Intelligent Tunable White LED Driver (Constant Current)

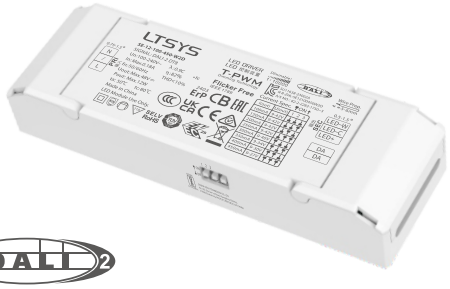
- Ultra-slim, thin and light; the design of screwless end housing
- The housing is made from V0 flame retardant PC materials that SAMSUNG/ COVESTRO uses.
- Comply with the no-load power consumption of the EU's ErP Directive, standby power consumption<0.5W.
- Soft-on and fade-in dimming function enhances your visual comfort.
- T-PWM™dimming technology allows continuous and flicker-free images under high-speed shooting.
- Dimming from 0~100%, down to 0.01%.
- 0-100% flicker-free dimming with high frequency exemption level.
- Innovative thermal management technology intelligently protects the power life.
- Overvoltage, overload, short circuit protection and automatic recovery.
- Multiple current levels & wide voltage, suitable for different power LEDs.
- Class 2 LED driver, Safety Extra Low Voltage(SELV).
- Suitable for indoor light applications of Ⅰ/Ⅱ/Ⅲ type.
- Up to 50000-hour life time.
- 5 -year warranty (Rubycon capacitor).

T-PWM™
Super depth dimming technology

Flicker-free
IEEE 1789

Dimmable:
1:10000

DIM/CT



The certification icons represent on-going certification applications only, and final certification qualification is subject to actual products.

DALI | T-PWM Super depth dimming technology | Flicker-free IEEE 1789 | Multiple Current | Over voltage protection | Short circuit protection | Overload protection | Overheat protection

Technical Specs

Model		SE-12-100-450-W2D		
FEATURES	Output Type	Constant Current		
	Dimming Type	DALI		
	Output Feature	Isolation		
	Protection Grade	IP20		
	Insulation Grade	Class II (Suitable for class I and class II light fixtures)		
OUTPUT	Output Voltage	9-42Vdc		
	Max Output Voltage	≤48V		
	Output Current	100-450mA		
	Load Power Range	0.9W-12W		
	Strobe Level	No visible flicker/High frequency exemption level		
	Dimming Range	0~100%, down to 0.01%		
	LF Current Ripple(<120Hz)	<3%		
	Current Accuracy	±5%		
	Ripple & Noise	≤2V		
	PWM Frequency	<3600Hz		
INPUT	Dimming Interface	DALI-2, DT6/DT8		
	DC Voltage Range	120-300Vdc		
	AC Voltage Range	100-240Vac		
	Rated Voltage	115Vac / 230Vac		
	Frequency	50/60Hz		
	Input Current	≤0.18A/115Vac		
	Power Factor	PF>0.9/230Vac (Foll load)		
	THD	THD<10%/230Vac (Foll load)		
	Efficiency	>82%@450mA		
	No-load Power Consumption	<0.5W		
	Standby Power Loss	<0.5W		
	Inrush Current (typ.)	Cold start15A@230Vac (Test twidth=102 us tested under 50% Ipeak)		
	Anti Surge	L-N: 2kV		
	Leakage Current	<0.5mA/230Vac		
ENVIRONMENT	Working Temperature	ta: -20 ~ 50°C tc: 80°C		
	Working Humidity	20 ~ 95%RH, non-condensing		
	Storage Temperature, Humidity	-40 ~ 80°C, 10 ~ 95%RH		
	Temperature Coefficient	±0.03%/°C (-20°C ~ 45°C)		
	Vibration	10-500HZ, 2G 12min/1cycle, 72 min for X, Y and Z axes respectively.		
PROTECTION	Overload Protection	Shut down the output and recover automatically once it exceeds 1.02 times of the rated power.		
	Overheat Protection	Intelligently adjust or turn off the current output if the PCB temperature ≥110°C. When the PCB temperature <90°C, automatically recover normal output.		
	Short Circuit Protection	When short circuit occurs, shut down the output and recover automatically.		
SAFETY & EMC	Withstand Voltage	I/P-O/P:3750Vac		
	Insulation Resistance	I/P-O/P:500VdC/25°C/70%RH≥100MΩ		
	Safety Standards	CCC	China	GB19510.1, GB19510.14
		TUV	Germany	EN61347-1, EN61347-2-13, EN62493
		CE	European Union	EN61347-1, EN61347-2-13, EN62384
		KC	Korea	KC61347-1, KC61347-2-13
		RCM	Australia	AS61347-1, AS61347-2-13
		ENEC	Europe	EN61347-1, EN61347-2-13, EN62384
		CB	CB member states	IEC61347-1, IEC61347-2-13
		EAC	Russia	IEC61347-1, IEC61347-2-13
	EMC Emission	CCC	China	GB/T17743, GB17625.1
		CE	European Union	EN55015, EN61000-3-2, EN61000-3-3, EN61547
		KC	Korea	KN15, KN61547
		RCM	Australia	EN55015, EN61000-3-2, EN61000-3-3, EN61547
		EAC	Russia	IEC62493, IEC61547, EH55015
	EMC Immunity	EN61000-4-2,3,4,5,6,8,11, EN61547		
	Strobe Test Standard	IEEE 1789		
	DALI Bus Standard	IEC62386-101,102,207,209		
OTHERS	Lifetime	50000 hour		
	Warranty	5 years		

