

TBZFNZXF DLC-02

DLC-02 Power Digital Lighting Controller DALI-2 User Manual

Model: DLC-02 | Brand: TBZFNZXF

1. INTRODUCTION

The DLC-02 is a sophisticated Power Digital Lighting Controller designed for DALI-2 systems. This device serves as a multi-master controller, enabling comprehensive management of lighting installations. It is built to provide reliable and efficient control for various lighting environments, from office spaces to smart homes.



Figure 1: Front view of the DLC-02 DALI Controller, showing input/output terminals, display, and control buttons.

Key Features:

- DALI-2 multi-master controller
- 2 independent DALI Bus channels with built-in DALI power supply (up to 250mA per bus)
- Connect up to 2×64 DALI control gears and 2×12 input devices
- Max 16 scenes and groups setting per channel
- OLED display, LED indicators and buttons for local operation
- Built-in with 250V/5A (×4) relay
- Easy installation and configuration via DLC-02 software
- Effect setting with timer events and input devices
- Up to 255 timer events
- Support 8 sequences schedule up to 16 steps per sequence
- Support DALI-2 devices with Part 207/209/301/302/303/304
- Support DT8 colour control (Tunable white, RGBW, xy-coordinate)
- Built-in with Modbus TCP/IP protocol

Applications:

- Office lighting
- Smart home lighting
- Luxury villas lighting
- LED indoor lighting
- Human centric lighting control
- RGBW lighting control
- Building automation system

2. SETUP AND INSTALLATION

The DLC-02 controller is designed for easy installation, typically mounted on a DIN rail. Ensure all power is disconnected before proceeding with any wiring.

2.1 Physical Installation:

- Mount the DLC-02 securely onto a standard 35mm DIN rail.
- Ensure adequate ventilation around the device for optimal performance.

2.2 Wiring Connections:

Refer to the labels on the device for correct wiring. The DLC-02 features terminals for power input, DALI bus connections, relay outputs, and data interfaces.

- **L, N:** Connect the main AC power supply (100-305VAC, 140-430VDC).
- **DALI-A, DALI-B:** Connect to your DALI control gears and input devices. The controller provides built-in DALI power supply.
- **Relay 1, Relay 2, Relay 3, Relay 4:** Connect external loads to these 250V/5A relays as required for switching.
- **USB:** For configuration and software updates using the DLC-02 software.
- **Ethernet:** For Modbus TCP/IP communication and network integration.



DALI Controller



SELV



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- Built in with Modbus TCP/IP protocol
- 5 years warranty

■ Applications

- Office lighting
- Smart home lighting
- Luxury villas lighting
- LED indoor lighting
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- RGBW lighting control
- Building automation system

■ GTIN CODE

MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

■ Description

DLC-02 is a multi-master controller to obtain the regulation of the DALI-2 system from DALI input devices and control gears to make a DALI lighting system. Devices in the DALI bus can be scan, configure and setting through the DLC-02 software. DLC-02 supports up to 128 DALI participants via two independent DALI Bus. The DALI Bus power supply comes directly within DLC-02, so no additional DALI power supply is required. This device comes in 4 built-in relays, providing switching possibilities for home applications and non-dimmable lighting. In addition, DLC-02 is also integrated with several features. The Effect function allows users to customize a series of events and function of input devices. Thanks to an embedded battery, time is memorized even AC is lost. The clock of DLC-02 can be synchronized in real-time; therefore, the regular events and actions can be scheduled by the Timer function accordingly. In addition, the built-in Modbus TCP/IP protocol is very flexible to adapt with other manufacturers' control software.

■ Model Encoding

DLC - 02



File Name:DLC-02-SPEC 2024-10-16

Figure 2: Overview of DLC-02 features and typical applications.

After all connections are made, you can apply power to the device. The OLED display will illuminate, and LED indicators will show the status.

3. OPERATING THE DLC-02

The DLC-02 can be operated locally via its front panel buttons and display, or remotely through its software interface and network protocols.

3.1 Front Panel Controls:

- **OLED Display:** Shows current status, settings, and menu options.
- **LED Indicators:** Provide visual feedback on power status and relay states.
- **MOVE Button:** Navigates through menu options or adjusts values.
- **SET Button:** Confirms selections or enters sub-menus.
- **ESC Button:** Exits current menu or cancels an operation.

