12mm Diffused Flat Digital RGB LED Pixels (Strand of 25) – WS2801

PRODUCT ID: 738

- RGB Pixels are digitally-controllable lights you can set to any color, or animate. Each RGB LED and controller chip is molded into a 'dot' of silicone. The dots are weatherproof and rugged. There are four flanges molded in so that you can 'push' them into a 12mm drill hole in any material up to 1.5mm/0.06" thick. They're typically used to make outdoor signs. These pixels have a flat square back, we also have pixels that are long and thin, both are the same electronics, just different shapes!

The pixels are connected by a 4-conductor cable. +5V (Red), Ground (Blue), Data (Yellow) and Clock (Green). 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 8mm diffused RGB LEDs, with a 120 degree beam width. The total max brightness of all LEDs is about 1600mcd but with the light more evenly distributed & mixed than a clear LED. (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 25 pixels in series! Each strand has two JST SM 4-pin connectors so you can connect multiple strands in a row, as many as you wish, just watch for how much current they want. We now have LED pixel strands with the power wires (red & blue) spliced out so its really easy to connect 5VDC in using a 2.1mm jack terminal adapter. We have a 5V/2A supply that should be able to drive 2 or more strands and a 5V/10A supply that can drive up to 160 LEDs all lit up at once

If you want to connect to the input of a strand (to wire it to power and a microcontroller) please get a plug connector. If you want to connect to the output, get a receptacle cable.

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!

. TECHNICAL DETAILS

- 12mm diameter (0.45") 23mm deep (0.9") from the top of the LED to the back of the rubber
- 80mm / 3" apart on the strand
- 25 pieces per strand
- These pixels use a WS2801 chip for full 24 bit color
- 5V power, 60mA maximum per pixel (LED on full white)
- Wire gauge is 20AWG
- 2-pin SPI-like protocol
- WS2801 Datasheet for the chip inside each pixel
- Brightness: Red = 3.3 Lumens/300 mcd, Green = 10 Lumens/1000 mcd, Blue = 2.7 Lumens/300 mcd (mcd calculation based on full 120 degree beam)

RoHS

https://www.adafruit.com/product/738 12-3-18