LED Current Selection

DIPswitch

	DIP Switch								
SE-12-100-450-W2D	Output Current	100mA	150mA	200mA	250mA	300mA	350mA	400mA	450mA
	Output Voltage	9-42V	0-42V	9-42V	9-42V	9-40V	9-34V	9-30V	9-27V
	Output Power	0.9-4.2W	1.35-6.3W	1.8-8.4W	2.25-10.5W	2.7-12W	3.15-11.9W	3.6-12W	4.05-12.15W

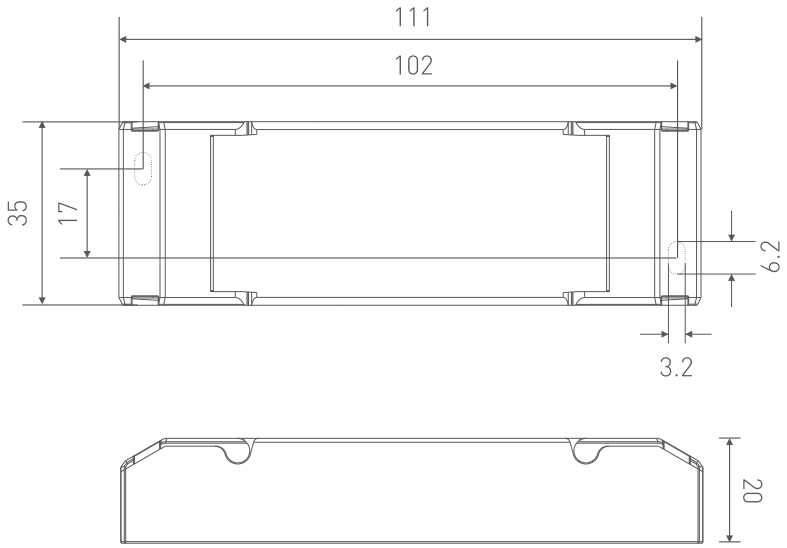
ON OFF

✻ Before setting the current via the DIP switches, confirm that the LED driver is powered off. To make the current setting effective, you need to power on the driver again. (Note: If you do not power off the driver before setting the current, it may cause damage to the light fixture.)

✻ E.g. LED 3V/pcs: 9-42V can power 3-14pcs LEDs in series, 9-21.5V can power 3-7pcs LEDs, the max quantity of LEDs in series will be subject to the actual voltage of LED.

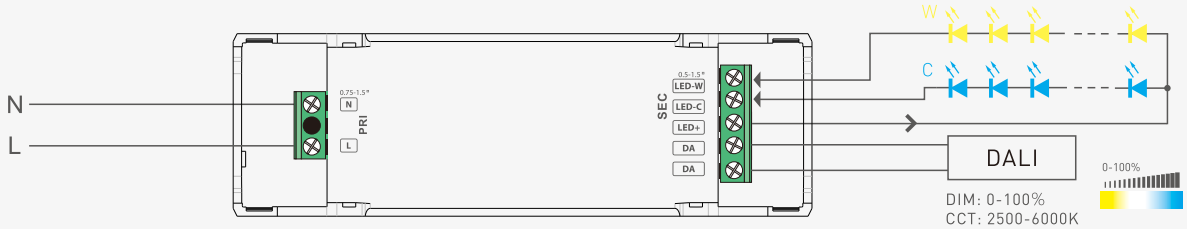
Product Size

Unit: mm



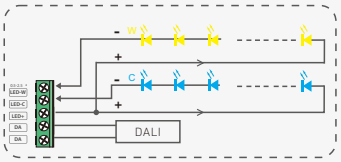
Wiring Diagram

DALI Connection Mode



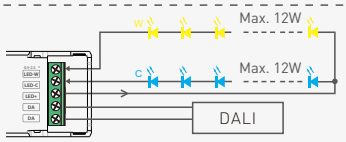
Wire diameter:0.75-1.5㎟ (22-16AWG)
Strip length:4.5mm-5mm

