



LEDIFY
innovations



BNZ Z30

DC SERIES

Model Number: 3012

GSB | ACP | CHANNEL LETTERS

Providing Brighter Solutions

 DC 12V

 IP65

 110LM

 160°



Product Overview

BNZ Z30 LED (DC) Series modules are engineered to deliver cost-effective, consistent, and uniform illumination for glow sign boards, large channel letters, and light boxes.

Designed for 12V DC constant voltage operation, the Z30 series ensures high efficiency, long service life, and reliable outdoor performance.

Key Features

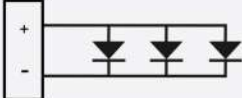
	Constant voltage driven design		160° crystal clear lens for equal light distribution		Long service life up to 40,000 hours
	High luminous efficiency upto 110LM / W		Epistar gold wire LED with pure copper bracket		Easy installation with VHB double-sided tape
	3 Years Warranty		High pressure ultrasonic sealed polycarbonate casing		Suitable for indoor and outdoor signage

Available Colors

	10000K White	Warm White 3000K	
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*Other CCT and colors available on request.

Certifications & Compliance



Z30 DC • Technical Specifications

Electrical Specifications	
Input Voltage	12V DC
Power Type	Constant Voltage
Power Consumption	3W / module
Luminous Efficiency	Up to 110LM / W
Beam Angle	160°
Modules / String	12 Modules
Operating Temperature	-10°C to +65°C
Beam Angle	160°
Operating and Mechanical Specifications	
Light source	High-Efficiency LED
Lens Type	Special Crystal Clear Optical Lens
Beam Distribution	Wide, Uniform
Housing	100% Polycarbonate (Ultrasonic-sealed)
Protection Rating	IP65 (Dust & Water Resistant)
Printed Circuit Board	Aluminum PCB with 35µ Copper
Dimensions	52 x 42 x 13mm
Color Rendering Index (CRI)	≥80 (White)

Applications and Illumination Calculations

Acrylic Channel Letters / Big Channel Letters



Recommended Letter Depth (Return Height)	
Minimum Depth	70 mm
Ideal Depth Range	180-280 mm (7-11 inches)
Maximum Depth	300 mm
Recommended Module Spacing (Cx x Cy)	
Standard Spacing	250 mm x 250 mm
Suitable for Deep Channel Letters and Large Fonts	
Illumination Result	
Uniform face brightness with no hotspots or dark patches	

GSB / ACP Glow Sign Boards

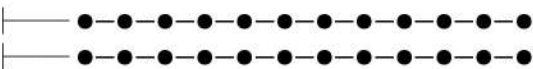


Recommended Box / Board Depth	
Minimum Depth	170 mm
Ideal Depth Range	200-300 mm
Maximum Depth	300 mm
Recommended Module Spacing (Cx x Cy)	
Standard Spacing	250 mm x 250 mm
Surface Illumination	
Approx. 1200 LUX at recommended depth and spacing	

Anti-Shadow Spacing Summary

Application	Depth	Spacing
Glow Sign Boards	≥170 mm	250 x 250 mm
Big Channel Letter	180-280 mm	250 x 250 mm
Deep Light Boxes	≥200 mm	250 x 250 mm

Recommended Wiring Layout

Connection Method
Daisy Chain Method
12 Modules / String
Parallel connection recommended for large boards
Typical Wiring Layout [12V DC PSU]

Best Practices
Feed pos/neg from multiple points for large signs
Maintain equal spacing (Cx x Cy)
Do not overload PSU outputs

Power Supply Wattage Calculation (With 20% Margin)

