QUAD SERIES

DIRECT LED

Model Number:

PREMIUM WATERPROOF LED

GSB | CHANNEL LETTERS

Providing Better Solutions

220V AC | IP66 | 430LM | 160°

QUAD WP

Product Overview

BNZ QUAD Series Direct LED Modules are 220V AC input waterproof LED modules with a built-in power supply, eliminating the need for external transformers.

With high output of 430LM per module and a 160° wide beam angle, this series is ideal for outdoor LED boxes, façade signage, and backlit sign boards requiring long viewing distance, high brightness & all weather durability.

The IP66 rated waterproof construction ensures reliable performance against rain, dust, and harsh outdoor environments.

Key Features

- Direct **220V** AC input
- **160°** wide beam angle for even light distribution
- Long service life up to **30,000 hours**
- High brightness **430LM** / Module
- **1 Year** Warranty
- **Built-in** high quality **power supply** for safer operations
- **Modular** & Replaceable design
- **Waterproof** plug-in connector design, no soldering required
- **Simplified wiring** for large signage
- Handles **long cable** runs efficiently
- **Dustproof** and **rainproof** construction
- **IP66** waterproof construction for outdoor use

Available Colors

10000K | White

Warm White | 3000K

*Other CCT and colors available on request.

QUAD AC • Technical Specifications

Electrical Specifications	
Module Name	BNZ QUAD SERIES DIRECT LED WATERPROOF
Model No.	
Input Voltage	220V AC
Power Type	AC Direct (Built in PSU)
Power Consumption	4W / Module
Luminous Output	430LM / Module
Beam Angle	160°
Color Temperature	10000K, 4000K, 3000K
Lifespan	Upto 30,000 Hours
Operating and Mechanical Specifications	
LED Configuration	**Quad LED Module**
Lens Type	Wide angle optical lens
Beam Distribution	Uniform
Protection Rating	IP66
Connector Type	Waterproof plug-in connector
Installation	Screw fixing
Certifications	CE, RoHS

Applications & Illumination Guidelines

Outdoor LED Boxes / Backlit Sign Boards / Façade Signage

Based on 430LM / Module + 160° beam angle	
Minimum Depth	60mm
Ideal Depth Range	80-150mm
Maximum Depth	180mm

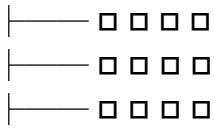
Anti-Shadow Calculation (Recommended Spacing)

Box Depth	**Module Spacing (C/C)**
60-80mm	100-120mm
80-120mm	120-150mm
120-180mm	150-180mm
Result: High, uniform brightness with no black shades or hot spots, even in large outdoor sign boards.	

Anti-Shadow Calculation (Recommended Spacing)

Application Depth	**Safe Spacing**
Shallow LED Boxes	100-120mm
Standard Backlit Signs	120-150mm
Deep Light Boxes	150-180mm
Result: High, uniform brightness with no black shades or hot spots, even in larger boards.	

Recommended Wiring Layout

Connection Method
Modules connected in parallels
Direct 220V AC Input
No external driver or SMPS required
Typical Wiring Layout [220V AC SUPPLY]

Best Practices
Maintain uniform spacing and proper earthing
Use waterproof joints / connectors
Installation must be carried out by qualified personnel
Avoid direct wire exposure in outdoor environments

