Pixel LED SPI Digital Controller

Part number: PX-SPI-V2

The Mini LED Pixel Controller provides a wide array of color changing and chasing effects for both PixelPro and PixelControl products. The 32 different effects are pre-programmed and the RF remote can be used to modify speed, brightness and direction. Multiple effects can be linked to cycle through in a specified order and you can save favorite scenes into two memory slots. Power-Off memory, it will return to the last setting when powered back on. This controller supports addressing for 8-1020 pixels and can be configured for any number in between. It can handle up to 10A of current at 5, 12 or 24V DC. Higher current applications can power the LEDs directly to bypass the 10A limit and just use the control signal from the receiver.

Features

- 32 pre-programmed effects give flexibility without any programming needed.
- Controls up to 1020 pixels, which is more than five DMX universes.
- Effects can easily be adjusted for speed, brightness, and direction.
- Supports up to 10A current through the receiver at 5, 12 or 24V DC.

- No power limit if directly powering the LEDs, just use the control signal from the receiver.
- Multiple receivers can be paired to one remote for larger installations.
- Long range RF remote works up to 50m (160ft) away from the receiver.
- Compact receiver size allows it to fit in tight spaces and easily be mounted out of sight.

Specifications

| Dimensions:	5.3" x 1.18" x 0.8"
	135 mm x 30 mm x 20mm
Output Current:	10A
Input voltage:	5-24 Volts DC
Remote Control Distance	30-50m

Wiring

- The controller and remote come paired together out of the box. Instructions for modifying pairings can be found after the wiring diagrams.
- The default output signal works with Pixel Control LED lighting. Instructions for switching to PixelPro can be found after the wiring diagrams.

Under 10A:
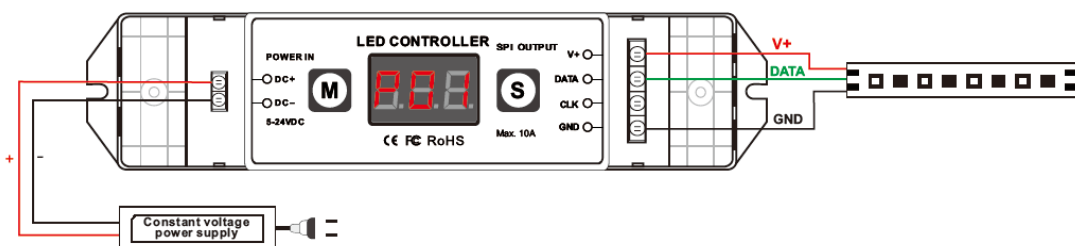
1. Connect the GND, Data, Clock (CLK) and V+ wires from the LEDs to the respective terminals on the receiver. Note: PixelControl LEDs do not have a CLK wire so that terminal is left open.
2. IMPORTANT: Make sure that your power supply voltage matches the required voltage of your LEDs.
3. Make sure power supply is turned off.
4. Connect the positive and negative terminals of the DC power supply to the DC+ and DC- terminals on the receiver respectively.
5. Turn power supply on.

Over 10A:
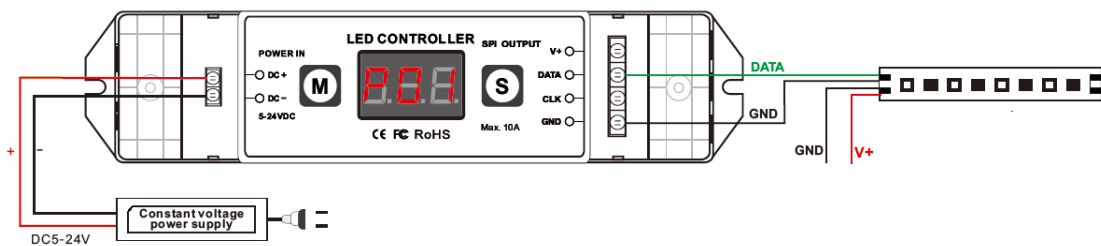
1. Connect Data and Clock (CLK) wires from the LEDs to the respective terminals on the receiver. Note: PixelControl LEDs do not have a CLK wire so that terminal is left open.
2. IMPORTANT: Make sure that your power supply voltage matches the required voltage of your LEDs.
3. Make sure the power supply is turned off. Connect the V+ and GND wires from the LEDs to the positive and negative terminals on the power supply respectively.
4. Connect the positive and negative terminals of the power supply to the DC+ and DC- terminals on the receiver.
5. Turn the power supply on.

Pairing

To pair a remote to a receiver, hold down the "M" key on the receiver for 3 seconds until there are three dots flashing on the digital screen. Quickly press any button on the remote to connect the remote to the receiver. The digital screen will return to the standard display once the remote has been successfully paired.

Multiple receivers can be paired to a single remote, but only one remote can be used per receiver. The receiver forgets the previously paired remote when it enters pairing mode.

