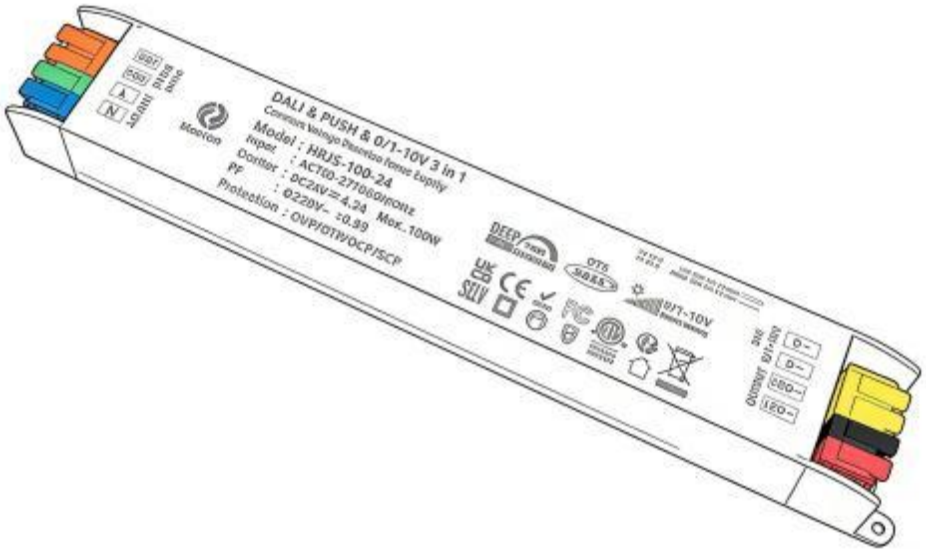
HRJS Series 3-in-1 Dimming LED Switching Power Supply Driver

Product Specification



Product Series: HRJS Series

Output Specification: 24V 60W-350W (0-10V/Dali/Push 3-in-1 Dimming)

Dimming Modes: 0-10V/1-10V analog dimming, DALI DT6 digital dimming, Push doorbell switch dimming (3-in-1)

Protection Grade: IP50 (Indoor Use Only)

Warranty Period: 3-Year Warranty

Version: V1.0

Revision Record

Version	Date	Revision Content
V1.0	March 2026	Initial version, completed full specification parameters, selection table, installation specifications and warranty terms for HRJS series 3-in-1 dimming models

Note: The parameters in this specification are subject to change without prior notice. Please refer to the physical product or the latest electronic version for details.

1. Product Overview and Core Technical Advantages

1.1 Product Introduction

The HRJS series is a 3C, CE, ROHS and LVD certified 0-10V/Dali/Push 3-in-1 dimming constant voltage LED switching power supply driver, specially designed for indoor medium and large-scale intelligent LED lighting projects. It integrates three control modes: analog 0-10V/1-10V dimming, digital DALI DT6 dimming and Push doorbell switch dimming, providing a one-stop solution for dimming control needs in different lighting scenarios. There is no need to stock multiple types of power supplies separately, and the dimming mode can be flexibly switched on site.

Adopting an isolated two-stage circuit topology design, equipped with a high-temperature resistant pure copper transformer and an efficient heat dissipation structure, the product features a **power factor (PF) ≥ 0.9**, **high efficiency (≥ 90%)** and **wide voltage input (100-277V)**. The DALI series is compatible with the international DALI-2 standard, and the Push dimming supports power-off brightness memory and one-click reset functions, perfectly adapting to large-area indoor lighting scenarios such as large conference halls, banqueting halls, exhibition halls, commercial complexes and office buildings. With a constant output voltage of 24V and a power range of 60W-350W, it fits various indoor installation spaces and meets the stringent technical requirements of LED loads for dimming flexibility, operation stability and energy saving, making it a cost-effective core supporting product for indoor multi-scenario intelligent dimming lighting projects.

1.2 Core Advantages

Advantage Item	Technical Implementation and Value
3-in-1 Dimming Mode Integration	Integrates 0-10V/1-10V analog dimming, DALI DT6 digital dimming and Push doorbell switch dimming; one unit replaces three, effectively reducing inventory stock; dimming modes can be flexibly switched on site in different spaces to adapt to diversified control needs
High Power Factor & Low Grid Impact	PF value ≥ 0.9, instantaneous starting current close to actual power, reduces grid harmonic interference and is conducive to grid stability, especially suitable for centralized power supply scenarios of large-area space lighting
High Efficiency, Energy Saving & Long Service Life	Output efficiency ≥ 90%, low heat generation, reduced energy loss, green and energy-saving in line with dual carbon standards; equipped with high-temperature resistant pure copper transformer, temperature rise under full load < 50°C, ensuring long-term stable operation of the power supply
Wide Voltage & Full Regional Adaptation	100-277V wide voltage input, compatible with mainstream global grid standards (110V/220V), no need for regional selection, suitable for domestic and foreign indoor lighting projects
Isolated Two-stage Safety Design	Electrical isolation between input and output for the whole series, insulation withstand voltage 1500VAC, voltage regulation accuracy ≥ 95% (no-load/full load), no output voltage drift during dimming, ensuring the service life and luminous efficiency stability of LED loads
Push Dimming Humanized Design	Push switch supports long press for dimming, short press for on/off, double click for reset, with built-in power-off brightness memory function; no additional controller required, simple wiring, suitable for rapid renovation scenarios without complex wiring
Multiple Safety Protections & Anti-interference	Integrates input overvoltage/overcurrent protection, output overload/short circuit protection and whole machine over temperature protection; EMC anti-interference circuit is equipped at the dimming signal end to resist surge and static electricity, avoiding dimming flicker caused by grid fluctuation and electromagnetic interference

Advantage Item	Technical Implementation and Value
Authoritative Compliance Certification	The whole machine has passed 3C, CE, ROHS and LVD certifications, in line with relevant electromagnetic compatibility and safety standards, and meets domestic and foreign safety and environmental protection standards, suitable for global indoor intelligent lighting projects

1.3 Typical Application Scenarios

1. **Push dimming scenario**: Rapid renovation of small and medium-sized commercial spaces and office areas, projects without separate dimming wiring; suitable for basic brightness adjustment of downlights, panel lights and conventional light strips, with convenient operation and no additional controller required.
2. **0-10V/1-10V dimming scenario**: New commercial lighting and medium-area intelligent lighting; suitable for high-precision single-color dimming of light strips, linear lights and wall washers, with simple wiring and high cost performance.
3. **DALI DT6 dimming scenario**: Large-area commercial lighting such as large conference halls, banqueting halls, exhibition halls and office buildings; single-color dimming systems requiring networking control and scene linkage, suitable for standardized intelligent lighting projects.
4. **Mixed dimming demand scenario**: Multi-area lighting such as commercial complexes and multi-storey office buildings; dimming modes can be flexibly selected in different areas, reducing the types of power supply inventory and lowering project management costs.