Power Consumption Reference

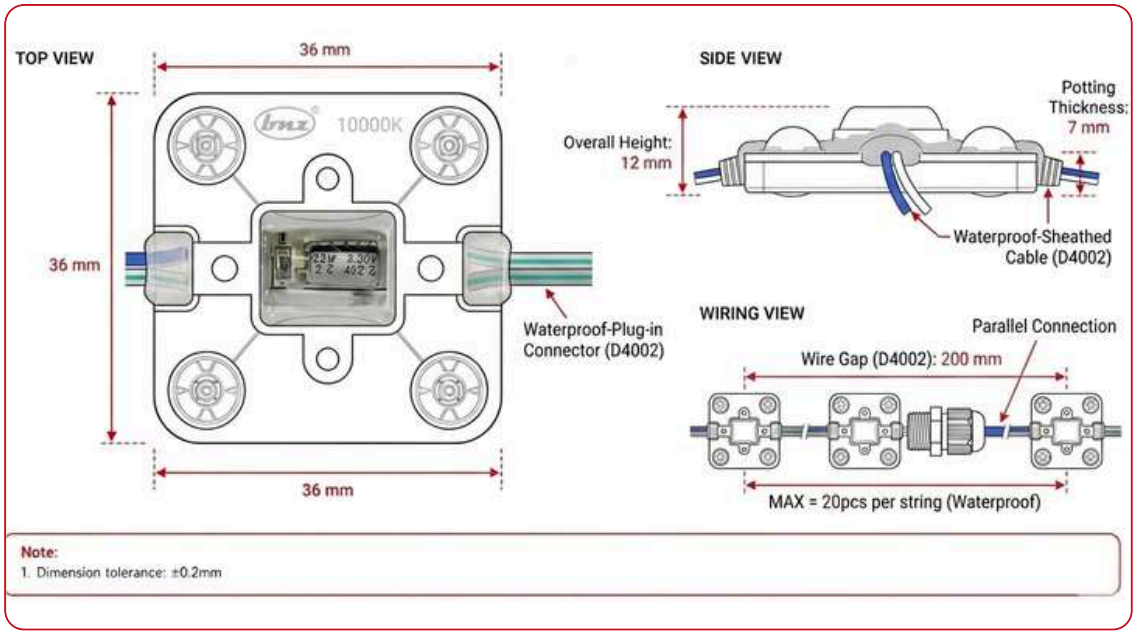
Power per module = **4W**

Example: **30 Modules**

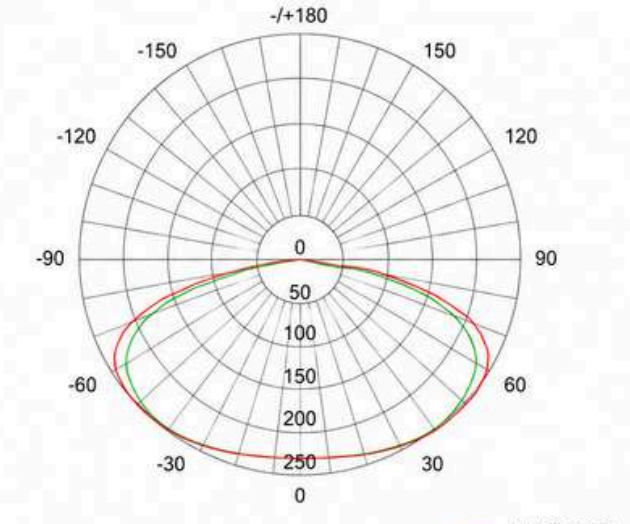
30 x 4W = **120W** (Direct AC Load)

No external power supply required.

Profile Drawings & Luminous Intensity Distribution Analysis



LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%): 110.6° Unit: cd

AVERAGE ILLUMINATION

CCT = 6500K

Distance	Average Illuminance	Beam Diameter
1m	620.5 lx	256.3 cm
2m	155.1 lx	512.6 cm
3m	68.9 lx	768.9 cm
4m	38.8 lx	1025.2 cm
5m	24.8 lx	1281.5 cm
6m	17.2 lx	1537.8 cm
7m	12.7 lx	1794.1 cm
8m	9.7 lx	2050.4 cm
9m	7.6 lx	2306.7 cm
10m	6.2 lx	2563.0 cm

Height Eavg, Emax **Beam Angle:** 110.6° Diameter

Wattage:
1W / module
(4 LED / module)

Beam Angle:
110.6°

Luminous Flux:
120 LM / module

Note: The above data is tested based on QUAD AC Direct AC Waterproof Series at 6500K. For other data, please consult sales rep.

Packaging Details

Packaging Type	Quantity
Product Type	Waterproof LED Module
Installation	Waterproof plug-in connector
Protection	IP66 Waterproof

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

- Designed for 220V AC direct connection.
- Ensure proper insulation and earthing.
- Suitable for outdoor and indoor signage.
- Maintain recommended depth & spacing.
- Use proper waterproof cable management.
- Follow local electrical safety standards.

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