



SHENZHEN YYBLED TECHNOLOGY CO.,LTD

[HTTP://WWW.YYBLED.COM](http://www.yybled.com)

## Full Color LED Fairy String Light



### Product Description

- The flexible wire light string adopts the LED independently developed by our company. The LED is integrated with the control IC and the light-emitting chip, and each component is a pixel.
- Solder the LEDs on the copper wire of the PVC sheath through automatic production equipment to achieve the signal cascade between the LEDs.
- The copper wire peeling area, solder joints and LED body are wrapped and protected with milky white epoxy resin colloid to generate flexible wire light strings.
- Send control signals through external MCU/controller to achieve various colorful effects of 256-level grayscale and single-point single-control.

## Features

- The LEDs on the flexible cord light string are our independent patent protection products, and counterfeiting must be investigated.
- LED internal integrated control IC and light-emitting chip, through external control, to achieve 256-level grayscale single-point single-control effect.
- LED is highly integrated, no external electronic devices are required, and the light string is simple and beautiful.
- The main body of the flexible light string is waterproof and dustproof, and can be used directly outdoors.
- The flexible string light string is small, light and soft, and can be wound and bent 360° arbitrarily, which is convenient for installation.
- Low voltage drive, low power, low power consumption, safety, energy saving and environmental protection.

## Specification

The driving conditions and luminous color of the flexible cord light string depend on the LED specifications used on the light string. Please refer to the following table for model selection:

Model	LED series	Voltage	Length	Color	LED Quantity
PX-WS2811-33-5	WS2811	5V	5m	Full color	33 LEDs
PX-WS2811-66-10			10m	Full color	66 LEDs
PX-WS2811-99-15			15m	Full color	99 LEDs
PX-WS2811-25-5			5m	Full color	25 LEDs
PX-WS2811-50-10			10m	Full color	50 LEDs
PX-WS2811-75-15			15m	Full color	75 LEDs

## Technical parameters

Parameter	Symbol	Color	Quiescent Current $\cong 0.6\text{mA}$				Working current
			minimum	Typical value	maximum value	unit	
light intensity	IV	Red	260	320	380	mcd	12.5mA
		Green	850	1000	1200		
		Blue	90	110	130		

wavelength	$\lambda_d$	Red	620	623	625	nm	12.5mA
		Green	520	523	525		
		Blue	449	451	454		
color temperature	$T_c$	WW	2800	3000	3200	K	12.5mA
		NW	4000	4200	4500		
		CW	6000	7000	8000		
Luminous flux	$\Phi$	W	5	/	/	Lm	12.5mA
CRI	Ra	W	60	/	70	/	

If the white light color temperature ( $T_c$ ) of RGBW does not meet the requirements, it can be customized according to the requirements; if there is no special requirement for the color rendering index (Ra), the default is  $\geq 60$ ,

When there are special requirements, it can be customized according to the requirements.

**Electrical parameters (  $T_A=25^\circ C$ ,  $V_{DD}=5V, V_{SS}=0V$  )**

Parameter	Symbol	minimum	Typical value	maximum value	unit	Test Conditions
Input Current	$I_i$	---	---	$\pm 1$	$\mu A$	$V_i = V_{DD} / V_{SS}$
high level input	$V_{IH}$	2.7V	---	$V_{DD}+0.7V$	V	$D_{IN}$ , SET
low level input	$V_{IL}$	-0.3V	---	0.7V	V	$D_{IN}$ , SET

**Switching Characteristics (  $T_A=25^\circ C$ ,  $V_{DD}=5V, V_{SS}=0V$  )**

Parameter	Symbol	minimum	Typical value	maximum value	unit	Test Conditions
transmission delay time	$t_{PLZ}$	---	---	300	ns	CL=15pF, $D_{IN} \rightarrow D_{OUT}$ , RL=10K $\Omega$
fall time	$t_{THZ}$	---	---	120	$\mu s$	CL=300pF, $OUTR/OUTG/OUTB$
input capacitance	$C_i$	---	---	15	pF	---