2. Detailed Technical Specifications and Selection Table

2.1 General Technical Parameters

Parameter Item	Technical Index (24V 3-in-1 Dimming Model)
Input Voltage Range	AC 100-277V (wide voltage input, compatible with 100-130V/170-277V)
Input Frequency	47-63Hz (50/60Hz)
Output Voltage	DC 24V (constant voltage output)
Output Voltage Accuracy	≥95% (no-load/full load, no drift during dimming)
Output Ripple	<10%, no sudden change in ripple during dimming
Power Factor (PF)	≥0.9 (full power range of 60-350W)
Typical Efficiency	≥90% (full power range of 60-350W)
Dimming & Color Temperature Mode	0-10V/1-10V analog dimming, DALI DT6 digital dimming, Push doorbell switch dimming (3-in-1)
Dimming Range	0.01%-100% (stepless dimming, linearity ≥95%)
Dimming Signal Type	0-10V/1-10V: analog voltage signal; DALI DT6: digital bus signal (16V±2V); Push: switch trigger signal
Special Optical Performance	Flicker-free (flicker depth <3%); Push dimming with power-off memory and one-click reset
Operating Temperature	-20°C~ +50°C (no condensation, derating use under full load)
Storage Temperature	-40°C~ +85°C
Operating Humidity	≤90% RH (no condensation, no icing)
Protection Class	IP50 (IEC 60529), indoor use only (dustproof, not waterproof)
Heat Dissipation Method	Natural cooling (efficient heat dissipation structure conduction + convection heat dissipation)
Safety Protection	Input overvoltage/overcurrent (fuse), output overload/short circuit, whole machine over temperature protection
Mean Time Between Failures (MTBF)	≥50,000 hours (25°C)
Certification Standard	3C, CE, ROHS, LVD
Warranty Period	3 years (from the date of factory shipment)

2.2 Professional Technical Parameters of Dimming Modes

Dimming & Color Temperature Mode	Signal Type	Working Voltage	Dimming Range	Core Technical Features	Protocol Standard	Adapted Load	Wiring Requirements
Single-color Dimming 0-10V	DC analog voltage signal	DC 0-10V (low-voltage side dimming)	0.01%-100% (0V = off, 10V = full brightness)	High dimming linearity, flicker-free; strong anti-interference, smooth adjustment; supports parallel connection of multiple power supplies for unified dimming	IEC 61347-2-10	Single-color dimming LED light strips, wall washers, linear lights	Arrange separate 2-core dimming signal wires (shielded wires), separated from the main circuit
Single-color Dimming 1-10V	DC analog voltage signal	DC 1-10V (low-voltage side dimming)	0.01%-100% (1V = minimum brightness, 10V = full brightness, 0V = maintain last brightness)	Anti-misoperation shutdown, avoiding lamp extinction caused by voltage fluctuation; same dimming accuracy as 0-10V, suitable for industrial/commercial lighting	IEC 61347-2-10	Single-color dimming LED panel lights, downlights, commercial lighting fixtures	Arrange separate 2-core dimming signal wires (shielded wires), separated from the main circuit
DALI DT6 Single-color	Digital differential bus signal	DC 16V±2V (bus power supply)	0.01%-100%, supports 16-level brightness preset	Networking control (up to 64 devices), scene linkage; no signal attenuation, suitable for large-area projects; supports master-slave redundancy design	DALI-2/IEC 62386-102	All types of single-color dimming LED lamps, large-area commercial lighting loads	Adopt DALI special 2-core bus cable (RVSP2×1.0), daisy-chain networking
Push Doorbell Switch Dimming	Switch trigger signal	AC 100-277V (high-voltage side trigger)	0.01%-100%	Long press for dimming, short press for on/off, double click for reset; power-off brightness memory; no additional controller required, simple wiring	Industry general switch trigger standard	Single-color dimming LED light strips, downlights, panel lights, office lights	Only mains live and neutral wiring required, Push switch connected in series at the live wire end

2.3 Product Parameter Selection Table

Function Version	Model	Power (W)	Output Voltage (DC V)	Output Current (A)	Product Size (L×W×T, mm)	Input Voltage (AC V)	Supported Dimming Modes
24V 3-in-1 Dimming Model	HRJS-60-24	60	24	2.5	243×40×30	100-277	0-10V/1-10V+ DALI DT6+Push
24V 3-in-1 Dimming Model	HRJS-100-24	100	24	4.2	272×40×30	100-277	0-10V/1-10V+ DALI DT6+Push
24V 3-in-1 Dimming Model	HRJS-150-24	150	24	6.3	272×40×30	100-277	0-10V/1-10V+ DALI DT6+Push
24V 3-in-1 Dimming Model	HRJS-200-24	200	24	8.3	336×40×30	100-277	0-10V/1-10V+ DALI DT6+Push
24V 3-in-1 Dimming Model	HRJS-250-24	250	24	10.4	336×40×30	100-277	0-10V/1-10V+ DALI DT6+Push
24V 3-in-1 Dimming Model	HRJS-300-24	300	24	12.5	336×40×30	100-277	0-10V/1-10V+ DALI DT6+Push
24V 3-in-1 Dimming Model	HRJS-350-24	350	24	14.6	336×40×30	100-277	0-10V/1-10V+ DALI DT6+Push

2.4 Logistics and Transportation Selection Table

Model	Single Packaging Size (L×W×T, mm)	Single Net Weight (KG)	Quantity per Carton (pcs)	Outer Carton Size (L×W×H, cm)	Gross Weight per Carton (KG)
HRJS-60-24	253×43×33	0.24	79	38×30×30	19.96
HRJS-100-24	282×43×33	0.46	41	38×30×30	19.86
HRJS-150-24	282×43×33	0.29	65	38×30×30	19.85
HRJS-200-24	346×43×33	0.43	44	38×30×30	19.92
HRJS-250-24	346×43×33	0.44	43	38×30×30	19.92
HRJS-300-24	346×43×33	0.59	32	38×30×30	19.88
HRJS-350-24	346×43×33	0.59	32	38×30×30	19.88

2.5 Load and Derating Usage Specifications

1. **General Load Specifications**

Power Range	Maximum Load Ratio (AC 170-277V)	Maximum Load Ratio (AC 100-130V)	Remarks
60-350W	80%	70%	No more than 70% load for single unit when DALI series is networked

2. **Dedicated Derating for Dimming Working Conditions**

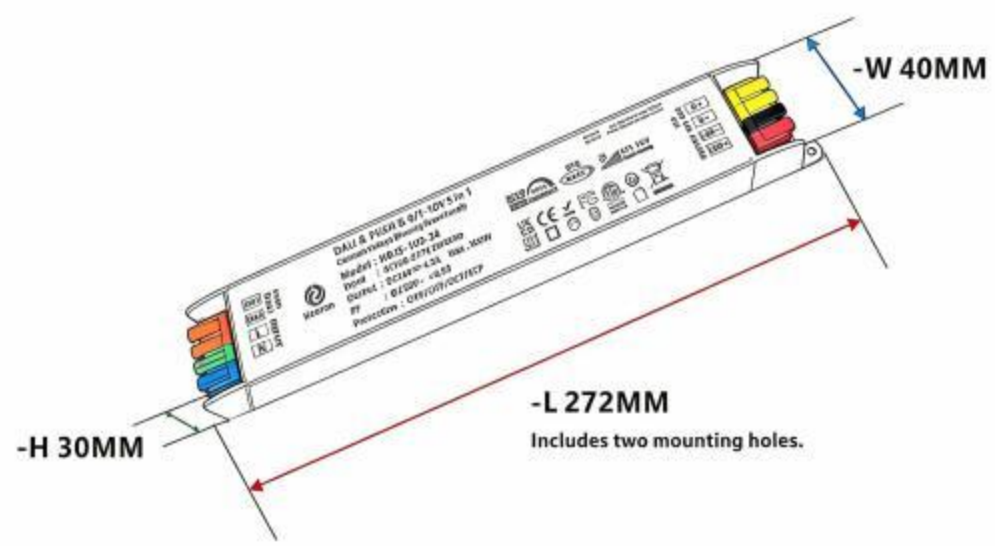
- **Push dimming:** When running at low brightness below 10% for a long time, the load ratio shall not exceed 60% to avoid excessive temperature rise caused by frequent switching of trigger signals.
- **0-10V/1-10V dimming:** When running at ultra-low brightness of 0.5%-5% for a long time, the load ratio shall not exceed 70% to ensure the stability of the dimming circuit.
- **DALI DT6:** When the number of networked devices exceeds 32, the load ratio of a single power supply shall not exceed 70% to avoid bus signal interference.

