



QUAD SERIES DIRECT LED

Model Number: D4001

BUILT-IN POWER SUPPLY

LED BOXES | BACKLIT SIGNAGE

Providing Brighter Solutions

 220V AC

 IP20

 430LM

 160°

Product Overview

BNZ **QUAD** Series Direct LED Modules are **220V AC** input 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, the QUAD Series is ideal for LED boxes and backlit signage requiring long viewing distance and strong brightness.

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



Plug-in connector
design, no
soldering required



Simplified
wiring for large
signage

Available Colors



10000K



4000K



3000K

*Other CCT and colors available on request.

Certifications & Compliance



QUAD DIRECT AC • Technical Specifications

Electrical Specifications	
Module Name	BNZ QUAD Series Direct LED
Model no.	D4001
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	IP20
Connector Type	Plug-in connector
Installation	Screw fixing
Certifications	CE, RoHS

Applications & Illumination Guidelines

LED Boxes / Backlit Sign Boards

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

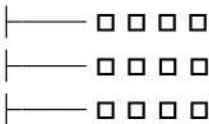
Anti-Shadow Calculation (Recommended Spacing)

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 sign boards.	

Spacing Summary

Application Depth	Safe Spacing
Shallow LED Boxes	100-120mm
Standard Backlit Signs	120-150mm
Deep Light Boxes	150-180mm

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
Ensure proper earthing
Installation must be carried out by qualified personnel

Power Consumption Calculation 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

QUAD SERIES

(220V AC) • 4W

Unit: mm

TOP VIEW

36 mm

36 mm

36 mm

36 mm

IS 16103(PART 1) 2012

lmz

R-41247774

3000K

4000K

10000K

6000K

CE RoHS

AC220V

Model: D4001

SIDE VIEW

Overall Height: 15 mm

Module Thickness: 8 mm

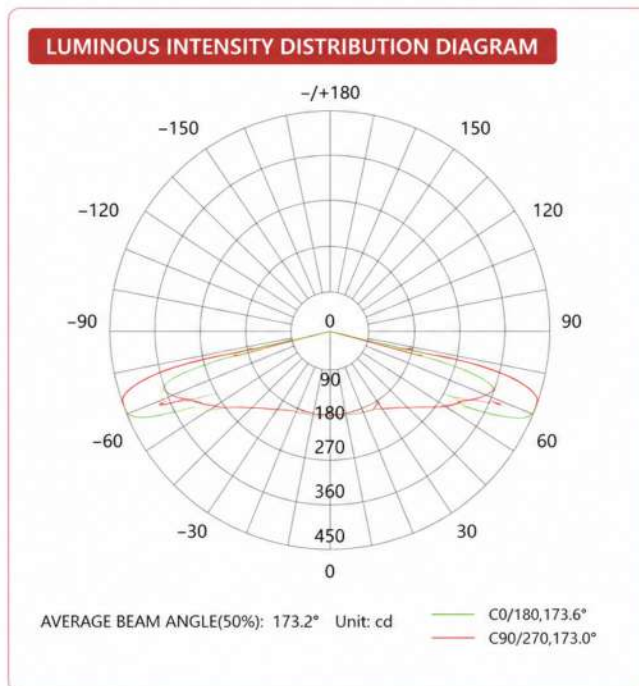
8 mm

WIRING VIEW

Parallel Connection

Note:

1. Dimension tolerance: $\pm 0.2\text{mm}$



AVERAGE ILLUMINATION			CCT=10000K
2cm	442.3,2111.4lx	54.38cm	
4cm	110.6,527.9lx	108.76cm	
6cm	49.14,234.6lx	163.15cm	
8cm	27.64,132.0lx	217.53cm	
10cm	17.69,84.6lx	271.91cm	
12cm	12.29,58.6lx	326.29cm	
14cm	9.026,43.0lx	380.68cm	
16cm	6.911,32.9lx	435.06cm	
18cm	5.460,26.0lx	489.44cm	
20cm	4.423,21.1lx	543.82cm	
Height	Eavg, Emax	Beam Angle: 160°	Diameter

Input Voltage	220V AC	Power Consumption	4W per module	Luminous Output	430 lm per module	Beam Angle	160°	CCT	10000K
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* The above two figures are tested with the sample QUAD SERIES – D4001 at 10000K, for other data, please consult sales rep.

Packaging Details

Packaging Type	Quantity
Product Type	LED Module
Installation	Plug-in connector
Protection	IP20

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 indoor / enclosed signage.
- Maintain recommended depth & spacing.
- 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



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