



# BNZ RGB

# IC 2811 SERIES

Model Number:

PIXEL LED MODULE

DIGITAL SIGNAGE | CHANNEL LETTERS

Providing Better Solutions



12V DC



IP65 / IP66



55LM



160°



## Product Overview

BNZ RGB IC 2811 is a high-performance 12V DC RGB Pixel LED Module designed for digital signage, programmable lighting, channel letters, and decorative illumination applications.

Integrated with the 2811 IC chip, the module enables individually controllable pixel lighting effects, dynamic color patterns, chasing effects, animations, and programmable RGB sequences.

Featuring premium 5050 SMD LEDs, a wide 160° beam angle, and ultrasonic sealed construction, the module delivers vibrant RGB illumination with uniform brightness and enhanced durability for indoor and outdoor applications.

It's compact design and low power consumption make it ideal for modern digital signage and pixel lighting installations.

## Applications



Digital RGB Sign Boards



Pixel Channel Letters



Media Facades



Architectural Lighting



Event and Stage Lighting



Decorative RGB Installations



Programmable LED Displays

# Pixel Lighting Features



Individually Addressable RGB Pixels



High-Speed Digital Signal Transmission



Programmable Animations



Compatible with 2811 Pixel Controllers



Smooth RGB color mixing & Dynamic Chasing Effects

# Key Features



Integrated **2811** IC pixel control



Premium **5050** SMD RGB LEDs



**Dynamic** programmable RGB effects



Low power consumption (**0.2W**)



Suitable for **indoor & outdoor** applications



**2 Years** Warranty



Wide **160°** beam angle for uniform illumination



**Ultrasonic** waterproof construction



**Compact and lightweight** design

# Available Colors



Multi-colors | Red, Blue, Green, Yellow, Pink, Orange, Purple

## RGB IC 2811 • Technical Specifications

Electrical Specifications	
Model no.	
Power Consumption	0.72W / Module
Input Voltage	12V DC
Luminous Output	55LM / Module
Beam Angle	160°
LED Type	5050 SMD RGB
IC Type	2811 IC
IP Rating	IP65 / IP66*
Operating Type	Constant Voltage
Maximum Series Run	20 Modules
Warranty	2 Years
*IP Rating can be adjusted as per actual product specification.	
Mechanical Specifications	
Housing Type	Ultrasonic Sealed Body
Mounting Type	Adhesive Tapes / Screws
Construction	Injection Molded
Application Type	Indoor and Outdoor
Ultrasonic sealing improves waterproof reliability and product life.	

