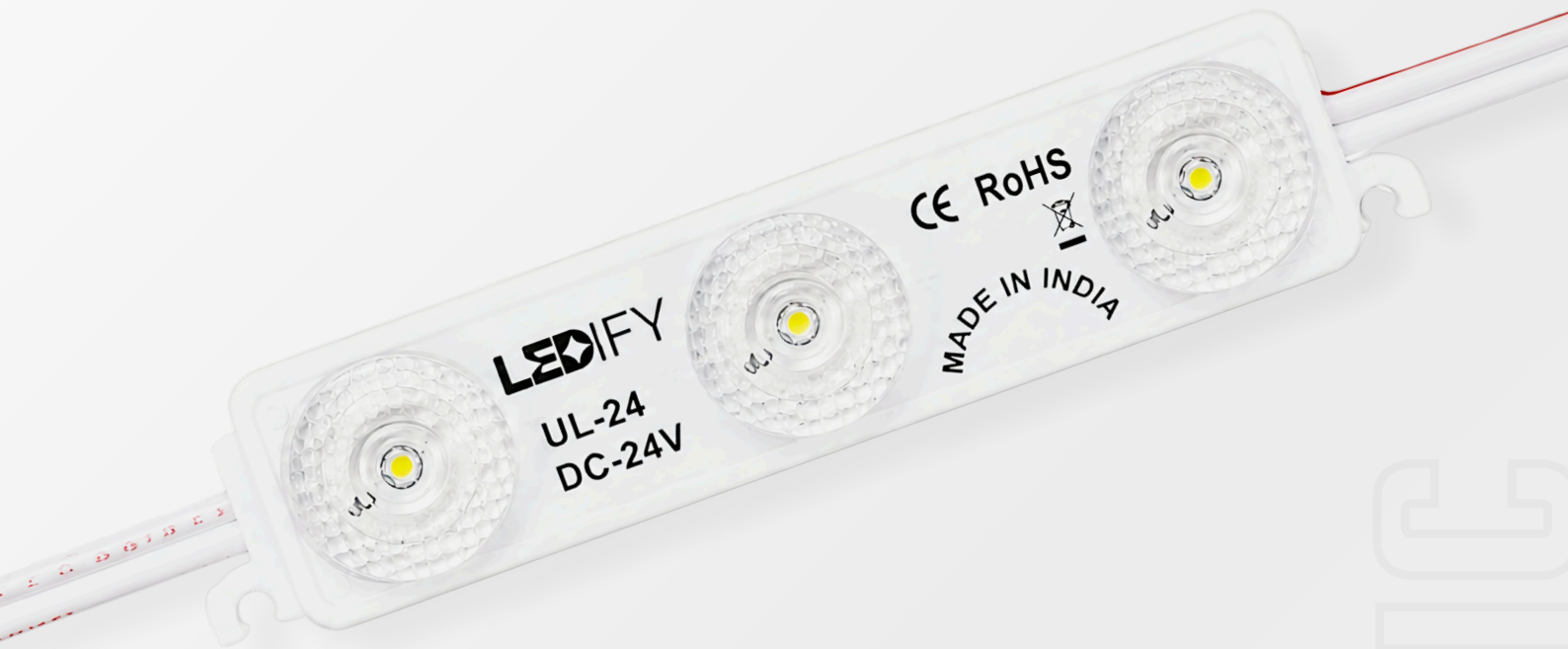




LEDIFY

UL-24 SERIES

Model Number: 2411

ULTRASONIC LED MODULE

GSB | CHANNEL LETTERS

Providing Brighter Solutions



Product Overview

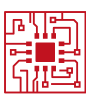
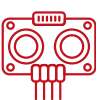
The LEDIFY **UL-24** Series is a high-efficiency **24V ultrasonic LED module** engineered for professional signage illumination.

With a rated power consumption of **1.2W** per module and high luminous output, the UL-24 is designed to deliver bright, uniform and efficient illumination for GSB, channel letters, 3D letters and illuminated signage.