Wire diameter:0.5-1.5㎟ (22-16AWG)
Strip length:4.5mm-5mm



4-wire LED lamp connection

✻ With the constant power program design, brightness remains the same during color temperature adjustments.Drivers can be connected with the load twice the rated power. **12W drivers can be connected with the load of 12W × 2CH.**The total power of both channels keeps within 12W.



Protective Housing Drawings

1.Pry up the protective housing in the side plate position with a tool.

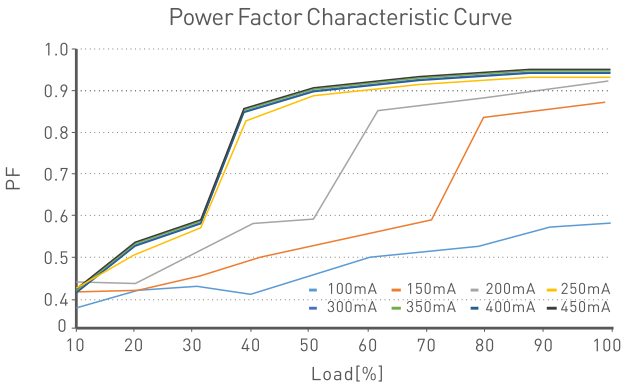
2.Pry up the side edge of the tension plate with a tool to remove it.

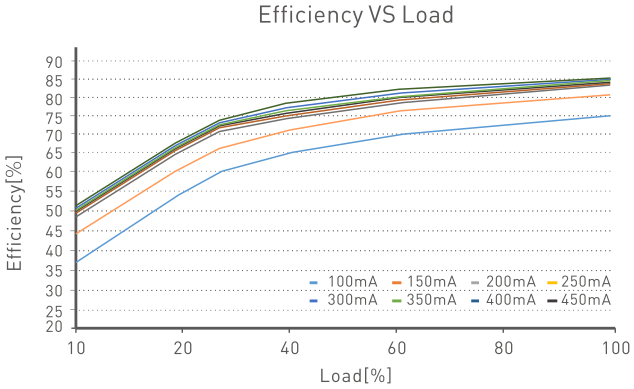
3.Use a screwdriver to connect electrical wires as wiring diagram shows.

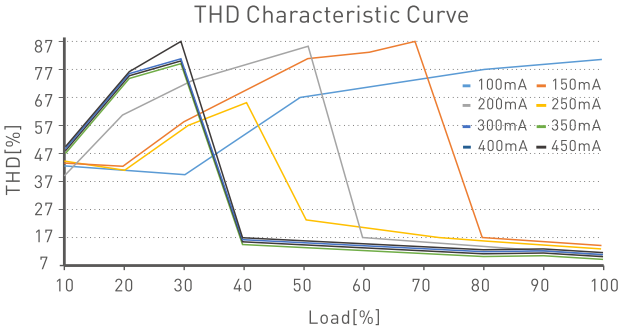
4.Press down the tension plate to fix the electrical wires.

5.Close the protective housing.