3. **Temperature Derating**

- The whole series shall be used with derating when the ambient temperature exceeds 50°C, with a derating of 2% for each 1°C rise; when the working temperature of the core dimming chip exceeds 85°C, the power supply will automatically enter the power reduction mode and resume normal operation when the temperature drops below 70°C to avoid the decrease of dimming accuracy caused by high temperature.

3. Mechanical Specifications and Installation Guide

3.1 Outline Structure Description (100W as an example)



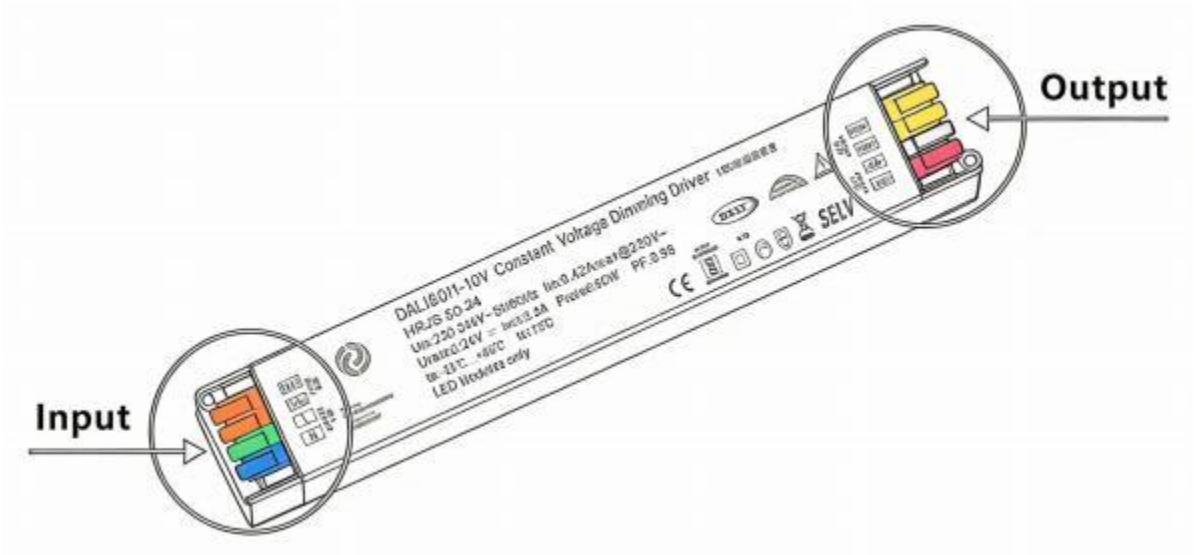
The whole series features an IP50 dustproof long strip structure with an efficient heat dissipation metal shell. The shell surface is treated with anti-oxidation and EMC shielding to improve heat dissipation efficiency and anti-interference of dimming signals. The shell structure of models with different powers is unified, and the signal terminal area integrates a 3-in-1 dimming signal interface without the need to replace the interface module separately.

The overall dimensions of models with different powers are strictly implemented in accordance with the selection table. The layout of mounting holes and main circuit terminal areas is unified, and the dimming signal terminal area is designed with an independent partition to avoid mutual interference between the main circuit and the signal circuit, adapting to various indoor installation spaces (such as suspended ceiling, light box, equipment cabinet, beside distribution box).

All terminals adopt screw type crimping design (contact resistance ≤5mΩ). The main circuit terminals are suitable for cables with wire diameter of 1.0-2.5mm² (AWG18-14), and the dimming signal terminals are suitable for shielded cables with wire diameter of 0.5-1.0mm² (AWG22-18), featuring convenient operation, reliable contact and strong anti-interference.

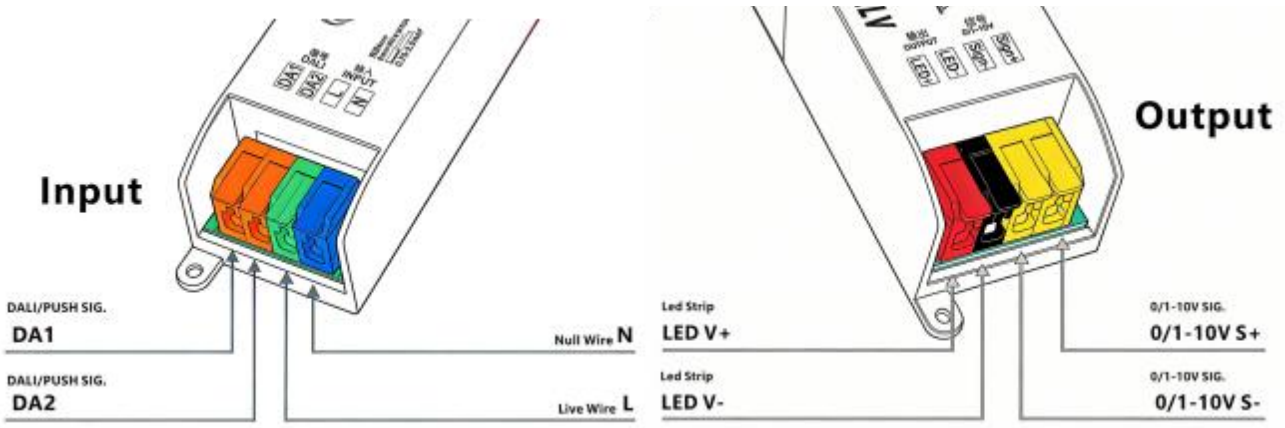
3.2 Wiring Definition of Input/Output/Dimming Signal Terminals

3.2.1 General Main Circuit Terminal Definition



Terminal Mark	Wiring Definition	Wiring Specification	Remarks
L	AC input live wire	Connect to mains live wire, suitable for 1.0-2.5mm² cables	For Push/DALI/0-10V dimming, the corresponding control element is connected in series/access to the relevant circuit of this terminal
N	AC input neutral wire	Connect to mains neutral wire, suitable for 1.0-2.5mm² cables	The neutral wire wiring specification is consistent for all modes
LEDV+	DC output positive pole	Connect to the positive pole of LED load, parallel terminals are recommended for ≥200W	Universal load positive pole for all dimming modes
LEDV-	DC output negative pole	Connect to the negative pole of LED single-color dimming load	Universal load negative pole for all dimming modes