Operation

Navigation Buttons:
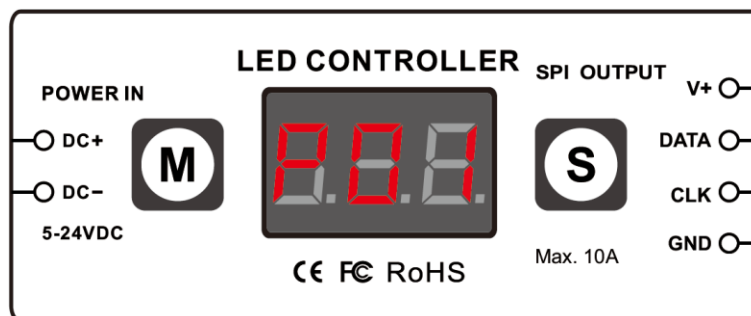
- Holding M for 2 seconds unlocks the receiver. The display will blink when unlocked.
- Pressing M will cycle between parameters.
- Pressing S will change the parameter

Changing Control Type

The control type can only be changed through the receiver. Navigate to the "C" parameter. There are six options, but only the following three parameters are compatible with Environmental Lights pixel products.
- To control RGB PixelControl LEDs, set the parameter to "01".
- To control RGBW PixelControl LEDs, set the parameter to "06".
- To control PixelPro LEDs, set the parameter to "02".

Changing Color Change Order

The color change order can only be changed through the receiver.

For RGB LEDs: Cycle through "01"-"06" until the first three LEDs display red, blue and green in order.

For RGBW LEDs: Cycle through "01-24" until the first four LEDs display red, green, blue and white in order.

Setting the Number of Pixels

The color change order can only be changed through the receiver. The number of pixels is displayed as a number between 8 and 1000. The default value is set to 360. Increasing the quantity of pixels over 360 will reduce the maximum speed achievable when the speed is set to "08".

Changing the Speed

The speed can be changed through the receiver or through the remote. There are 8 selectable speeds. The speed increases incrementally from "01" to "08". Most modes will look best on faster speeds.

Changing the Brightness

The brightness can be changed through the receiver or through the remote. There are 8 selectable brightness modes. The brightness increases incrementally from "01" to "08".

Changing the Direction

The direction can be changed through the receiver or through the remote. The direction of the pattern can be reversed by adjusting this parameter . "00" is the forward direction and "01" is reverse direction.

Changing the Mode

The mode can be changed through the receiver or through the remote. There are 32 pre-programmed color changing modes to choose from. Modes 02-32 are standard modes that can be found in the table below. Most modes appear better at the fastest speed setting.

Key	Mode	Description
01	Mode Cycle	Cycles between modes
02	RGB Change	Quick change of red, green and blue
03	Color Change	Quick change of white, primary and secondary colors
04	RGB Flash	Short flashes of red, green and blue
05	Color Flash	Short flashes of white, primary and secondary colors
06	RGB Fade	Fade between red, green and blue
07	Color Fade	Fade between white, primary and secondary colors
08	RGB Smooth	Smooth transition between red, green and blue
09	Color Smooth	Smooth transition between white, primary and secondary colors
10	RGB Fold Split	Center out expanding point alternating red, green and blue
11	Color Fold Split	Center out expanding point of white, primary and secondary colors
12	RGB Scan	Side expanding point of red, green and blue
13	Color Scan	Side expanding point of white, primary and secondary colors
14	RGB Pile	16 pixel pile up of red, green and blue
15	Color Pile	16 pixel pile up of primary white, primary colors and secondary colors
16	Red Chase	Chasing red
17	Green Chase	Chasing green
18	Blue Chase	Chasing blue
19	Yellow Chase	Chasing yellow
20	Magenta Chase	Chasing Magenta
21	Cyan Chase	Chasing Cyan
22	White Chase	Chasing White
23	Red Meteor	Meteors of red chase along the lights
24	Green Meteor	Meteors of green chase along the lights
25	Blue Meteor	Meteors of blue chase along the lights
26	Yellow Meteor	Meteors of yellow chase along the lights
27	Magenta Meteor	Meteors of magenta chase along the lights
28	Cyan Meteor	Meteors of cyan chase along the lights
29	White Meteor	Meteors of white chase along the lights
30	RGB Meteor	Meteors of red, green and blue chase along the lights
31	Color Meteor	Meteors of white, primary colors and secondary colors chase along the lights
32	RGB Color Flow	RGB color fade that propagates down the lights

Mode Cycle

Mode 01 cycles through all of the modes in numerical order. Mode 01 includes every mode 02-32 in its cycle as default. Modes can be removed from the mode 01 cycle by navigating to them and holding the "S" key until the decimal point is removed as shown below. All modes with a decimal point will be included.

Included in Mode Cycle	Not included in Mode Cycle

Safety Precautions

Please take the following precautions:

1. This equipment, like all electrical equipment, should be installed by a qualified person.

2. Do not expose these LEDs, dimmers or power supplies to intense electro-magnetic fields, including lightning.

3. The controllers and power supplies are not waterproof. Keep them dry.

4. Always observe proper polarity.

When installing LED lighting, it is a good idea to follow this "dry-run" procedure:

1. Be sure you have everything you need before you start.

2. Lay out your lights and power supply on the floor or table.

3. There is some resistance in the LED lighting. If you see any color fading or dimming at the end of a long run, you may have too many LEDs for your power supply and you might need a bigger supply or shorter runs. Call if you need assistance with larger projects.

4. Connect everything and test it to be sure it works and you have it connected properly. It is unlikely, but possible, that some part of your system is defective or was damaged during shipment. If that is the case, it will be very helpful to you to know that before you do all the work involved in installing custom LED lighting systems. You will also know if you damage anything during installation, which is really helpful in trouble-shooting because manufacturing defects and installation damage typically have very different solutions.

Once you have tested the system successfully, you are ready to install it. We recommend you install LEDs, electronic controls and dimmers in such a way that you have access to them in case they fail. All electrical components can fail.