3.2 Configuration and Programming:

The primary method for detailed configuration is via the dedicated DLC-02 software, connected via the USB port or Ethernet.

- Use the software to discover and address DALI control gears and input devices.
- Set up to 16 scenes and groups per DALI channel.
- Program timer events (up to 255) and sequences (8 sequences, up to 16 steps each) for automated lighting control.
- Configure DT8 color control for tunable white, RGBW, and xy-coordinate luminaires.
- Integrate with building management systems using the Modbus TCP/IP protocol via the Ethernet port.

4. MAINTENANCE

The DLC-02 is designed for long-term reliability with minimal maintenance. However, periodic checks can help ensure optimal performance.

- **Cleaning:** Keep the device clean and free from dust. Use a soft, dry cloth for cleaning. Do not use liquid cleaners.
- **Connections:** Periodically check all wiring connections to ensure they are secure and free from corrosion.
- **Ventilation:** Ensure that the ventilation openings are not obstructed to prevent overheating.
- **Software Updates:** Check the manufacturer's website for any available firmware or software updates that may improve performance or add features.

5. TROUBLESHOOTING

If you encounter issues with your DLC-02 controller, consider the following common troubleshooting steps:

- **No Power/Display Off:**
 - Verify that the main AC power supply is connected correctly to the L and N terminals and is active.
 - Check the power source for any tripped circuit breakers or blown fuses.
- **DALI Devices Not Responding:**
 - Ensure DALI-A and DALI-B connections are correct and secure.
 - Verify that the DALI control gears are powered and functioning correctly.
 - Check for short circuits on the DALI bus. The device has short circuit protection with a 0.7-second retry.
 - Confirm that DALI addresses have been assigned to all devices using the DLC-02 software.
- **Relays Not Activating:**

- Check the wiring to the relay terminals (Relay 1-4).
- Ensure the connected loads are within the specified 250V/5A rating.
- Verify that the relay commands are correctly configured in the software or via local controls.

- **Communication Issues (USB/Ethernet):**

- For USB, ensure the correct drivers are installed on your computer.
- For Ethernet, check network cable connections and IP settings.

If the problem persists after attempting these steps, please contact technical support.

6. SPECIFICATIONS

Detailed technical specifications for the DLC-02 Power Digital Lighting Controller:

SPECIFICATION

MODEL		DLC-02
OUTPUT	BUS VOLTAGE	Built-in DALI bus power supply; Voltage range : 2x16V
	GUARANTEED SUPPLY CURRENT	2x240mA
	MAXIMUM SUPPLY CURRENT	2x250mA
	RATED POWER	7.68W
	SETUP,RISE TIME	250ms,50ms/115VAC,230VAC
INPUT	VOLTAGE RANGE	100~305VAC, 140~430VDC,(class II)
	FREQUENCY RANGE	47~63Hz
	AC CURRENT(Typ.)	0.5A/115VAC 0.25A/230VAC
	INRUSH CURRENT(Typ.)	COLD START 45A/230VAC
PROTECTION	SHORT CIRCUIT	Short circuit delay 0.7S shutdown,Restart period 5S, Retry time 0.7S
FUNCTION	USB INTERFACE	1 USB slave connector , type-B
	DISPLAY	OLED display for easy operation
	INDICATOR	2*LED indicators for BUS voltage; 4*LED indicators for relay ;1*LED indicators for power on.
	GENERIC SETTING	Three buttons(MOVE, SET,ESC) on the front panel to set and view settings
	Ethernet	Control via Modbus TCP/IP protocol (RJ-45)
	Relay	10A/125VAC ,5A/250VAC
ENVIRONMENT	WORKING TEMP.	-25 ~ +45°C
	WORKING HUMIDITY	5 ~ 93% RH non-condensing; comply with climatic EN50090-2-2
	STORAGE TEMP., HUMIDITY	-25 ~ +70°C , 10 ~ 95% RH non-condensing
	VIBRATION	5 ~ 150Hz, 2G 12min./1cycle, each along X, Y, Z axes according to EN50090-2-2
SAFETY & EMC	SAFETY STANDARDS	Compliance to BS EN/EN61347-1, BS EN/EN61347-2-11
	DALI STANDARDS	Compliance to BS EN/EN62368-101,BS EN/EN62386-103
	EMC EMISSION	Compliance to BS EN/EN55015,Harmonic current class A
	EMC IMMUNITY	Compliance to BS EN/EN61547
OTHERS	MTBF	618.9K hrs min. Telcordia SR-332 (Bellcore) ; 190.1K hrs min. MIL-HDBK-217F (25°C)
	DIMENSION	144*90*58.3mm (L*W*H)
	PACKING	0.43Kg; 30pcs/13.9Kg/ 1.30CUFT
	DIN RAIL MOUNTING	35 mm rail ; 8 units wide
	ENCLOSURE MATERIAL	ABS-V0
NOTE	<p>1. All parameters NOT specially mentioned are measured at 230VAC input and 25°C of ambient temperature.</p> <p>2. Maximum allowable DALI driver is 64 control gears per channel.</p> <p>3. The maximum allowable input device depends on the connected DALI drivers and the current requirement of input device. For example , if 64 control gears is connected, the maximum driver current available in the DALI bus is 250mA-(2mA×64)=122mA. If the specific power consumption of an input device is 10mA then the maximum of input device should be 12 pcs.</p> <p>4. The devices may be operated only up to 2000m(6500ft).</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx</p>	