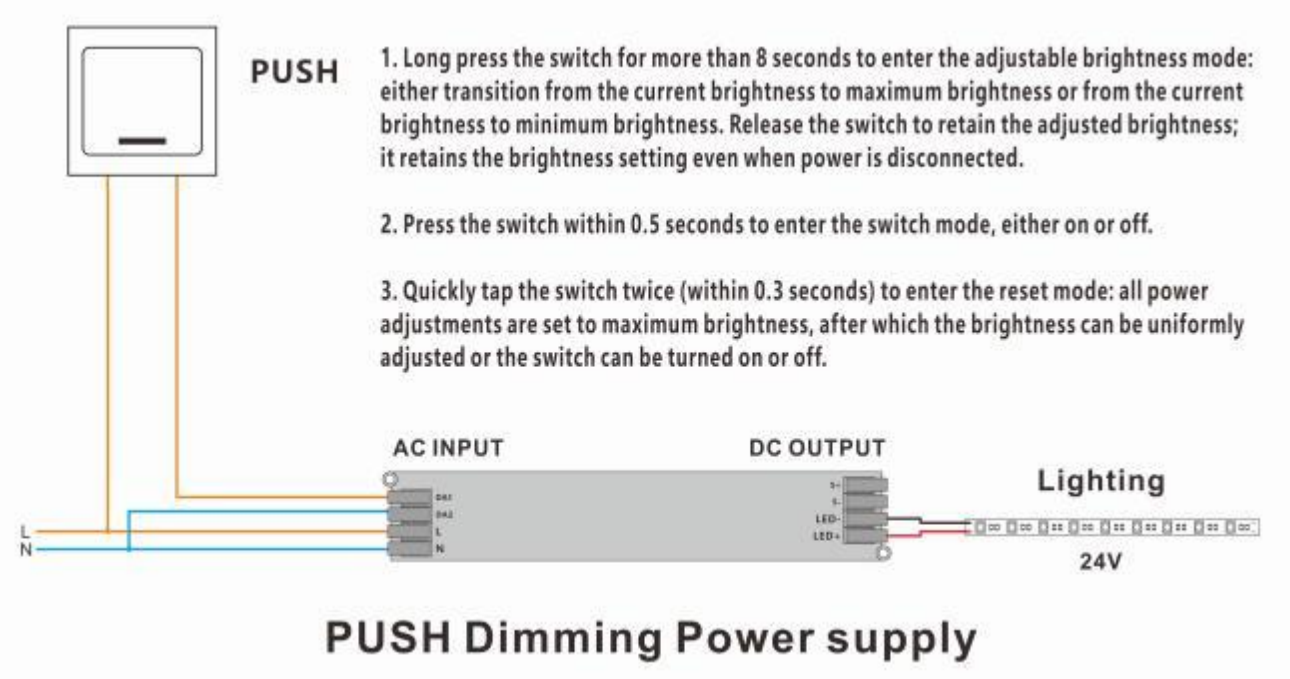
3.2.2 Professional Definition of Dimming Signal Terminals



Dimming & Color Temperature Mode	Signal Terminal Mark	Wiring Definition	Cable Requirement	Core Wiring Specification
Push Dimming	Shared DA1 & DA2, no independent signal terminal	Push switch is connected in series between live wire L and power supply DA1; neutral wire N and DA2 must be directly connected at the same time	Mains cable (1.0-2.5mm²)	Push switch has no polarity, can be directly connected in series without distinguishing positive and negative poles
0-10V/1-10V Dimming	S+/S-	S+: 0-10V/1-10V signal positive pole; S-: signal negative pole	2-core shielded wire (RVVP2×0.75)	No high voltage connected to the signal end; when multiple power supplies are connected in parallel, S+/S- are connected in parallel respectively, and the shielding layer is grounded at one end
DALI DT6 Dimming	DA1/DA2	DA1: bus signal positive pole; DA2: bus signal negative pole	DALI special 2-core twisted shielded wire (RVSP2×1.0)	Daisy-chain networking, non-polar wiring; maximum bus distance ≤300m, maximum 64 devices can be connected; a 120Ω terminal resistor is connected at the end of the bus

3.3 Professional Wiring Guide for Dimming Modes

3.3.1 Push Dimming Wiring (High-voltage Side Switch Trigger)



Operation Functions:

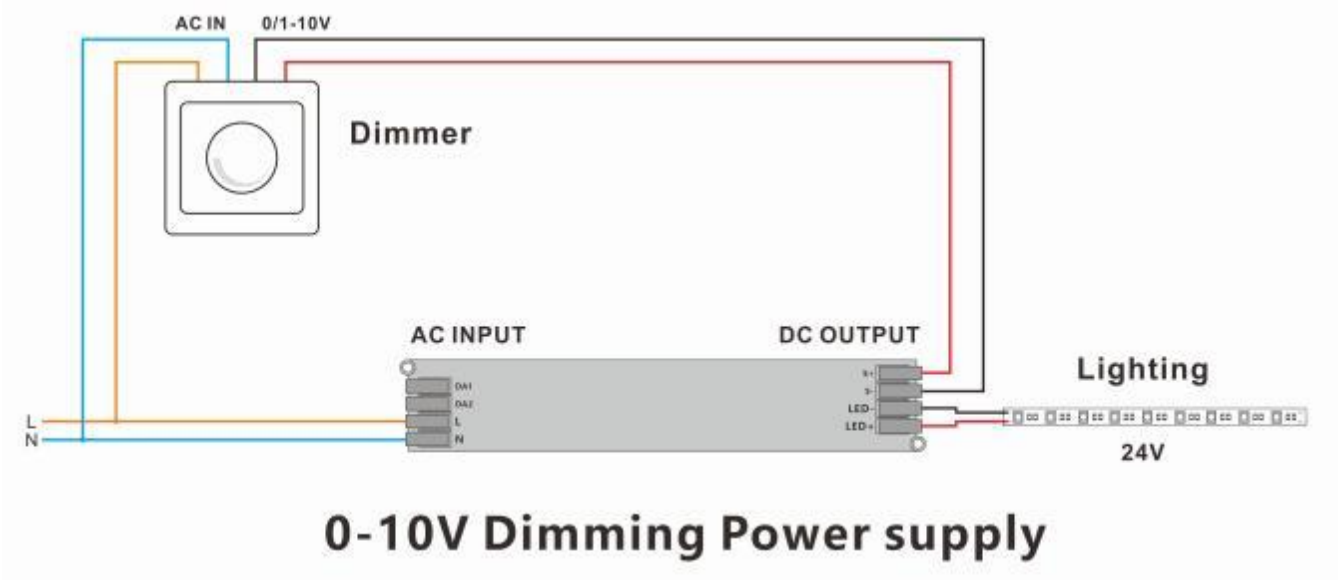
1. Long press the switch for more than 8 seconds to enter the dimmable mode: release to stay at the adjusted brightness, with power-off brightness memory (the brightness changes from the current level to full brightness or dark).
2. Short press the switch within 0.5 seconds to enter the on/off mode (on or off).
3. Double click the switch quickly (within 0.3 seconds) to enter the reset mode: all power supplies are adjusted to full brightness, and then unified dimming or on/off is available.