Relationship Diagrams



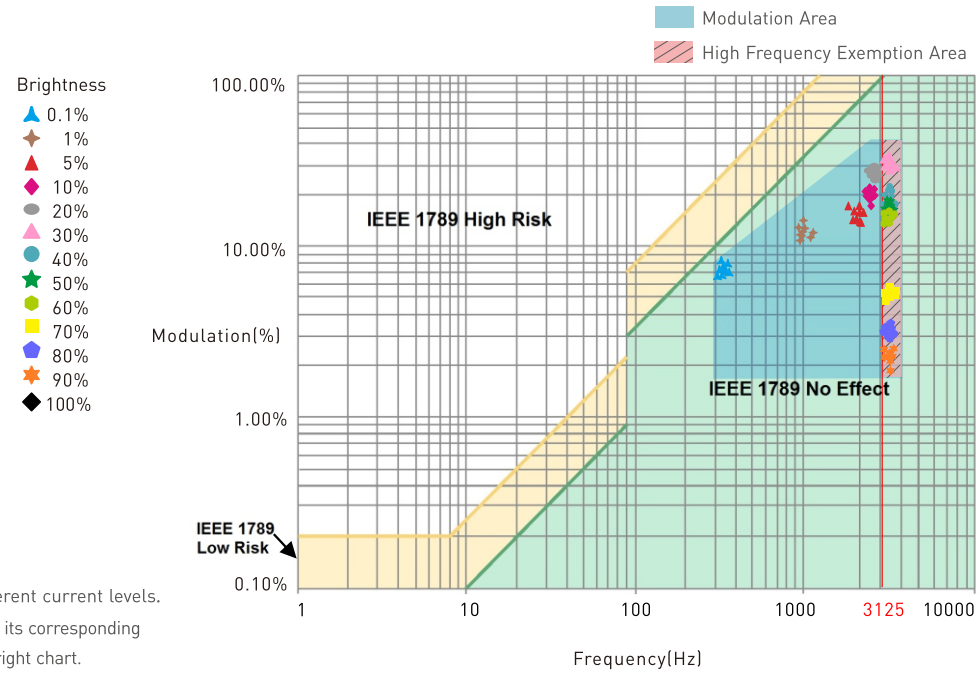




Flicker Test Table

IEEE 1789

Limit Value of Modulation in Low Risk Areas	
Waveform frequency of Optical output	Limit value [%]
f ≤ 8Hz	0.2
8Hz < f ≤ 90Hz	0.025 × f
90Hz < f ≤ 1250Hz	0.08 × f
f > 1250Hz	Exemption assessment
Limit Value of Modulation in No Effect Areas	
Waveform frequency of Optical output	Limit value [%]
f ≤ 10Hz	0.1
10Hz < f ≤ 90Hz	0.01 × f
90Hz < f ≤ 3125Hz	(0.08/2.5) × f
f > 3125Hz	Exemption assessment (High frequency exemption)



Marks in the right chart are tested results of different current levels. The output frequency is 0Hz in 100% brightness and its corresponding modulation is 0%, which could not be shown in the right chart.

Packaging Specifications

Model	SE-12-100-450-W2D
Carton Dimension	260×235×195mm (L×W×H)
Quantity	20 PCS/Layer; 5 Layers/Carton; 100 PCS/Carton
Weight	0.077 kg/PC; 8.9 kg/Carton

Packaging Image

Inner Packaging Box

Carton Packaging

Transportation and Storage

1.Transportation

Products can be shipped via vehicles, boats and planes.During transportation, products should be protected from rain and sun. Please avoid severe shock and vibration during the loading and unloading process.

2.Storage

The storage conditions should comply with the Class I Environment Standards. The products that have been stored for more than six months are recommended to be re-inspected and can be used only after they have been qualified.

Attentions

- Products shall be installed by qualified professionals.
- LTECH products are non-waterproof (special models excepted). Please avoid the sun and rain. When installed outdoors, please ensure it is mounted in a water proof enclosure.
- Good heat dissipation will extend the working life of products. Please ensure good ventilation.
- Please check if the working voltage used complies with the parameter requirements of products.
- The diameter of wire used must be able to load the light fixtures you connect and ensure the firm wiring.
- Before you power on products, please make sure all the wiring is correct in case of incorrect connection that causes damage to light fixtures.
- If a fault occurs, please do not attempt to fix products by yourself. If you have any question, please contact your suppliers.

✻ This manual is subject to changes without further notice. Product functions depend on the goods. Please feel free to contact our official distributors if you have any question.

Warranty Agreement

- Warranty periods from the date of delivery : 5 years.
- Free repair or replacement services for quality problems are provided within warranty periods.

Warranty exclusions below:

- Beyond warranty periods.
- Any artificial damage caused by high voltage, overload, or improper operations.
- Products with severe physical damage.
- Damage caused by natural disasters and force majeure.
- Warranty labels and barcodes have been damaged.
- No any contract signed by LTECH.

1. Repair or replacement provided is the only remedy for customers. LTECH is not liable for any incidental or consequential damage unless it is within the law.
2. LTECH has the right to amend or adjust the terms of this warranty, and release in written form shall prevail.