Figure 3: Comprehensive technical specifications of the DLC-02.

Category	Parameter	Value
Model	Model Name	DLC-02
	BUS Voltage	Built-in DALI bus power supply; Voltage range: 2x16V
Output	Guaranteed Supply Current	2x240mA
	Maximum Supply Current	2x250mA
	Rated Power	7.68W
Input	Setup/Rise Time	250ms, 50ms/115VAC, 230VAC
	Voltage Range	100-305VAC, 140-430VDC (class II)
	Frequency Range	47-63Hz
	AC Current (Typ.)	0.5A/115VAC, 0.25A/230VAC
Protection	Short Circuit	Short circuit delay 0.7S shutdown, Restart period 5S, Retry time 0.7S
Function	USB Interface	1 USB slave connector, Type-B
	Display	OLED display for easy operation
	Indicator	2*LED indicators for BUS voltage; 4*LED indicators for relay; 1*LED indicators for power on.
	Generic Setting	Three buttons (MOVE, SET, ESC) on the front panel to set and view settings
Environment	Working Temp.	-25 ~ +45°C
	Working Humidity	5 ~ 93% RH non-condensing; comply with climatic EN50090-2-2
	Storage Temp./Humidity	-25 ~ +70°C, 10 ~ 95% RH non-condensing
	Vibration	5 ~ 150Hz, 2G 12min./1cycle, each along X, Y, Z axes according to EN50090-2-2
Safety & EMC	DALI Standards	Compliance to BS EN/EN61347-1, BS EN/EN61347-2-11
	EMC Emission	Compliance to BS EN/EN62368-1, BS EN/EN62368-103
	EMC Immunity	Compliance to BS EN/EN61547, Harmonic current class A
	MTBF	618.9K hrs min. (Telcordia SR-332 (Bellcore)); 190.1K hrs min. (MIL-HDBK-217F (25°C))
Others	Dimension	144*90*58.3mm (L*W*H)
	Packing	0.43kg; 30pcs/13.9kg/ 1.30CUFT
	DIN Rail Mounting	35 mm rail; 8 units wide

Category	Parameter	Value
	Enclosure Material	ABS-V0

Additional Specifications from Product Data:

- **Package Dimensions:** 1.18 x 0.79 x 0.39 inches
- **Item Weight:** 7.1 ounces
- **Country of Origin:** China
- **Assembly required:** No
- **Number of pieces:** 1

7. WARRANTY AND SUPPORT

7.1 Warranty Information:

The DLC-02 Power Digital Lighting Controller comes with a **5-year warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use. Please retain your proof of purchase for warranty claims.

7.2 Technical Support:

For technical assistance, troubleshooting beyond this manual, or warranty inquiries, please contact TBZFNZXF customer support. Provide your product model (DLC-02) and a detailed description of the issue when contacting support.

Note: Specific contact details for TBZFNZXF support are not provided in this manual. Please refer to the product packaging or the vendor's website for the most current support information.