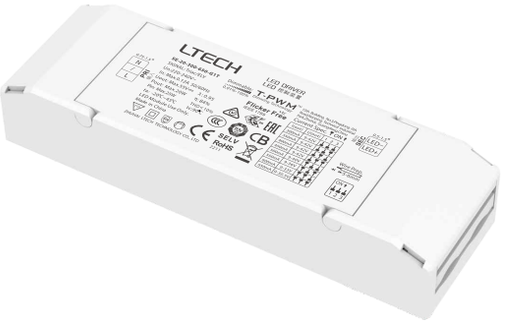
Intelligent LED Driver (Constant Current)

- The housing is made from V0 flame retardant PC materials from SAMSUNG/COVESTRO.
- Small size and light weight. The clamshell design and screwless type for strain-relief.
- Support Leading edge(Triac), Trailing edge(ELV).
- With soft-on and fade-in dimming function, enhancing your visual comfort.
- T-PWM™ dimming technology allows continuous and flicker-free images under high-speed photography.
- Dimming from 0~100%, down to 0.01%.
- The whole dimming process is flicker-free with high frequency exemption level.
- Multiple current levels and wide voltage range. Suitable for different power of LEDs.
- Class 2 LED driver, Safety Extra Low Voltage (SELV).
- Innovative thermal management technology intelligently protects the life of the LED driver.
- Overheat, overload, short circuit protection and automatic recovery.
- Suitable for Class Ⅰ / Ⅱ / Ⅲ indoor light fixtures.
- Up to 50,000-hour life time.
- 5-year warranty (Rubycon capacitor).

T-PWM™
Dimming Technology

Flicker Free
IEEE 1789

Dimmable:
0.01%-100%



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

Triac ELV | T-PWM™ Dimming Technology | Flicker Free IEEE 1789 | Multiple Current | Short Circuit Protection | Over Load Protection | Overheat Protection

Technical Specs

Model		SE-20-300-650-G1T		
Features	Output Type	Constant Current		
	Dimming Interface	Triac/ELV		
	Output Feature	Isolation		
	Protection Grade	IP20		
	Insulation Grade	Class II (Suitable for class I/ II /III light fixtures)		
OUTPUT	Output Voltage	9-42Vdc		
	Maximum output voltage	⩽55V		
	Output Current Range	300-650mA		
	Output Power Range	2.7W-20W		
	Dimming Range	0~100%, down to 0.01%		
	Ripple Current	Max.5.0%@Rated current		
	Current Accuracy	±5%		
	PWM Frequency	3600Hz		
INPUT	DC Voltage Range	200-280Vdc		
	Input Voltage	220-240Vac		
	Frequency	50/60Hz		
	Input Current	⩽0.12A/230Vac		
	Power Factor	PF>0.95/230Vac , at full load		
	THD	THD<10%/230Vac , at full load		
	Efficiency (Typ.)	>84%@500mA		
	Inrush Current	Cold start 13A(Test twidth=120us tested under 50% Ipeak)/230Vac		
	Anti Surge	L-N: 2kV		
	Leakage Current	<0.5mA/230Vac		
ENVIRONMENT	Working Temperature	ta: -20 ~ 45°C tc: 90°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 1.02-1.35 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: 100MΩ/500VDC/25°C/70%RH		
	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
		BIS	India	IS 15885(PART 2/SEC 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	IEC 62493 IEC 61547 EH 55015 IEC 61000-3-2, IEC 61000-3-3
	EMC Immunity	EN61000-4-2,3,4,5,6,8,11, EN61547		
ErP	Power Consumption	Standby power consumption		No standby mode
		Networked standby		No networked standby mode (No Phase-cut signal, no power consumption)
		No-load power consumption		Without no-load mode
	Flicker/Stroboscopic Effect	IEEE 1789		Meet IEEE 1789 standard/High frequency exemption level
		CIE SVM		Pst LM⩽1.0, SVM⩽0.4
	DF	Phase factor		DF⩾0.9
OTHERS	Weight(N.W.)	110g		
	Dimensions	127×40×23mm(L×W×H)		