Update Log

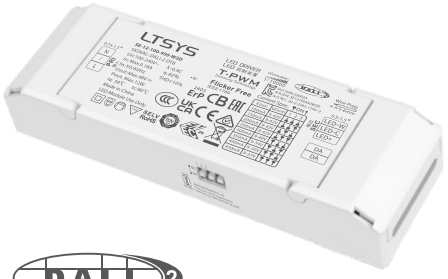
Version	Updated Time	Update Content	Updated by
A0	2021.06.10	Original version	Xu Shujun
A1	20230203	Update the product screen print	Yang Weiling

LED 智能色温驱动器 (恒流型)

- 超小体积、轻薄、免螺丝端盖设计
- 外壳采用科思创/三星PC阻燃V0级原料
- 欧盟ERP空载功耗、待机功耗＜0.5W
- 带软启动渐亮功能，让人眼视觉更舒服
- T-PWM深度调光技术，呈现高级感
- 调光范围：0~100%，LED从0.01%开始调光
- 0~100%全程无频闪，高级豁免考核级别
- 创新的热管理技术，智能保护电源寿命
- 过温、过载、短路保护，可自动恢复
- 多电流、宽电压，适用不同功率的LED
- Class 2电源，SELV安全特低电压
- 空载0V输出，防止接触不良损坏LED
- 适合室内Ⅰ、Ⅱ、Ⅲ类灯具应用
- 高达50,000小时的额定寿命
- 5年保修期（采用红宝石电容）

T-PWM
超深度调光技术

无频闪
IEEE 1789
高频豁免考核级别



Dimmable:
1:10000

调光调色温

SELV
RoHS
Class 2

（认证图标仅代表产品正在进行这一系列的认证申请，认证资质以产品实物为准）

DALI | T-PWM 超深度调光技术 | 无频闪 IEEE 1789 | 多电流 | 过压保护 | 短路保护 | 过载保护 | 过温保护

技术参数

型号				
		SE-12-100-450-W2D		
特征	输出类型	恒流		
	调光类型	DALI-2 DT6 DT8		
	输出特征	隔离		
	防护等级	IP20		
	绝缘等级	II 类（适用于I类和II类灯具）		
输出	输出电压	9-42Vdc		
	最大输出电压	≤48V		
	工作电流范围	100-450mA		
	负载功率范围	0.9-12W		
	频闪级别	无可视频闪/高频豁免考核级别		
	调光范围	0~100%, 调光深度0.01%		
	低频电流纹波(<120Hz)	<3%		
	电流精度	±5%		
	纹波与噪声	≤2V		
	PWM频率	＜3600Hz		
输入	调光接口	DALI-2 DT6/DT8		
	直流电压范围	120-300Vdc		
	交流电压范围	100-240Vac		
	额定电压	115Vac / 230Vac		
	空载功率	≤0.5W		
	网络待机功率	≤0.5W		
	频率范围	50/60Hz		
	输入电流	≤0.18A/115Vac		
	功率因数	PF>0.9C/230Vac (满载)		
	谐波THD	THD<10%/230Vac (满载)		
	空载功耗	<0.5W		
	待机功耗	<0.5W		
	效率 (Typ)	>82%@450mA		
	浪涌电流	冷启动15A(在50% Ipeak下测试twidth=102us)/230Vac		
	抗浪涌	L-N: 2kV		
	漏电流	<0.5mA/230Vac		
环境	工作温度	ta: -20 ~ 50°C tc: 80°C		
	工作湿度	20 ~ 95%RH, 无冷凝		
	储存温度,湿度	-40 ~ 80°C, 10 ~ 95%RH		
	温度系数	±0.03%/°C (-20°C ~ 45°C)		
	耐振动	10-500HZ, 2G 12分钟/周期，X,Y,Z轴各72分钟。		
保护	过载保护	负载超过额定功率≥1.02倍时自动保护，减轻负载自动恢复。		
	过温保护	根据PCB温度超标情况(≥110°C)，智能调节电流输出或关闭，后可自动恢复。PCB温度<90°C时，自动恢复正常输出。		
	短路保护	输出线路短路自动关闭，可自动恢复。		
安规和电磁规格	耐压	输入对输出：3750Vac		
	绝缘阻抗	输入对输出：100MΩ/500VDC/25°C/70%RH		
	安全规范	CCC	中国	GB19510.1，GB19510.14
		TUV	德国	EN61347-1，EN61347-2-13，EN62493
		CB	CB成员国	IEC61347-1，IEC61347-2-13
		RCM	澳洲	AS/NZS61347.1，AS61347-2-13
		CE	欧盟	EN61347-1，EN61347-2-13，EN62493
		KC	韩国	KC61347-1 KC61347-2-13
		UKCA	英国	BS EN61347-1，BS EN61347-2-13，BS EN62493
	电磁兼容发射	CCC	中国	GB/T17743，GB17625.1
		RCM	澳洲	EN IEC 55015，EN IEC 61000-3-2，EN61000-3-3
		CE	欧盟	EN IEC 5501，EN IEC 61000-3-2，EN61000-3-3
		KC	韩国	KS C 9815, KS C 9547
		UKCA	英国	BS EN IEC 55015，BS EN IEC 61000-3-2，BS EN 61000-3-3，BS EN 61547
	电磁兼容抗扰度	EN6100-4-2,3,4,5,6,8,11, EN61547		
	频闪测试	IEEE 1789		
其他	寿命	50000小时		
	质保	5 年		