Step 1: Module Load

Power / Module = 3W | Modules / String = 12 PCS

$12 \times 3W = 36W$

Step 2: Add 20% Safety Margin

$36W \times 1.2 = 43.2W$

Recommended Power Supply = 12V DC, minimum **40W** Power Supply per string

General Formula

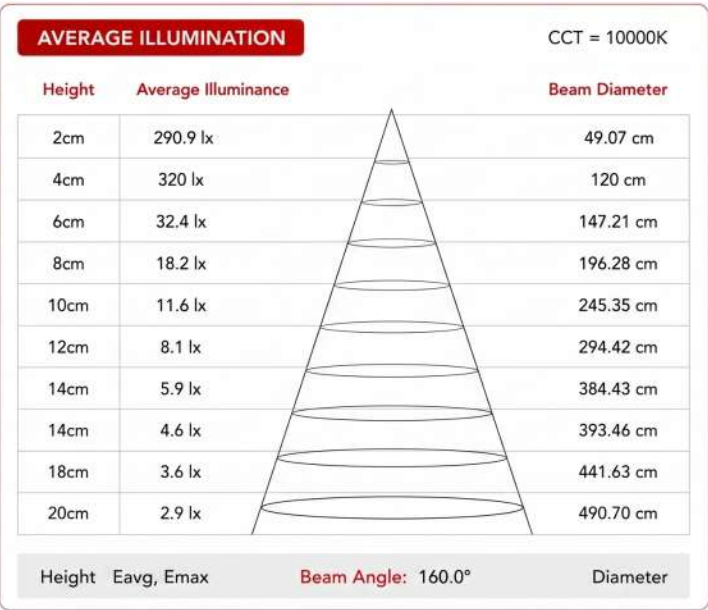
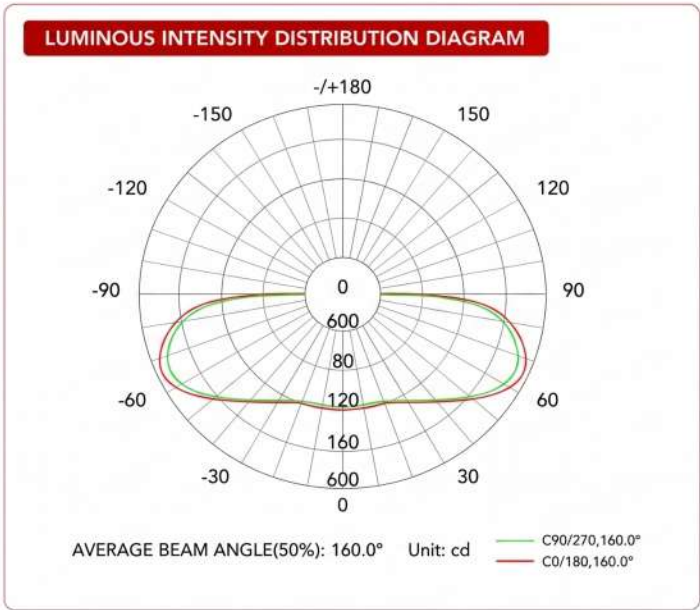
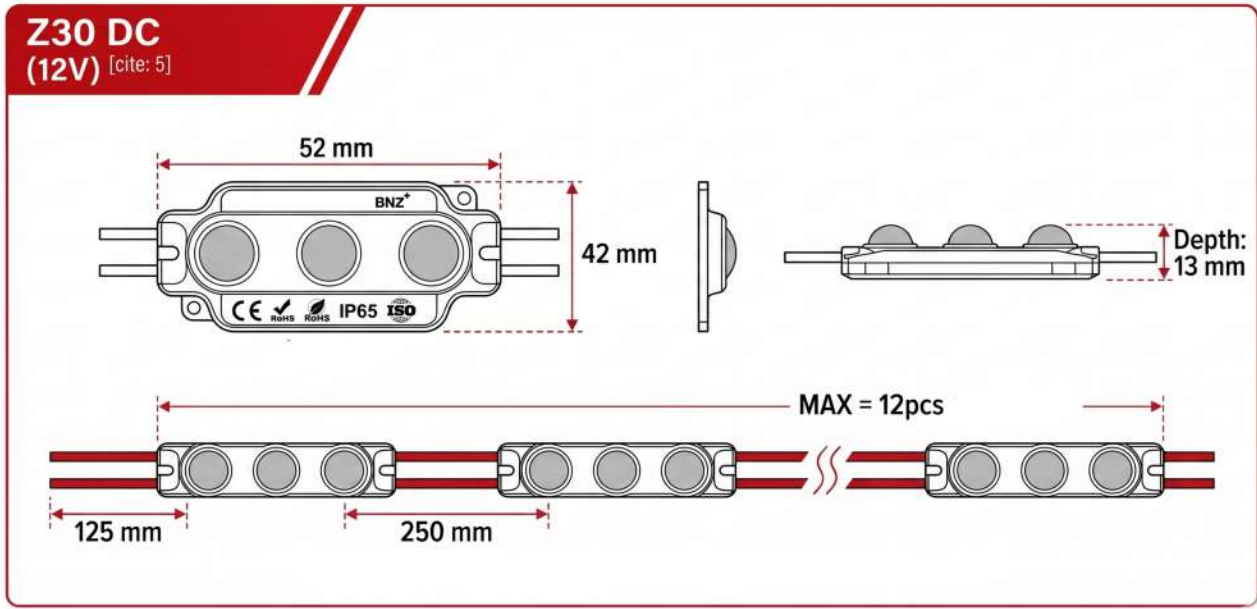
Total Modules x 3W x 1.2 = Required PSU Wattage

Example: **50 Modules**

$50 \times 3 \times 1.2 = 180W$

Use **12V 200W** Power Supply

Profile Drawings & Luminous Distribution Analysis



Wattage: **3W / module**

Voltage: **12V DC**

Beam Angle:

160°

Luminous Flux:

330 lm / module

Packaging Details

Packaging Type	Quantity
Modules / string	12 PCS
Product Type	LED Module
Protection	IP65

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 12V DC constant voltage power supply.
- Maintain recommended depth & spacing.
- Ensure proper ventilation in enclosed boxes.
- Suitable for indoor & outdoor signage.
- Installation should be performed by trained technician..

Warnings

- 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 (0.75mm² 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

- 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

- 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



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