LED Current Selection

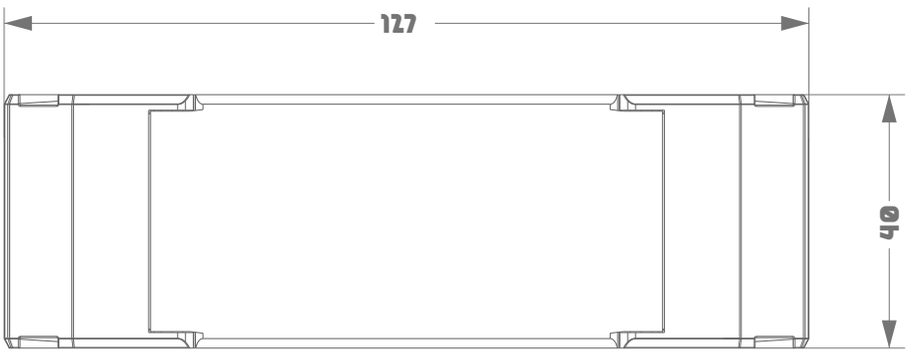
DIP Switch

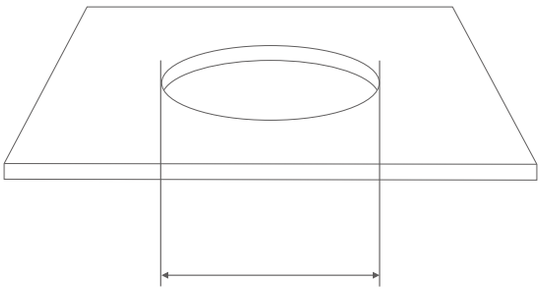
SE-20-300-650-G1T	DIP Switch									ON / OFF
	Output Current	300mA	350mA	400mA	450mA	500mA	550mA	600mA	650mA	
	Output Voltage	9-42V	9-42V	9-42V	9-42V	9-40V	9-36V	9-33V	9-30.5V	
	Output Power	2.7-12.6W	3.15-14.7W	3.6-16.8W	4.05-18.9W	4.5-20W	4.95-19.8W	5.4-19.8W	5.85-19.82W	

* After setting the current via DIP switches, power off and then power on the driver to make the new current setting effective.
* 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 LEDs.

Product Size

Unit: mm

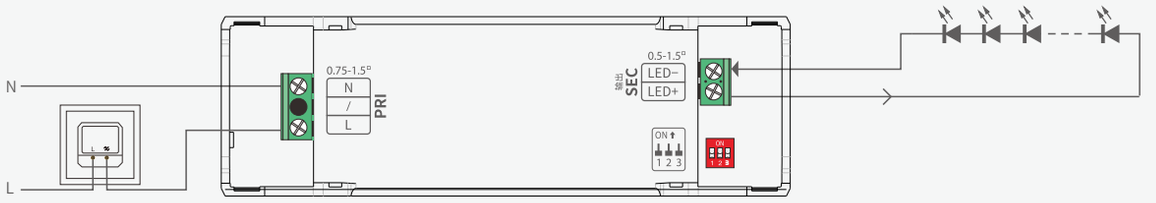




Minimum hole size: φ48mm (1,89")

