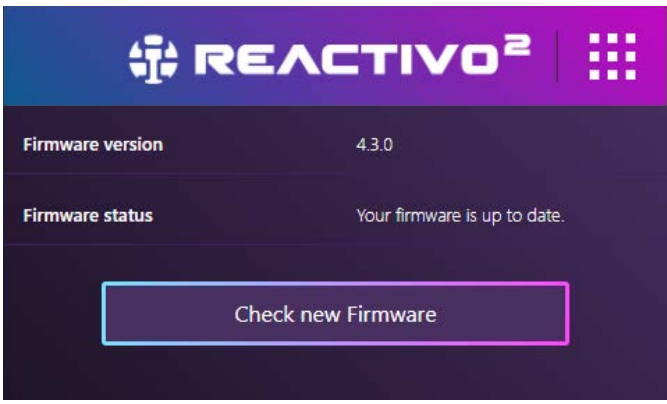
- Reset device

- will “turn OFF” and then “turn ON” device, similar to power cycle

- Reset all settings

- will delete all device settings including Autoplay settings

3.7 UPDATE



Update Page

- Firmware version
  - shows actual device firmware version
  - in case special firmware is loaded, it will be indicated in the description
- Firmware status
  - shows what firmware is actually available online and if update is possible
- Firmware change-log
  - will redirect user to web page with detailed firmware/device change-log
- Update FW button
  - use to automatic device firmware update
- Update status bar
  - shows progress of firmware update

3.8 SUPPORT

- will redirect user to web page with technical support of device https://reactivo.lighting/contact/

3.9 DIAGNOSTIC LOGS

- can be used to device diagnostic
- shows actual log from device SD card
- in order to use it, it is necessary to turn ON „Diagnostic logs" in Advanced settings and SD card MUST be inserted
- accessible by web browser on local network at IP/logs.html (for example 192.168.4.1/logs.html)

3.10 SetAutoplay

- Enables user to control device by html commands
- Detailed manual including examples is accessible by web browser on local network at IP/ SetAutoplay.html
  (for example 192.168.4.1/SetAutoplay.html)
- automatic parsing is possible

- parsing format: parameter=value
- SetAutoplay web page consist of 3 sections
  - [changes]
    - shown only after http command received
    - shown on beginning of web page and contain only changed parameters (one line for each parameter)
  - [status]
    - mode – current mode of Autoplay
    - onOff – shows if Autoplay is ON or OFF
    - only for Color mode:
      - color – color currently sent to pixel LED output
    - only for Animation library mode:
      - anim – Animation index currently sent to pixel LED output
      - speed – Speed of actual animation
      - contrast – Contrast of actual animation
    - brightness – actual brightness setting of Player
    - files – list of animation loaded on SD card (empty when no SD card inserted)
    - colors – list of colors available, possible to set in human readable names (**necessary to set by index**)

  - [;]
    - It is a line starting with the ';' character, used for displaying the manual and is not necessary for parsing

3.11 UPDATE FW

3.11.1. Using web browser

- **Internet connection is neccesary**
- device web page for firmware update is: IP/update.html
- Firmware status shows if new firware for device is available
  - in case when special firmware is loaded in device, update to standard firmware from web is allowed also in case when actual device firmware is higher/newer
- Firmware update process starts after hitting „Update Firmware" button and update progress is shown by status bar under the button
- After firmware update user have to check if firmware version is equal to firmware number in firmaware status
- **CAUTION: update of REACTIVO 2 from FW 4.2.0 is NOT POSSIBLE if wired ethernet is connected!**

3.11.2. Using SD card

- **Obviously SD card is necessary**
- suitable for devices without active internet connection
- user needs firmware *.bin file
  - FW sources:
    - link for actual firmware

      - Firmware file https://download.ledstripstudio.com/reactivo/REACTIVO 2.bin, or for devices with firmware 4.2.0 or lower https://download.ledstripstudio.com/reactivo/reactivo_eth.bin

      - Changelog: https://download.ledstripstudio.com/reactivo/versionDetails.txt

    - for more firmware options you can contact us

  - Update options
    - uploading manually to SD card:
      - user may load to SD card *.bin file by PC
      - checking of actual firmware number is possible by Android/IOS mobile application or by web browser
      - insert SD card with firmware to device which is turned ON
      - wait about 1 minute for update. Progress of update can be checked by device status LEDs (see Status LEDs section of this manual)
      - user may check if firmware version is changed fw by Android/IOS mobile application or by web browser

    - uploading remotely to SD card:
      - checking of actual firmware number is possible by Android/IOS mobile application or by web browser
      - load *.bin file using web browser using Settings/File upload
      - restart device by power cycle, or using by reset button via web browser in Settings
      - wait about 1 minute for update. Progress of update can be checked by device status LEDs (see Status LEDs section of this manual)
      - user may check if firmware version is changed fw by Android/IOS mobile application or by web browser

FAQ

WHAT IS ART-NET™?