Wiring Principle: Connect the Push doorbell switch in series between the mains live wire L and the power supply DA1 terminal, and connect the neutral wire directly to the power supply DA2 terminal. Realize power supply output power adjustment, switch control and reset by the long press/short press/double click trigger signal of the switch.

Adapted Switch: General doorbell Push self-reset switch, no power matching requirement, can be directly connected in series.

Notes: When multiple power supplies are dimmed synchronously, the Push switches need to be connected in parallel to achieve unified control; it is strictly forbidden to connect other capacitive/inductive loads in the circuit to avoid abnormal trigger signals.

3.3.2 0-10V/1-10V Single-color Dimming Wiring (Low-voltage Side Analog Quantity)

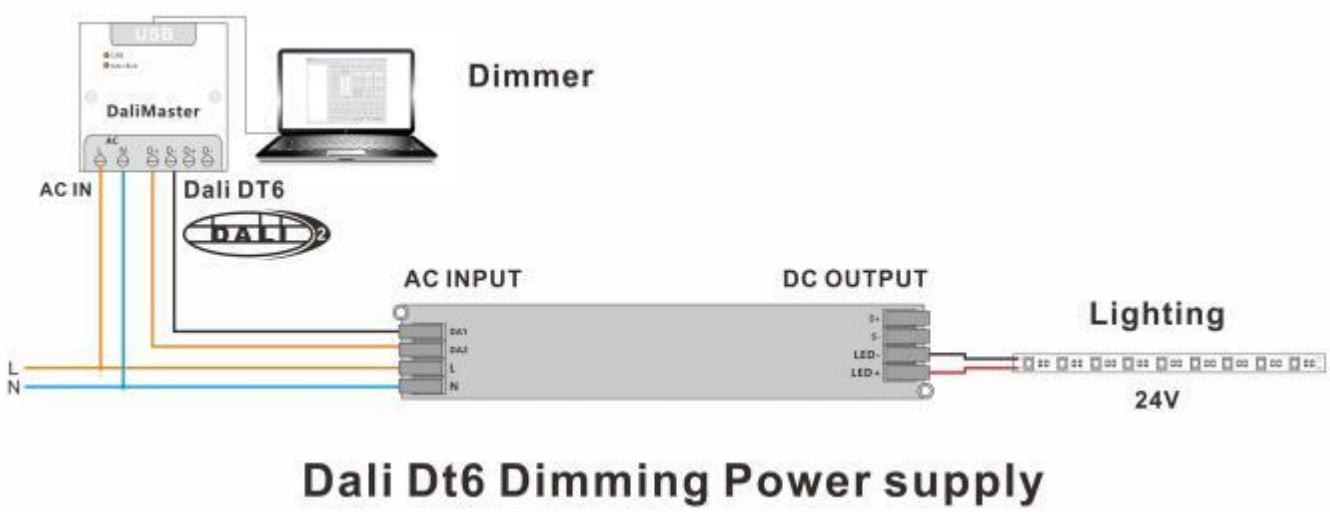


Wiring Principle: The dimming controller outputs a 0-10V/1-10V DC analog voltage signal, which is connected to the power supply S+/S- terminals. The power supply linearly adjusts the output power by detecting the signal voltage value to realize 0.01%-100% stepless dimming.

Parallel Dimming Specification: When multiple power supplies need unified dimming, connect the S+ terminals and S- terminals of all power supplies in parallel respectively and access the same dimming controller; the total signal cable length ≤ 50m, a signal amplifier is required if exceeding.

Anti-interference Specification: The signal cable shall be arranged separately from the main circuit cable (AC110V/220V/DC24V) with a **spacing ≥ 10cm** to avoid electromagnetic interference; the shielding layer is grounded at the controller end with a grounding resistance ≤ 1Ω.

3.3.3 DALI DT6 Dimming Wiring (Digital Bus Type)



Dali Dt6 Dimming Power supply

Wiring Principle: The DALI host outputs a 16V±2V digital differential bus signal, all power supplies are networked in a daisy-chain through DA1/DA2 terminals, and the host realizes brightness adjustment, scene preset and switch control of single/multiple devices by sending standardized DALI instructions.

Networking Specification: Non-polar wiring of the bus, the DALI + of any device can be connected to the DALI +/− of the previous device without distinguishing positive and negative poles; the number of networked devices ≤64, **bus length ≤300m**, a DALI repeater is required if exceeding.

Terminal Resistor Specification: Connect a 120Ω/0.25W metal film resistor at the start end (host end) and end end (last power supply end) of the networked bus respectively, connected across the DALI+/DALI- terminals to reduce signal reflection and improve communication stability.

Power Specification: **Single bus power ≤250mA**, a dedicated DALI power supply is required if exceeding.

3.4 Installation Notes

3.4.1 General Installation Requirements

Category	Detailed Technical Requirements
Heat Dissipation Requirements	1. Reserve >5cm heat dissipation space around the power supply to ensure natural air convection; 2. Avoid installation in closed metal boxes, direct sunlight and near high-temperature heat sources (such as air conditioner outdoor units, water heaters); 3. Install the long strip power supply along the length direction to maximize the heat dissipation area; 4. Keep a spacing >5cm between adjacent power supplies when multiple power supplies are installed side by side
Installation Environment	1. IP50 for indoor use only, strictly prohibited for use in outdoor, humid, water-rich, dust-splashing and corrosive gas environments; 2. Operating ambient humidity ≤90% RH (no condensation, avoid damp); 3. Keep a spacing >1m away from strong magnetic interference sources (such as frequency converters, distribution boxes)
Wiring Specification	1. Select cables according to the wire diameter requirements for input and output to ensure the line voltage drop ≤5%; 2. After all wiring is completed, pull the cables hard to confirm no looseness, and the terminal screw torque >2N·m; 3. Strictly prohibit wiring/removing under power, be sure to turn off the mains main switch before operation; 4. Do a good job of insulation treatment for cable joints to avoid short circuit