Wiring Diagram

Triac Connection

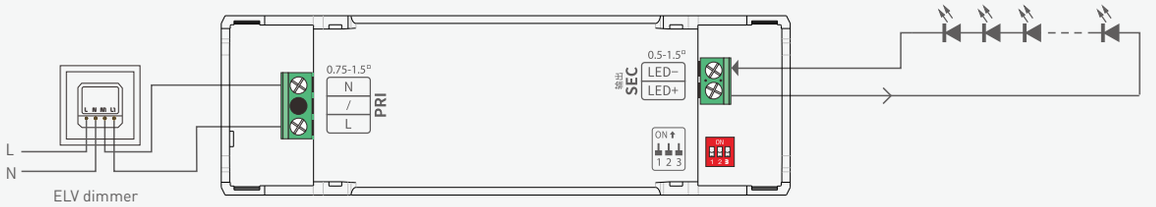


Triac dimmer
0-100% dimming range

Wire diameter: 0.75-1.5□(22-16AWG)
Strip length: 5-6mm

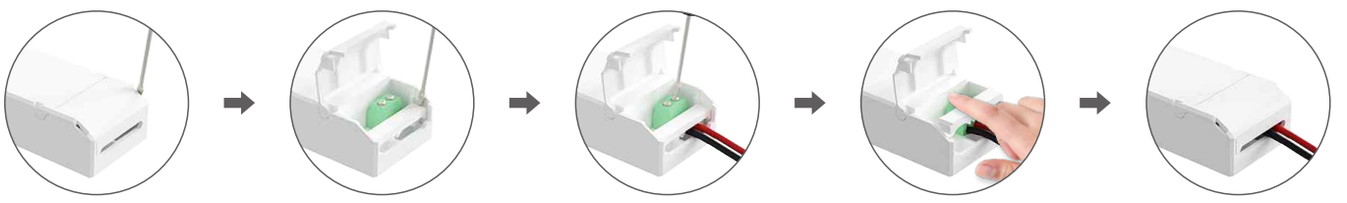
Wire diameter: 0.5-1.5□(22-16AWG)
Strip length: 5-6mm

ELV Connection



ELV dimmer
0-100% dimming range

Protective Housing Application Diagram



1. Use a tool to pry up the protective housing on the side panel.

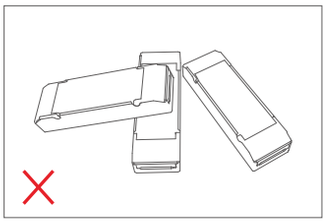
2. Pry up the protective housing in the side plate position with a tool.

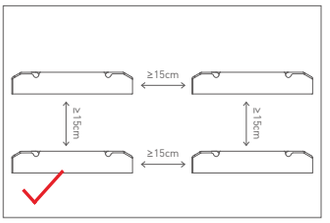
3. Connect to electrical wires with a screwdriver as wiring diagram shows.

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

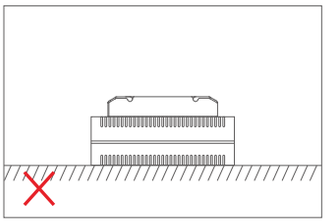
5. Close the protective housing.

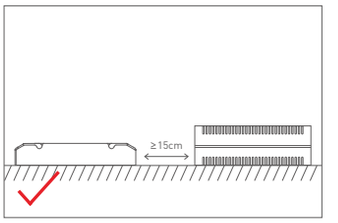
Installation Precautions





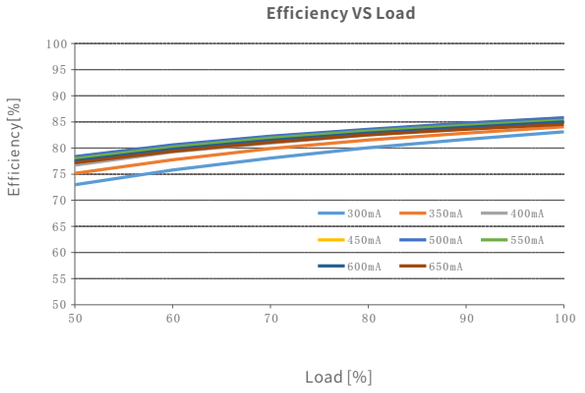
Please do not stack the products. The distance between two products should be ≥15cm so as not to affect heat dissipation and the lifespan of the products.