The module incorporates an ultrasonic-sealed **ABS housing**, **PC optical lens** and high-efficiency **copper wire**, combined with IP67 protection for reliable indoor and outdoor signage applications.

The **170°** wide-angle optical design provides broad light distribution and helps minimise hotspots and dark areas.

Key Features

	High luminous output upto 155LM/Module		129LM/W based on rated power & luminous flux		Wide 170° beam angle for uniform illumination
	Energy Efficient 1.2W module		3 Years Warranty		120MM inter-module connection
	50000 HRS design life		IP67 rated for indoor and outdoor signages		High efficiency copper wire
	Ultrasonic construction for stronger sealing		ABS housing combined with PC optical lens		Designed for professional signage applications

Available Colors



8000K



3000K

*Other CCT / color options are available upon request.

Technical Specifications

Mechanical Specifications	
Model Name	BNZ UL-24 Series
Model No.	2411
Product Construction	Ultrasonic LED Module
Housing Material	ABS
Lens Material	PC / Polycarbonate
Wire Material	High Efficiency Copper
Mounting Type	High Strength Adhesive / Mechanical Fixing
Weight	8-12 gm
Dimensions (L x W x H)	70 x 15 x 10.6 mm
Inter-Module Wire Length	120 mm
C/C Spacing	120-150 mm*
Recommended Sign Depth	50-120 mm*
*Final spacing and depth should be confirmed through actual illumination testing. Comparable ultrasonic modules are commonly offered in approximately 70 × 15 × 10.6 mm formats with 170° optics.	
Electrical Specifications	
Operating Voltage	24V DC
Rated Power	1.2W / Module
Current Consumption (appx.)	0.5A / Module
Power System	Constant Voltage
Connection Type	Parallel / 24V DC System
Polarity Type	Positive (+) / Negative (-)
Recommended Power Supply	Regulated 24V DC
Dimming System	Compatible with suitable 24V DC Dimming Systems

Optical Specifications	
Beam Angle	170°
Luminous Flux	155LM / Module
Luminous Efficacy	129LM / W (appx.)
Color Temperature (CCT)	8000K, 3000K
Environmental Specifications	
IP Protection	IP67
Operating Temperature	-30°C to +50°C
Storage Temperature	-30°C to +55°C
Recommended Humidity	10–90% RH, Non-Condensing
Outdoor Application	Suitable
UV Exposure	Suitable for signage applications, subject to material validation
Expected Life	50,000 Hours
Comparable ultrasonic LED modules specify operating temperatures around -30°C to +50°C, storage temperatures around -30°C to +55°C & 50,000 hour life.	

Optical Performance

The LEDIFY UL-24 incorporates a 170° wide-angle optical system designed to provide broad and uniform light distribution.

Optical Benefits

- Wide illumination coverage.
- Reduced visible hotspots.
- Improved illumination uniformity.
- Better coverage inside channel letters.
- Reduced dark areas between modules.
- Suitable for shallow and medium-depth signage.
- Improved utilisation of available installation space.

Wide-angle 24V signage modules are commercially used for channel letters and illuminated signage, with published products specifying approximately for 170° - 178° viewing angles.

Applications

GSB & Sign Boxes

Illuminated Logos

Architectural Signage

Indoor & Outdoor Signage

Retail and Commercial Signage

3D Acrylic Channel Letters

Aluminum Channel Letters

Front-Lit and Back-Lit Channel Letters

Installation and Illumination

Recommended Installation Principles

- Maintain consistent module spacing.
- Position modules perpendicular to the illuminated face wherever possible.
- Avoid placing modules excessively close to letter edges.
- Maintain appropriate spacing according to letter depth.
- Consider face material and face color during installation.
- Use a regulated 24V DC power supply.
- Observe correct polarity.
- Use appropriate cable gauge for the total load and cable length.
- Properly seal all electrical connections for outdoor applications.

Recommended Application Range

- The UL-24 is suitable for shallow to medium depth channel letters and GSB applications.
- Final module spacing should be verified using an actual illumination test.