3.4.2 Dedicated Installation/Wiring Specifications for Dimming Modes

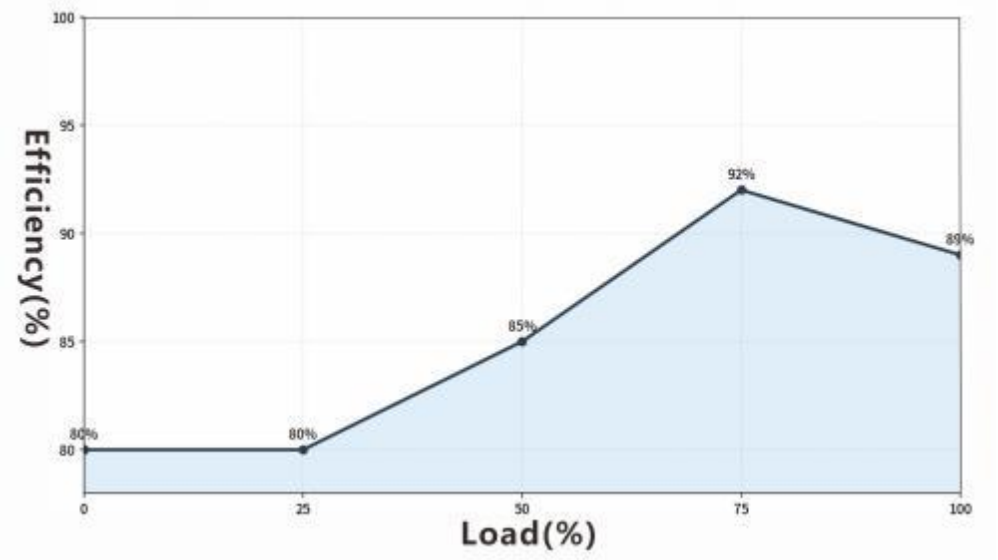
Dimming & Color Temperature Mode	Dedicated Installation/Wiring Specifications
Push Dimming	1. The distance between the Push switch and the power supply ≤10m to avoid trigger signal attenuation; 2. When multiple power supplies are controlled in parallel, select cables with more than 1.0mm² for switch connection wires to avoid voltage drop; 3. It is strictly forbidden to connect other switches or control elements in series in the circuit
0-10V/1-10V Dimming	1. Select shielded wires for signal cables, the shielding layer is grounded at one end (controller end), strictly prohibit grounding at both ends; 2. Signal cables shall not be laid in the same conduit as the main circuit cables to avoid electromagnetic interference; 3. Add a 2KΩ current-limiting resistor at the signal end when multiple power supplies are connected in parallel to avoid signal short circuit
DALI DT6 Dimming	1. Adopt DALI special twisted shielded wire, strictly prohibit the use of ordinary RVV cables; 2. Bus cables shall not be laid in the same conduit as high-voltage cables with a spacing ≥20cm; 3. The wiring resistance of the DALI terminal of each device during networking ≤0.1Ω to avoid communication failures caused by poor contact; 4. It is strictly forbidden to connect other non-DALI devices to the DALI bus

4. Performance and Reliability Data

4.1 Core Dimming Performance Indicators

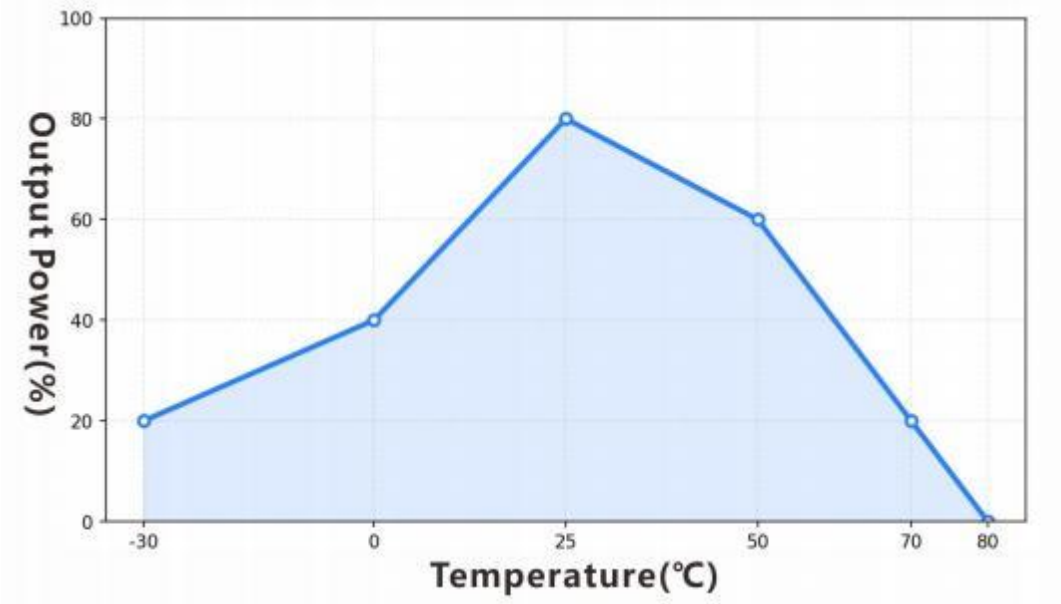
Performance Indicator	Technical Parameter	Test Condition
Dimming Range	0.01%-100%	25°C, rated input voltage, full load
Dimming Linearity	≥95%	Full dimming range of 0.01%-100%
Dimming Resolution	DALI DT6 ≥1024 levels; 0-10V/1-10V ≥256 levels; Push ≥ 128 levels	25°C, rated input voltage, full load
Flicker-free	Flicker depth <3%	Full dimming range, in line with IEEE PAR1789 standard
Brightness Consistency (Multiple Parallel Connection)	±2%	Same controller, multiple power supplies of the same model, 50% brightness
Dimming Response Time	≤100ms	0-100% brightness step adjustment
Voltage Fluctuation Adaptability	No dimming flicker or jump	±10% input voltage fluctuation
Push Dimming Memory Feature	Power-off brightness memory, resume full brightness after reset	25°C, rated input voltage, any brightness segment

4.2 Efficiency vs Load Curve (Typical Value, 220VAC Input)



The efficiency shows a trend of first rising and then stabilizing with the increase of load rate, and the efficiency is **≥90% in the load rate range of 30%-80%**. It is recommended to control the load rate in the range of 30%-80% when selecting the power supply, taking into account efficiency and service life, suitable for 24-hour/long-time operation scenarios of indoor lighting.

4.3 Derating Curve (Ambient Temperature vs Output Power)



The power supply can operate according to the rated load ratio when the **ambient temperature ≤50°C**; the output power is derated by 2% for each 1°C rise when the temperature exceeds 50°C; the power supply will automatically cut off the output when the **temperature ≥85°C** and resume normal operation when the temperature drops below 70°C. The efficient heat dissipation structure can still maintain good thermal conductivity in indoor high-temperature environments (such as equipment rooms, suspended ceilings), and the operation stability after derating is better than that of conventional structure power supplies at the same temperature.

4.4 Key Components and Service Life Assurance

1. **Dimming core chip**: Adopt industrial-grade MCU and special dimming driver chip, with an operating temperature range of -40°C ~ +125°C, **ESD protection ≥8kV** and surge resistance >2kV, ensuring dimming accuracy and stability under complex working conditions.
2. **Electrolytic capacitor**: Adopt 105°C long-life electrolytic capacitor, with a theoretical service life of ≥50,000 hours in a 50°C working environment and ≥100,000 hours at room temperature (25°C), avoiding dimming failures caused by capacitor aging.
3. **Transformer**: High-temperature resistant pure copper winding transformer with low core loss and high conversion efficiency, **temperature rise ≤25°C under full load condition**, ensuring stable internal temperature rise of the power supply during dimming.
4. **MTBF**: The mean time between failures of the whole series is ≥50,000 hours (according to MIL-HDBK-217F standard, 25°C, rated working condition).