Art-Net is a communications protocol for transmitting the one or multiple DMX512 lighting control protocols over the User Datagram Protocol (UDP) of the Internet protocol suite. Basically, it is multiple DMX lines send over standard Ethernet wired or wireless network.

WHAT IS A DMX THEN?

DMX512 (DMX in short) is a lighting protocol created in 1986 mainly to standardize control method for dimming lights in theaters and on stages. Even it is old it is still widely used today. It is very simple and quite robust protocol where controller sends 512 values AKA 512 Channels. Each channel is just value in range 0-255. You can find a lot of information about DMX on the Internet.

HOW MANY METERS OF LED STRIP CAN BE CONNECTED TO REACTIVO 2?

To answer this question there are few factors and few limitations to be explained. First factor is how many pixels per meter are on LED strip you want to use. Please note that pixel count per meter can be smaller than LED count per meter.

Then there is a power limitation which can REACTIVO 2 deliver to its LED output. For example, in case of 12V LED strips with REACTIVO 2 pass thru current limit 7Ampere = 84W, minus 5W for REACTIVO2 is 79W. However, if more power is needed, power supply can be connected to LED strip directly, thus power limitation of REACTIVO 2 is not important in case you use power supply connected to LED strip directly.

Another limitation is LED IC type and number of color channels (RGB or RGBW). For very common type of 12V WS2815 RGB digital LED strip with 60pixels per meter with power consumption 8.64W per meter following rules apply:

Maximum pixel count for this type of RGB IC is 1024 pixels. Thus signal generated from for REACTIVO 2 is capable of controlling 1024px / 60px / meter = 17m.
But 79W power thru limitation give you possibility to power up to about 9m.
Thus you can power & control 9m of this LED strip by REACTIVO 2 controller with properly rated power supply.

But is is pretty easy to connect power supply directly to LED strip and use REACTIVO 2 only as a signal generator without passing current thru it. Then you can control 17m.

HOW MANY METERS OF SIGNAL CABLE CAN BE RUN FROM LED OUTPUT TO LED STRIP?

General rule of thumb is that 5-10m works without problem in most cases. In case you need to use longer cable we suggest making a test to confirm if it is working. Please note that long cable runs may behave problematic on specific environment cases such as power cables (source of noise) nearby etc.
For longer signal cable runs we suggest using a pair of THE SYMMETRIZERs which provides trouble-free long signal cable runs.

WHERE IS THE WI-FI ANTENNA LOCATED?

Wi-Fi antenna is located almost in the middle of device. This area must not be covered by electrically conductive materials or cables when Wi-Fi is enabled on device. Maintain antenna location as free from obstacles as possible.

WARRANTY

This device has been designed and made using high quality components with several quality checks and testings. Therefore we are proud to provide **2 year** limited warranty for this device.

This limited warranty is valid for company or person (user) who purchased new device from us, or our authorized dealer/distributor and warranty period starts from date when user receive this device.

Limited warranty cover:

- **material defects**
- **assembly failures**
- **device malfunction**
- **this device only**

Limited warranty DO NOT cover and is void when this device:

- **has been used for different usage as specified in this manual**
- **has been opened without our permission**
- **has been modified or disassembled without our permission**
- **has been operated wrong wa, e.g. over-voltage, over-current, exposed to high electromagnetic fields/discharges such as lighting strikes or ESD events with parameters way outside of HBM model**
- **has been stored or used outside of storage/operating temperature and humidity**
- **has been used in aggressive environment, corrosive environment, dusty environment or in environment with increased vibrations**
- **has been in contact with liquids**
- **has been connected wrong way, e.g. short circuits, reverse polarity etc.**
- **has been mechanically damaged**
- **got unofficial attempts to firmware updates**

Limited warranty DO NOT cover:

- **shipping expenses to handle defective device.**
- **failures or damage of other equipments connected to this device**
- **user expenses caused by defective device**

For limited warranty claim process:

- **user must be able provide sufficient proof of purchase**
- **use email info@ledstripstudio.com with detailed description of device failure**
- **takes less than 30 days to resolve. This period starts from day we physically recieve defective device (device return)**

DISPOSAL OF YOUR OLD DEVICE

This device is an electronic device, and can be categorized as hazardous waste in your country. Dispose of this device through an approved waste disposal firm or through your local waste facility. When discarding the device, comply with the rules and regulations that apply in your country. If in doubt, consult your local waste disposal facility.

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