Ultrasonic Construction

The LEDIFY UL-24 uses an ultrasonic construction process to create a robust and sealed module assembly.

Key Advantages:

- Strong housing-to-lens assembly
- Improved resistance to moisture ingress
- Enhanced mechanical integrity
- Consistent module construction
- Improved protection of internal LED components
- Suitable for demanding outdoor signage applications

Ultrasonic molding / sealing is commonly used in IP67 / IP68 signage LED modules.

IP67 Protection

The UL-24 is rated IP67, providing:

- 6** - Complete protection against dust ingress.
- 7** - Protection against temporary immersion in water under applicable test conditions.

For outdoor installations,

- Connectors
- Proper sealing of cable joints
- Power supply connections should be properly sealed and protected.

Wiring Configuration

Recommended Connection

- 24V DC Power Supply
- Positive (+) / Negative (-) Distribution
- BNZ UL-24 LED Modules
- Illuminated Signage

The **120 mm inter-module connection** provides convenient positioning for channel letters and GSB installations.

Power Supply Selection

Formula:

Total LED Load = No. of modules x 1.2W
For reliable operation, approximately 20% reserve capacity is recommended.

Example: 100 Modules

$100 \times 1.2W = 120W$

Recommended Power Supply

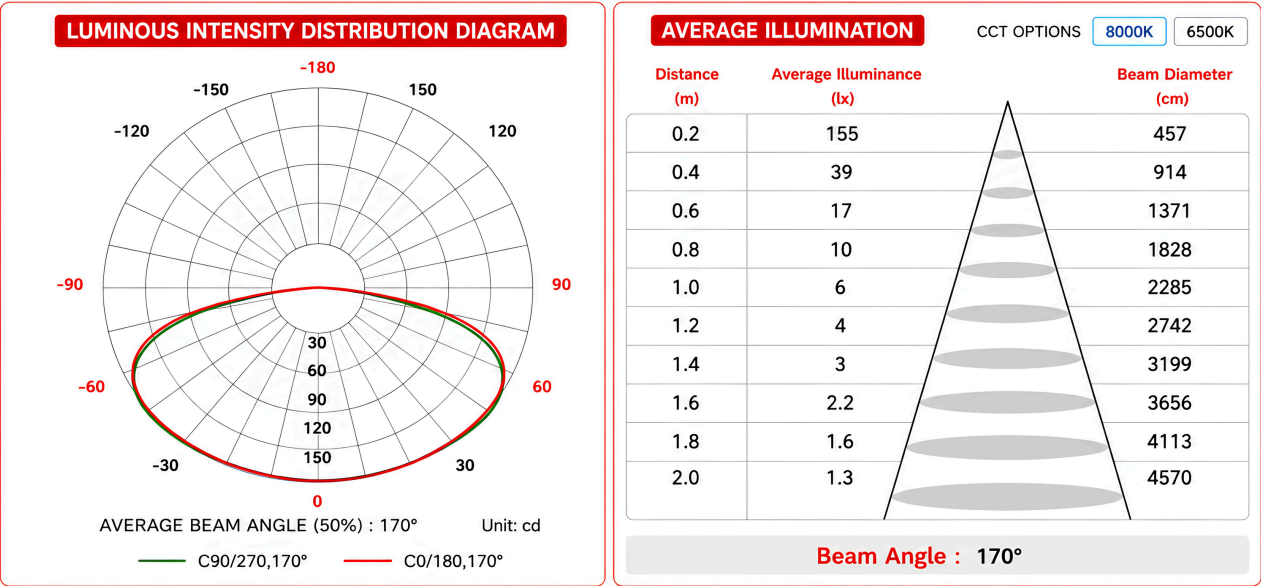
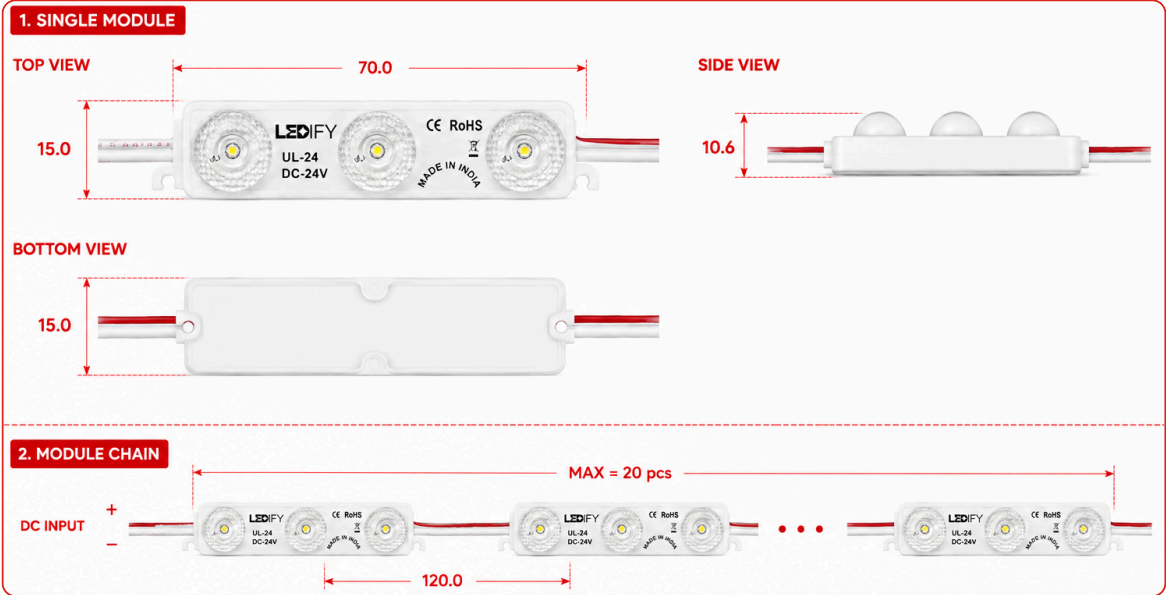
$120W \div 0.80 = 150W$