4.5 Detailed Explanation of Protection Functions

Protection Type	Action Condition	Recovery Method	Protection Value	Dedicated Protection for Dimming Working Conditions
Input Overvoltage Protection	Input voltage >305VAC	Fuse blows, need to replace the fuse of the same specification	Avoid dimming chip program disorder and dimming failures caused by overvoltage	Prevent damage to internal components of the power supply caused by grid overvoltage
Input Overcurrent Protection	Input current >150% of rated input current	Fuse blows, need to replace the fuse of the same specification	Prevent power supply burnout caused by input side short circuit	Avoid damage to DALI bus module and Push trigger module caused by overcurrent
Output Overload Protection	Output power >110%-150% of rated power	Automatically operate in power limiting mode, resume automatically after fault elimination	Avoid burnout of LED load caused by overload	Automatically adjust the brightness to 50% when overloaded to protect the dimming circuit
Output Short Circuit Protection	Short circuit of output positive and negative poles/load short circuit	Hiccup mode (intermittent detection, 2s interval), resume automatically after	Quickly cut off the short circuit output to prevent machine burnout and line	Immediately cut off the dimming signal output when short circuited to

Protection Type	Action Condition	Recovery Method	Protection Value	Dedicated Protection for Dimming Working Conditions
		fault elimination	damage	avoid damage to the signal module
Whole Machine Over Temperature Protection	Temperature of internal core components ≥90°C / shell temperature ≥75°C	Reduce power/cut off output, resume automatically when temperature drops below 70°C	Avoid component damage caused by high temperature and ensure the service life of the power supply	First adjust the brightness to 90% when high temperature, cut off the output if still overheated to prevent the decrease of dimming accuracy
Dimming Signal Abnormality Protection	Signal voltage exceeds the rated range (e.g., 0-10V signal >15V) / signal short circuit	Pause dimming, maintain current brightness	Prevent lamps from flickering caused by abnormal signals	For DALI series, automatically switch to local Push dimming mode when the signal is abnormal

5. Selection Guide, Application and Warranty

5.1 Dimming Mode Selection Decision Guide

5.1.1 Core Selection Principles

. **Wiring conditions**: Select Push dimming for renovation projects without separate dimming wiring; select 0-10V/1-10V for new projects with separate wiring; select DALI DT6 for large-area commercial projects requiring networking control.

. **Intelligence level**: Select Push dimming for basic brightness adjustment and rapid renovation; select 1-10V for industrial/commercial anti-misoperation shutdown; select DALI DT6 for full scene networking control, scene linkage and intelligent system integration.

. **Project management**: For projects with mixed dimming demands in multiple areas and the hope to reduce inventory types, directly select the HRJS 3-in-1 dimming model and flexibly switch the mode on site.

. **Load type**: Conventional LED light strips, downlights, panel lights, office lights and wall washers are all compatible with this series of power supplies, no need to select according to load type.

5.1.2 Dimming Mode Selection Comparison Table

Comparison Dimension	Push Dimming	0-10V Single-color Dimming	1-10V Single-color Dimming	DALI DT6 Single-color
Core Principle	High-voltage side switch trigger control	Low-voltage side 0-10V analog voltage linear control	Low-voltage side 1-10V analog voltage linear control	DALI-2 digital differential bus networking control
Wiring Requirement	No separate dimming wiring required, switch in series with live wire	Need separate 2-core shielded signal wire, separated from high-voltage electricity	Need separate 2-core shielded signal wire, separated from high-voltage electricity	Need separate DALI special 2-core bus, daisy-chain networking
Dimming Range	0.01%-100%	0.01%-100% (0V off)	0.01%-100% (1V minimum brightness, 0V=maintain)	0.01%-100%, 16-level preset
Dimming Accuracy	Linearity ≥90%, smooth at low segment	Linearity ≥95%, smooth at all segments	Linearity ≥95%, smooth at all segments	1024-level digital dimming, accuracy ± 1%
Networking Capability	Single channel can load	Single controller can	Single controller can	Up to 64 devices on a

Comparison Dimension	Push Dimming	0-10V Single-color Dimming	1-10V Single-color Dimming	DALI DT6 Single-color
	up to 10-15 power supplies, parallel control	load up to 20-30 power supplies, parallel networking	load up to 20-30 power supplies, parallel networking	single line, daisy-chain networking
Anti-interference	Excellent, no signal transmission, no electromagnetic interference	Medium, shielded wire can improve anti-interference	Medium, shielded wire can improve anti-interference	Excellent, differential bus with strong anti-interference
Intelligence Capability	Only basic dimming + on/off + reset, no scene linkage	Basic dimming, support group control	Basic dimming, anti-misoperation shutdown	Full scene intelligence, scene/group/timing/linkage
Adapted Scenario	Renovation of small and medium-sized commercial/office areas, projects without wiring	New small and medium-sized home/commercial lighting	Industrial lighting, commercial office, anti-misoperation scenarios	Large conference halls/exhibition halls/office buildings, commercial complexes
Cost Level	Low (no additional controller/wiring required)	Medium (wiring required, high cost performance)	Medium (same as 0-10V)	High (DALI host + special cable required)
Installation Difficulty	Low (only in series with live wire)	Medium (separate wiring required)	Medium (separate wiring required)	High (professional networking debugging required)
Maintenance Difficulty	Low (no signal line)	Medium (need to troubleshoot signal line)	Medium (need to troubleshoot signal line)	High (need to troubleshoot bus communication)
Certification Standard	Industry general switch trigger standard	IEC 61347-2-10	IEC 61347-2-10	DALI-2/IEC 62386-102

5.1.3 Power and Voltage Selection Specifications

(1) Power Selection Calculation Method

. Single-color dimming load: **Total load power = single lamp power × number of lamps**; **rated power of power supply ≥ total load power × 1.25** (25% margin reserved).

. DALI networked load: **load ratio of single power supply ≤70%**, total bus load power ≤80% of the rated power of the DALI host.

(2) Input Voltage Selection Specification

Input Voltage Specification	Adapted Region	Load Requirement	Remarks
AC 100-130V	North America, Japan and other 110V grid regions	Maximum 70% load for 60-350W	Push/0-10V/1-10V/DALI modes are all optional
AC 170-277V	China, Europe and other 220V grid regions	Maximum 80% load for 60-350W	Push/0-10V/1-10V/DALI modes are all optional
AC 100-277V wide voltage	Global universal	60-350W adapt to load ratio according to region	Universal for all modes, no need for regional selection

(3) Output Voltage Selection Specification

Output Voltage	Adapted Load	Selection Points
DC 24V	Conventional light strips, linear lights, wall washers, panel lights, downlights, office lights	Line length ≤10m, small voltage drop, universal for all scenes, the only output voltage of this series

5.1.4 Typical Scenario Selection Scheme

Application Scenario	Recommended Dimming Mode	Recommended Output Voltage	Selection Points
Renovation of small and medium-sized commercial/office areas (no wiring)	Push	24V	Push switch directly in series, no additional controller required, reserve 25% power margin
New commercial lighting (small and medium area)	0-10V/1-10V	24V	1-10V is suitable for anti-misoperation needs, shielded wire wiring, add current-limiting resistor for multiple parallel connection
Large conference halls/banqueting halls/exhibition halls	DALI DT6	24V	Daisy-chain networking, single bus ≤64 devices, connect 120Ω terminal resistors at the start and end ends

Application Scenario	Recommended Dimming Mode	Recommended Output Voltage	Selection Points
Commercial complexes/multi-storey office buildings (mixed demands)	3-in-1 flexible switching	24V	Switch Push/0-10V/DALI as needed in different areas, reduce inventory types
Office building office lighting	1-10V/Push	24V	1-10V for anti-misoperation in office areas, Push for simplified control in public areas

5.2 Application Notes

5.2.1 General Application Specifications

. **Installation environment**: This product is IP50 for indoor use only, strictly prohibited for use in outdoor, humid, dusty, high-temperature and corrosive gas environments; operating ambient temperature -20°C ~ +50°C, humidity ≤90% RH (no condensation).