DIP 开关

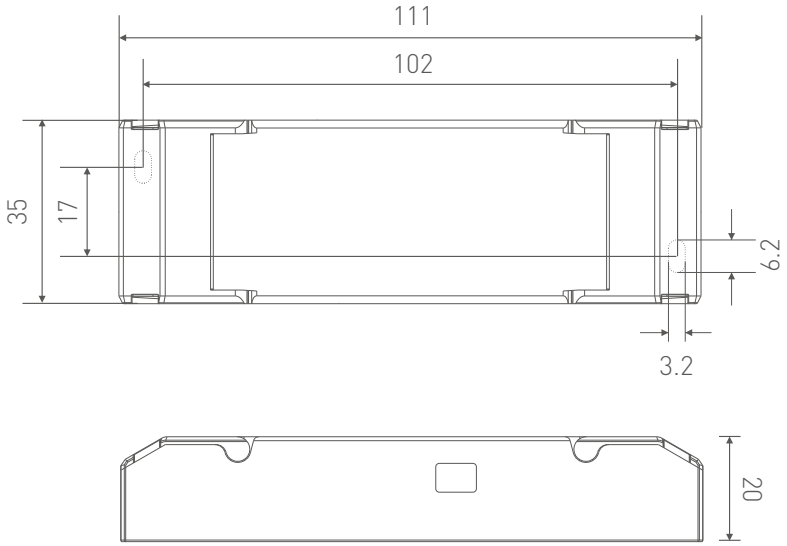
LED电流选择

SE-12-100-450-W2D	DIP开关	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	ON OFF
	电流输出	100mA	150mA	200mA	250mA	300mA	350mA	400mA	450mA	
	电压输出	9-42V	9-42V	9-42V	9-42V	9-40V	9-34V	9-30V	9-27V	
	功率输出	0.9-4.2W	1.35-6.3W	1.8-8.4W	2.25-10.5W	2.7-12W	3.15-11.9W	3.6-12W	4.05-12.15W	

* 确保驱动断电，再进行DIP开关设置所需电流。驱动重新上电后所需电流生效（注：若驱动不断电设置电流，可能会造成对灯具损坏）
* 假设LED的电压是3V/颗：电源9-42V的输出电压范围可串联3-14颗LED，9-27V的输出电压范围可串联3-9颗LED， 最大串联数量以LED实际电压为准。