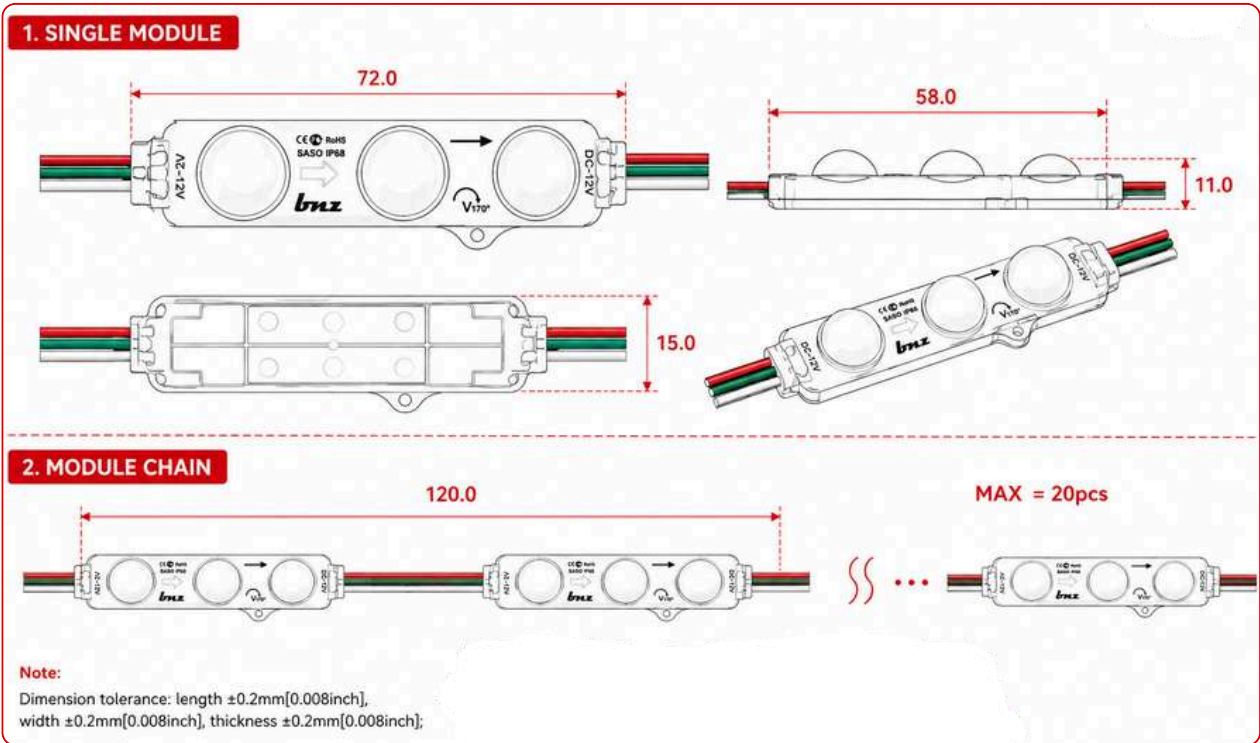
## Illumination Benefits

- Uniform wide-angle illumination.
- Smooth and vibrant RGB output.
- Dynamic pixel-level lighting effects.
- Reduced shadowing and hot spots.
- Excellent visual impact for digital signage.

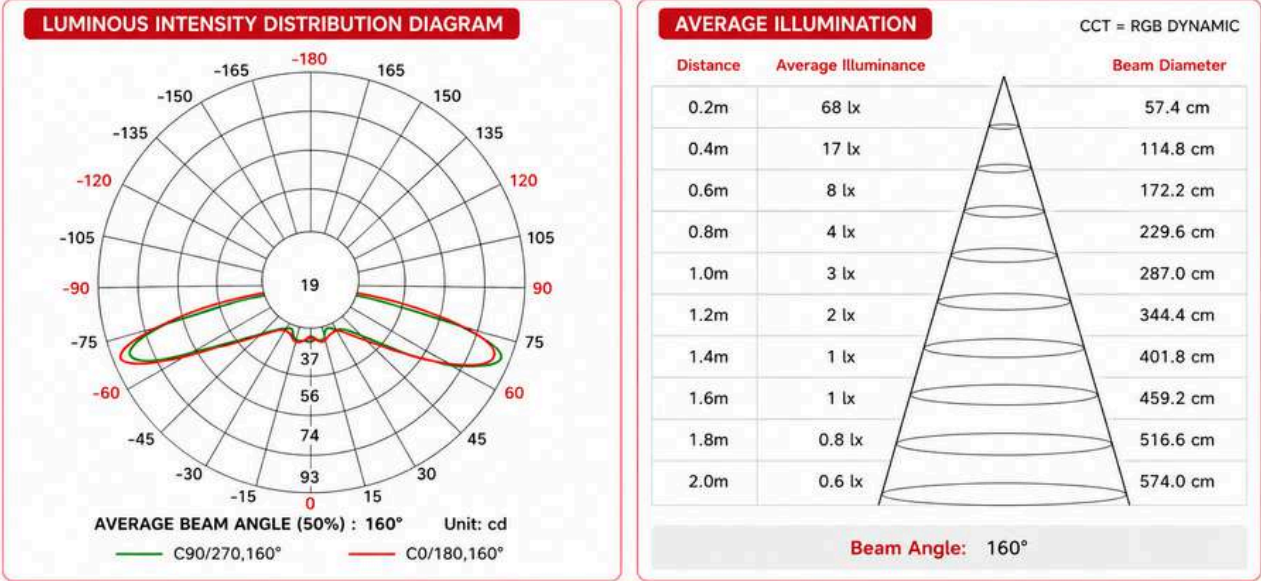
## Certifications & Compliance



## Profile Drawings



# Luminous Intensity Distribution Analysis



**Wattage:** 0.72W / Module

**Beam Angle:** 160°

**Luminous Flux:** 55 LM / Module

Note: The above data is tested based on BNZ RGB IC 2811 Series at 12V DC. Actual performance may vary depending on controller and installation conditions.