. **Heat dissipation requirement**: **Reserve ≥5cm heat dissipation space around the power supply**, keep a spacing >5cm when multiple power supplies are installed side by side, strictly prohibit closed installation.

. **Wiring specification**: All wiring operations must be carried out under power-off condition, **terminal screw torque >2N•m**; the voltage drop of the main circuit cable ≤5%, the signal cable and high-voltage cable are spaced **≥10cm**, strictly prohibited to be laid in the same conduit.

. **Grounding requirement**: The protective grounding terminal must be reliably grounded with a **grounding resistance ≤0.5Ω**; otherwise, signal interference, dimming flicker and other failures will occur.

. **Load requirement**: Use in strict accordance with the load specifications, strictly prohibit overloaded operation; **load ≤70% for DALI networked models**.

5.2.2 Application Notes for Each Dimming Mode

. **Push dimming**: The Push switch is of self-reset type, strictly prohibit the use of self-locking switch; when multiple power supplies are controlled in parallel, the switch connection wires must be cables with more than **1.0mm²** to avoid abnormal trigger signals caused by line voltage drop.

. **0-10V/1-10V dimming**: Select shielded wires for signal cables, the shielding layer is grounded at one end (controller end), strictly prohibit grounding at both ends; 0V for 0-10V model is off, 0V for 1-10V model maintains brightness, the controller must match the corresponding protocol.

. **DALI DT6 dimming**: Adopt DALI special twisted shielded wire, strictly prohibit the use of ordinary RVV cables; connect 120Ω terminal resistors at the start and end ends of the bus, **bus length ≤300m**, a repeater is required if exceeding; **number of networked devices ≤64**, **single bus power ≤250mA**, a DALI power supply is required if exceeding.

. **Mode switching**: This series of power supplies is 3-in-1 hardware integrated, no software configuration required, automatically identify the mode by directly accessing the corresponding dimming signal, no separate switch required; only one dimming signal can be accessed on site to avoid failures caused by simultaneous access of multiple signals.

5.3 Common Problems and Solutions

Fault Phenomenon	Possible Causes	Solutions
Dimming flicker/brightness jump	1. Unshielded signal cable; 2. Poor terminal contact; 3. Excessive load; 4. High-voltage interference; 5. Poor grounding	1. Replace with shielded wire and ground at one end; 2. Tighten terminals and clean oxide layer; 3. Reduce load ratio; 4. Separate high and low voltage wiring; 5. Reliable grounding
Unable to dim	1. Reverse connection of signal positive and negative poles; 2. Incompatible controller protocol; 3. DALI not networked; 4. Simultaneous access of multiple dimming signals; 5. Damaged Push switch	1. Check wiring and correct positive and negative poles; 2. Replace with a controller matching the protocol; 3. Complete DALI networking debugging; 4. Disconnect redundant dimming signals and keep only one; 5. Replace the Push self-reset switch

Fault Phenomenon	Possible Causes	Solutions
Push dimming no memory/unable to reset	1. Unreliable grounding of power supply; 2. Chip data loss caused by frequent power failure; 3. Long-term operation at low brightness segment	1. Re-ground reliably with grounding resistance ≤ 0.5Ω; 2. Power off and restart the power supply, reset the brightness; 3. Increase the operating brightness and use with derating according to specifications
Severe heating of power supply	1. Overloaded operation; 2. Insufficient heat dissipation space; 3. High-temperature installation environment; 4. Long-term operation at low brightness	1. Reduce load ratio; 2. Increase heat dissipation space; 3. Replace installation position; 4. Increase the operating brightness and use with derating
Power supply not starting	1. Abnormal mains power; 2. Blown fuse; 3. Incorrect wiring; 4. Signal short circuit	1. Detect input voltage; 2. Replace the fuse of the same specification; 3. Correct wiring; 4. Troubleshoot signal short circuit
DALI communication failure	1. Unqualified bus cable; 2. Unconnected terminal resistor; 3. Poor wiring contact; 4. Bus overload	1. Replace with DALI special cable; 2. Install 120Ω terminal resistor; 3. Tighten terminals; 4. Reduce the number of networked devices or add a DALI power supply
Inconsistent brightness of multiple parallel power supplies	1. Inconsistent power supply model/power; 2. Excessive voltage drop of signal cable; 3. Uneven output signal of controller	1. Replace with power supplies of the same model and power; 2. Shorten the signal cable length or add a signal amplifier; 3. Replace with a high-precision dimming controller

5.4 Warranty Statement

5.4.1 Warranty Period

This product is provided with a **3-year free warranty** from the date of factory shipment, subject to the spray code date on the product shell or the factory certificate of conformity. The warranty standard is unified for the whole series of products.

5.4.2 Warranty Scope

Under the conditions of normal indoor use and strict installation, commissioning and use in accordance with the requirements of this specification, the company provides free repair or replacement services for failures caused by product design, material and process defects, and the round-trip freight shall be borne by the buyer.

5.4.3 Disclaimer

The following situations are not covered by the warranty, and the company provides paid repair services:

. Damage caused by non-compliance with the specification for installation and use, and use in outdoor/humid/overloaded/high-temperature environments.

. Failures caused by human wrong wiring (main circuit/dimming signal), unauthorized disassembly, modification and repair.

. Short circuit and burnout caused by input voltage exceeding the range and foreign objects/liquid entering the interior.

. Damage caused by force majeure (fire, earthquake, flood, etc.).

. Appearance/internal damage caused by collision and extrusion during transportation/handling.

. Signal interference and dimming failures caused by non-use of shielded wires and poor grounding.

. Damage caused by failure to use 70% load for 110V input.

. Chip failures caused by simultaneous access of multiple dimming signals.

5.4.4 After-sales Service

. Within the product warranty period, in case of non-human failures, the company will respond within 48 hours and complete the repair/replacement within 7 working days.

. Provide lifelong technical support and free dimming system debugging and selection consulting services.

. The parameters of the product specification are subject to change without prior notice, and the physical product shall prevail in the end.

5.5 Packaging and Logistics

5.5.1 Packaging Specifications

Single unit packaging: Each power supply is packed in an independent carton to protect the terminals and shell, marked with product model, power and dimming mode.

Outer carton packaging: Multi-layer thick corrugated carton, marked with product model, quantity, gross/net weight, moisture-proof/fragile/anti-pressure marks.

Marking specification: The outer carton is marked with product model, power, input/output voltage, 3-in-1 dimming and other information for convenient warehousing and logistics sorting.

5.5.2 Logistics and Warehousing

. **Transportation requirements**: Avoid severe bumping and heavy pressure, transport models with different powers separately, strictly prohibit mixed loading.

. **Warehousing requirements**: Store in a dry, ventilated indoor environment without corrosive gas, stacking ≤5 layers, away from fire sources.

. **Zonal management**: Store by power segment for quick picking.