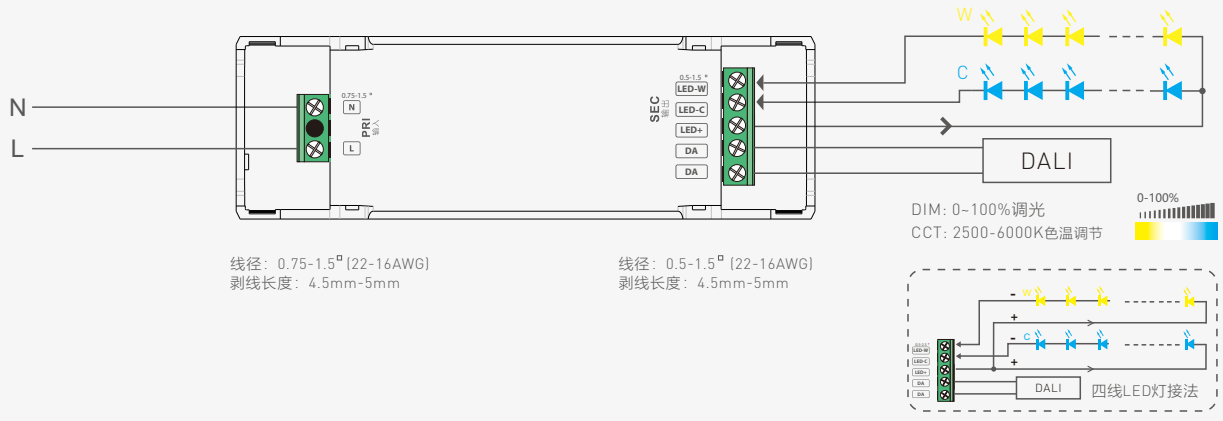
尺寸图

单位：mm

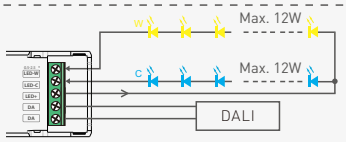


连线图

DALI连接方式



* 采用恒功率程序设计，色温调节全程能保持亮度一致，电源可连接额定功率两倍的负载。
12W电源，**可连接12W×2CH的负载，恒功率设计，**两路总功率会保持在12W以内。



