75mm Bars - 12V Digital RGB LED Pixels (Strand of 21) - WS2801

PRODUCT ID: 1548



DESCRIPTION

RGB Pixels are digitally-controllable lights you can set to any color, or animate. Each plastic PVC 'pixel bar' contains 3 RGB LEDs and a controller chip soldered to a PCB. The pixel is then 'flooded' with epoxy to make it waterproof. These are fairly large pixels but they have a lot of nice mounting options, such as two plastic flanges on the ends with 0.15"/4mm diameter holes and also some sticky foam tape on the back for easy attachment. They're typically used to make outdoor signs. Compared to our other LED dots, these are much bigger and much brighter, good for larger scale installations. They'd also make great large RGB 7-segment displays which is why we have them in strands of 21 not 20.

The pixels are connected by a 4-conductor cable. +12VDC, ground, data and clock. Data is shifted down from one pixel to the next so that you can easily cut the strand or attach more onto the end.

Each dot is digitally controlled, with an internal 8-bit PWM LED driver (24-bit color for 16 million different shades). The pixels must be clocked by a microcontroller, we have an example code linked below that works on an Arduino, it should be simple to adapt it to any other microcontroller.

The pixels use 3 x 5050 RGB LEDs, with a 120 degree beam width. All of the LEDs are controlled at once so you cannot have one pixel with the three LEDs different colors. (Color control is per single rectangular 3-LED pixel only) The total max brightness of all LEDs is about 4000mcd. (Please note: mcd ratings of LEDs are notoriously inflated by most LED sellers, so be extra-skeptical when reviewing LED ratings!)

Sold by the strand, each strand has 21 pixels in series! Each strand has two JST SM 3-pin connectors so you can connect multiple strands in a row, as many as you wish, just watch for how much current they want. The two power wires are brought out separately to make wiring easier, a 2.1mm terminal block adapter is handy here to attach a DC power supply. We have a 12V/5A supply that should be able to drive 3 or more strands (depending on current use). The LEDs are constant-current

driven so you'll have even colors through-out the strand as long as you have a stable 12V supply

You can drive these with an Arduino using any two microcontroller digital pins, check this library which also has example code to demonstrate the strands and be sure to read our very detailed tutorial on usage!. Since these are nearly identical in how they work to t he 36mm pixels, that guide will get you blinking

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Technical Details

78mm x 18mm (3.1" x 0.7") sticks 9mm deep (0.35")
4mm/0.15" mounting holes 86mm/3.4" apart
75mm / 3" apart on the strand
21 pieces per strand
These pixels use a WS2801 chip for full 24 bit color, constant-current drive
12VDC power, 60mA maximum per pixel (LEDs on full white)
2-pin SPI-like protocol
WS2801 Datasheet for the chip inside each pixel
Brightness per pixel: 4000 mcd combined (we'll try to get a datasheet for the LEDs)