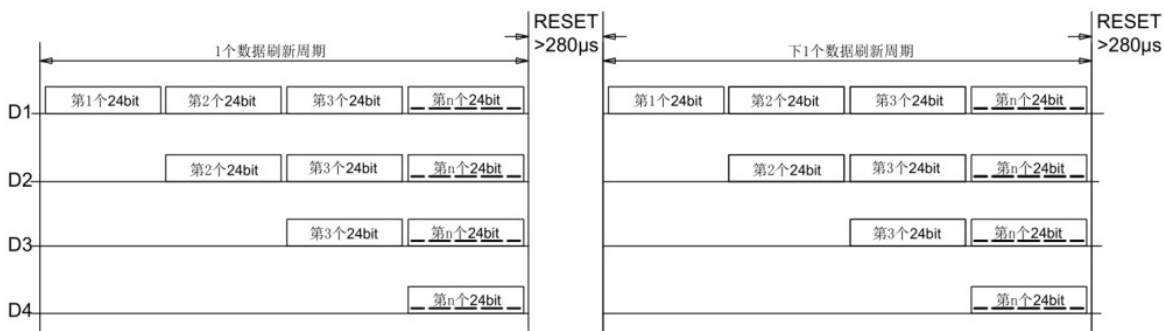
### Data transfer method

According to the protocol, the communication method of single-line return-to-zero code is adopted. After the pixel is powered on and reset, the DIN terminal accepts the data transmitted from the controller.

After the sent 24bit/32bit data is extracted by the first pixel point, it is sent to the data latch inside the pixel point, and the remaining data is processed by internal shaping

After the circuit is shaped and amplified, it starts to forward the output to the next cascaded pixel through the DO port. After each pixel is transmitted, the signal decreases.

24bit/32bit. The pixel adopts automatic shaping and forwarding technology, so that the number of cascaded pixels is not limited by signal transmission, but only limited by the signal transmission speed degree requirements.



### Data structure

RGB three channels:

G7	G6	G5	G4	G3	G2	G1	G0	R7	R6	R5	R4	R3	R2	R1	R0	B7	B6	B5	B4	B3	B2	B1	B0
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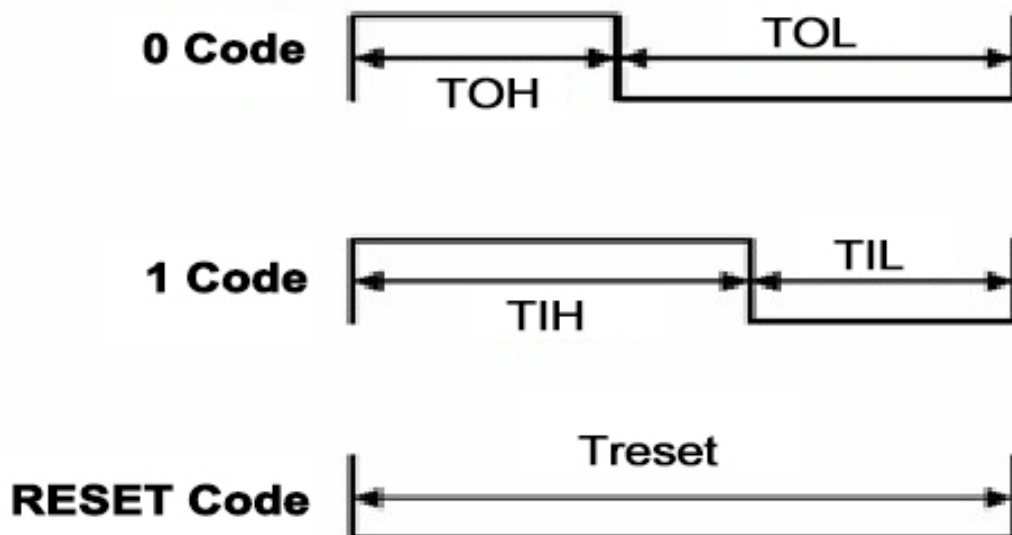
RGBW four channels:

G	G	G	G	G	G	G	G	R	R	R	R	R	R	R	B	B	B	B	B	B	W	W	W	W	W	W	W	W			
7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

Note: High-order bits are sent first, and data is sent in the order of GRB and GRBW.

## Timing Waveform

The code type sent by the MCU control terminal:



## Data transfer time

TOH	0 code, high level time	220ns~380ns
T1H	1 code, high level time	580ns~1μs
TOL	0 code, low time	580ns~1μs
T1L	1 code, low time	580ns~1μs
RES	Frame unit, low level time	280μs or more

## Application

Suitable for Christmas, weddings, New Year, Valentine's Day, party, pub, concert, Garden Decoration etc.