保护盖应用图

1.在侧板使用工具撬起保护盖。

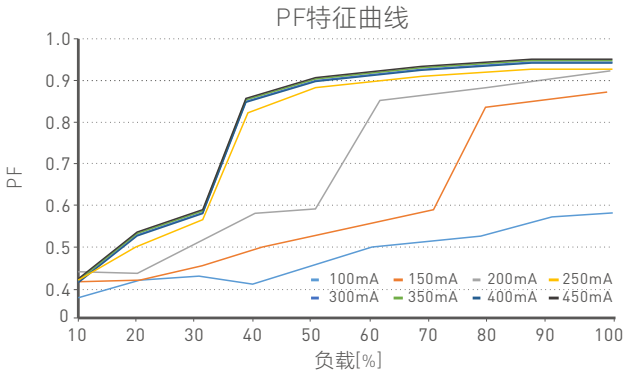
2.使用工具撬起压线板侧边即可拆下。

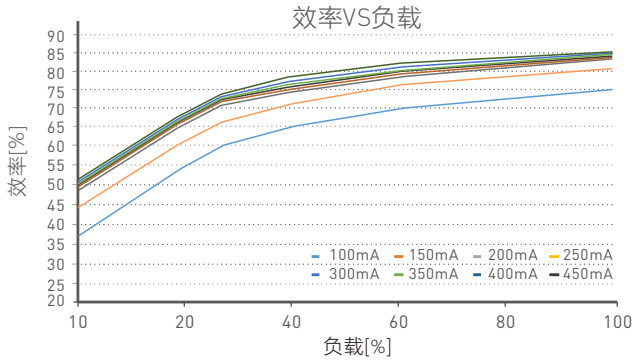
3.使用螺丝批按照接线图接线。

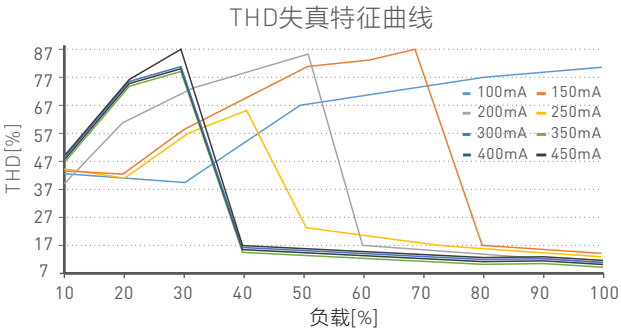
4.向下推压线板，可固定线。

5.合上保护盖。

关系图表







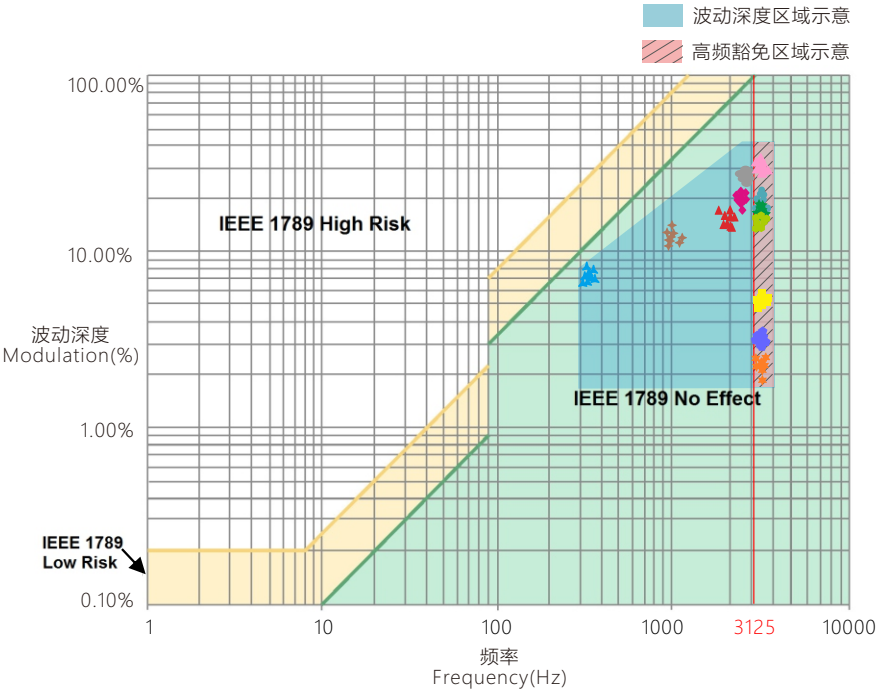
SE-12-100-450-W2D

频闪测试表

IEEE 1789

低风险区域（Low Risk）的波动深度（Modulation）限值	
光输出波形频率 f	限值（%）
$f \leqslant 8Hz$	0.2
$8Hz < f \leqslant 90Hz$	$0.025 \times f$
$90Hz < f \leqslant 1250Hz$	$0.08 \times f$
$f > 1250Hz$	免除考核
无风险区域（No Effect）的波动深度（Modulation）限值	
光输出波形频率 f	限值（%）
$f \leqslant 10Hz$	0.1
$10Hz < f \leqslant 90Hz$	$0.01 \times f$
$90Hz < f \leqslant 3125Hz$	$(0.08/2.5) \times f$
$f > 3125Hz$	免除考核（高频豁免）

亮度
0.1%
1%
5%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%



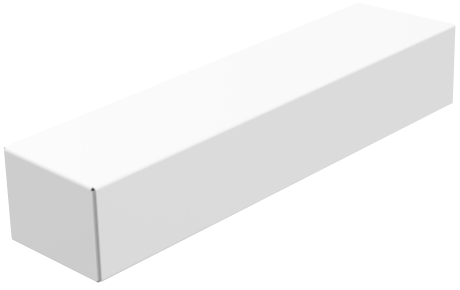
右图标识为不同电流档的测试结果。

100%亮度时输出频率为0Hz，对应波动深度为0%，无法在右图中示意。

包装规格

型号	SE-12-100-450-W2D
包装箱尺寸	260×235×195mm（L×W×H）
数量	20 PCS/层； 5 层/箱； 100 PCS/箱
重量	0.077 kg/PC； 8.9 kg/箱

包装样式图



内包装盒

整箱包装

运输和贮存

1.运输

产品适用车、船、飞机交通运输工具运输。

在运输中，应使用遮蓬进行防雨和防晒，并保持文明装卸，不应有剧烈振动、撞击等。

2.贮存

贮存符合 I 类环境的规定。贮存期限超过6个月的产品建议重新检验，合格后方可使用。

注意事项

- 请由具有专业资格的人员进行调试安装。
- 雷特产品（专有型号除外）不能防水，需避免日晒雨淋，如安装在户外，请用防水箱。
- 良好的散热条件会延长产品的使用寿命，请把产品安装在通风良好的环境。
- 请检查使用的工作电压是否符合产品的参数要求。
- 使用的电线直径大小必须能足够负载连接的LED灯具，并确保接线牢固。
- 通电调试前，应确保所有接线正确，以避免因接线错误而导致灯具损坏。
- 如果发生故障，请勿私自维修；如果有疑问，请联系供应商。

✻ 本说明书的内容如有变更，恕不另行通知。若内容与您使用的功能有所不同，则以实物为准。如有疑问，请与供应商联系。

保修条例

- 自出厂之日起保修服务期为5年。
- 在保修服务期内出现产品质量问题雷特将给予免费修理或更换服务。

非保修条例：

属下列情况不在免费保修或更换服务范围之内：

- 已经超出保修服务期；
- 过高电压、超负载、操作不当等人为造成的损坏；
- 产品外形严重损坏或变形；
- 自然灾害以及人力不可抗拒原因造成的损坏；
- 产品保修标签和产品唯一条形码损坏；
- 无雷特签订的合同或发票凭证。

1. 修理或更换是雷特对客户的唯一补救措施。雷特不承担任何附带引起的损害赔偿责任，除非在适用法律范围之内。
2. 雷特享有修正或调整本保修条款的权利，并以书面形式发布为准。

更新日志

版本	更改日期	更改内容	更改人
A0	2021.06.10	正稿	许淑钧
A1	2023.02.03	更新产品丝印图	杨魏玲