100 UL-24 Modules → 24V / 150W Power Supply

Power Supply Reference

Modules	50	100	150	200	250	300
Total LED Load	60W	120W	180W	240W	300W	360W
Recommended PSU	75W	150W	225W	300W	375W	450W
Based on approximately 80% maximum recommended PSU loading.						

Luminous Intensity Distribution Analysis





Wattage
1.2W / Module



Beam Angle
170°



Luminous Flux
155 LM / Module

Note: The above data is tested with LEDIFY UL-24 Modules at 24V DC.
Actual performance may vary depending on installation conditions and signage depth.

Ordering Information

Model	Power	Voltage	CCT / Color	Beam Angle	Output	IP Rating	Warranty
UL-24-8K	1.2W	24V DC	8000K	170°	155LM	IP67	3 Years
UL-24-3K	1.2W	24V DC	3000K	170°	155LM	IP67	3 Years

*155 LM / module should be confirmed by BNZ photometric testing for each CCT before final publication.

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.

Safety and Installation Notes

- Use only a regulated 24V DC power supply.
- Do not connect directly to 220–240V AC.
- Check polarity before powering the system.
- Do not exceed the recommended power-supply load.

- Use appropriate wire gauge according to installation length and total load.
- Protect all electrical connections against moisture.
- Properly seal cable joints and connectors for outdoor installations.
- Avoid excessive bending or mechanical stress on modules and wires.
- Ensure modules are firmly secured to the sign surface.
- Maintain adequate ventilation and avoid unnecessary heat accumulation.
- Do not operate outside the specified electrical and environmental limits.
- Final module spacing should be verified through illumination testing on actual sign.

Warnings

- Do not disassemble or retrofit the light. Do not touch the surface of the light with a sharp object and do not use any organic chemical solvents.
- Do not do live-line working during installation especially for high voltage product.
- 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 & Recycling

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