# Power Supply Wattage Calculation (With 20% Margin)

## Formula:

$$\text{Recommended PSU Wattage} = (\text{Number of LEDs} \times 0.72\text{W}) \times 1.2$$

## Example:

If 200 Modules are used:

$$200 \times 0.72\text{W} = 144\text{W}$$

$$144\text{W} \times 1.2 = 172.8\text{W}$$

Recommended PSU = **200W 12V**

Always select next higher standard driver rating.

## Recommended Wiring Layout



Maximum 20 Modules per series connection.



Use regulated 12V DC power supply.



Inject power every 20 modules.



Maintain correct data signal polarity. (+ / -)



Use minimum 18AWG (0.75 sqmm) cable.



Keep long wire runs minimal to reduce voltage drop.



Use compatible 2811 pixel controller for programming.

For **LARGE INSTALLATIONS**,



Use parallel power injection for stable brightness and accurate pixel control.

## Packaging Details

Packaging Type	Quantity
Inner Box	200 Modules
Outer Box	2000 Modules

## Attention before installation

- Before installation, check that the product parameters are consistent with the requirements. (Seeing product specifications or product labels)
- Load voltage, current power and power supply should be matched with the product.
- Follow the instructions of wiring diagram (first connect the load and then the power supply) to avoid short circuit.
- Make sure the correct connection of positive and negative poles between products and power supply. Otherwise, the LEDs do not turn on.
- Make sure the power cord firmly screwed into the terminal and a should not be pulled out by hands.
- The terminal should have insulation waterproof and anti-corrosive treatment.
- After installation, the fabric light box must be covered with cloth within 48 hours.
- Please avoid leaving the light box idle for a long time.

## Important Installation Notes

- Use only regulated 12V DC power supply.
- Avoid overloading series connections.
- Ensure compatibility with 2811 pixel controller.
- Maintain proper data signal direction.
- Seal all exposed wire joints properly.
- Test pixel programming before final installation.
- Installation should be performed by trained technicians.

## Warnings

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- Do not disassemble or retrofit the light. Do not touch the surface of the light with a sharp object.
- Do not do live-line working during installation especially for high voltage product.
- Do not use any organic chemical solvents Use neutral glass adhesive to fix this product and it needs to be dried 24 hours in the open environment after operation.
- Treat the ends and the circuit connection points that are not connected to the main line with insulation, waterproof, and anti-corrosion in the installation.
- Use 18AWG (0.75mm<sup>2</sup> cross-sectional area) or thicker core wire to avoid adverse consequences caused by overheating, if the power cable need to lengthen.
- Make sure the input voltage meets the requirements and lines are connected correctly before lighting on.
- This product is for signage, and do not use as general lighting.
- Series connection within the maximum run.
- The length of the power cable between the power supply and the led strip should not exceed 2m. Otherwise, large circuit loss will lead to inconsistent brightness.
- Installation, maintenance and repair should be operated by a qualified technician.

## Statements

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- Repair should be operated by a qualified technician, if the external circuit or main line of this product is damaged.
- The parameters given in this manual are typical values and for reference only.
- All illustrations and drawings in this manual are for reference.
- This product is subject to change without notice.

## Recycling

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- LED lighting products belongs to electronic products, please do recycling treatment according to the relevant WEEE directives.

## Common Faults and Troubleshoot

Quick Guide		
Problems	Reasons	Solutions
All LEDs can not light ON	No electric supply	Fix the short circuit problem
	Automatic power protection from the open or short circuit in output of the power supply	
	Wrong connection of power supply	
LEDs can not light on partly	Some switching mode power supplies are not powered	Correctly connection
	Power supply line error	
	Mistaken wire connection of some of products	
Brightness of LED is inconsistent or insufficient	Power overloaded	Replace with more powerful power
	Power supply circuit excessive consumption	Make sure the working voltage of the product within 25% of standard voltage, or keep balance by circuit power consumption
	Excessive quantities in series connection of the product	Reduce the quantities of the product in series connection to meet requirement
LED flicker	Connection point fault	Remove bad connection point
	Switching power supply failure	Replace a new power supply
	Wrong Installation or use of products	Please follow the instructions