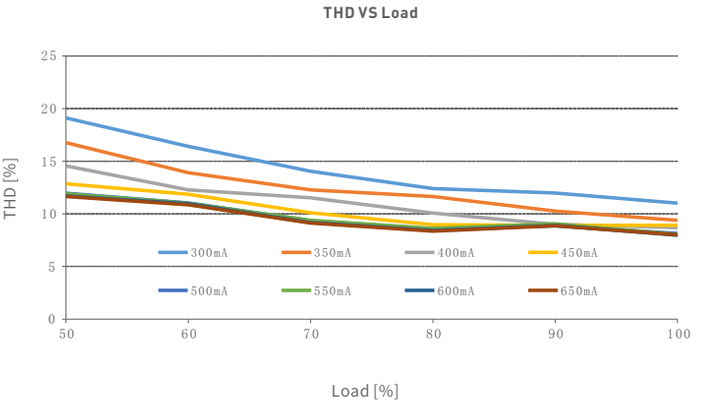


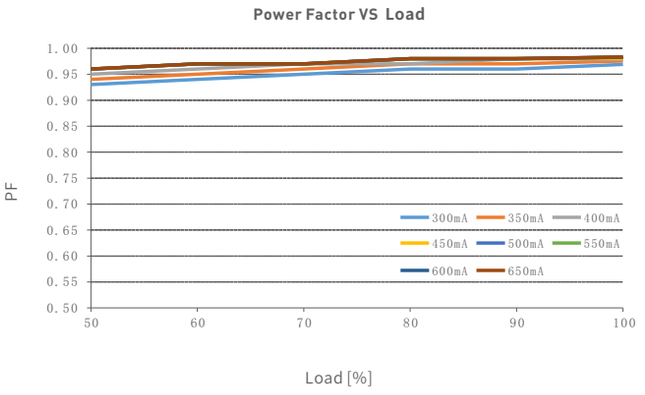


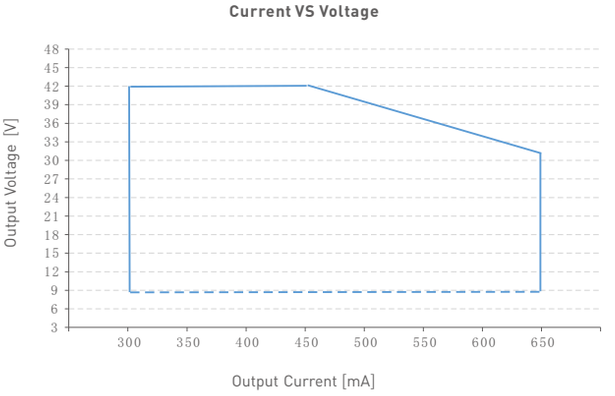
Please not place the products on LED drivers. The distance between the product and the driver should be ≥15cm so as not to affect heat dissipation and shorten the lifespan of the products.

Relationship Diagrams









SE-20-300-650-G1T

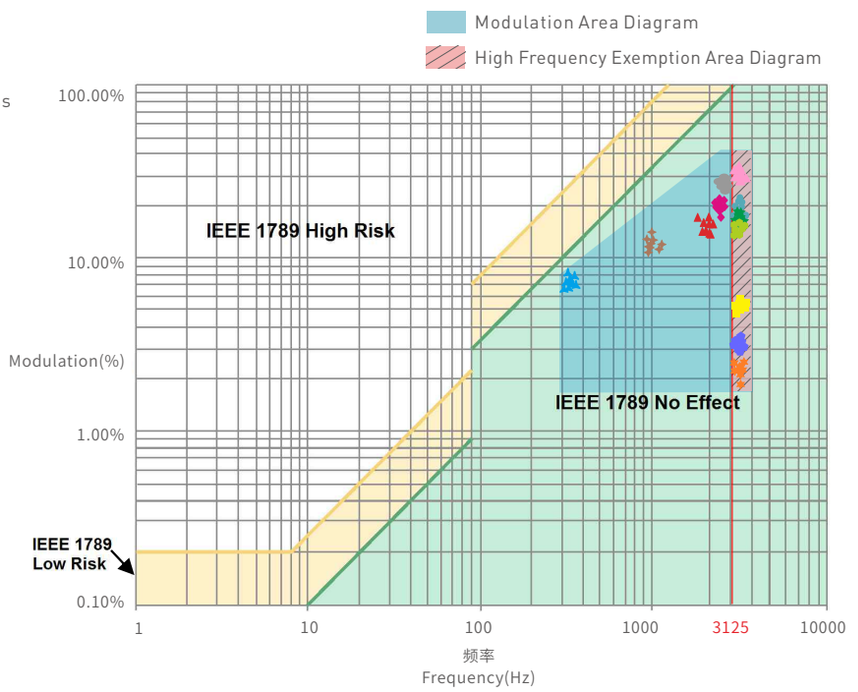
Flicker Test Form

IEEE 1789

Limit of Modulation in low risk area	
Waveform frequency of optical output	Limit (%)
$f \leq 8Hz$	0.2
$8Hz < f \leq 90Hz$	$0.025 \times f$
$90Hz < f \leq 1250Hz$	$0.08 \times f$
$f > 1250Hz$	Exemption assessment
Limit of modulation in no effect area	
Waveform frequency of optical output	Limit (%)
$f \leq 10Hz$	0.1
$10Hz < f \leq 90Hz$	$0.01 \times f$
$90Hz < f \leq 3125Hz$	$[0.08/2.5] \times f$
$f > 3125Hz$	Exemption assessment (High frequency exemption)

Brightness

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



Marks in the right chart were tested results of different current ranges.

The output frequeny is 0Hz in 100% brightness and its corresponding modulation is 0%, which could not be shown in the right chart.

Packaging Specifications

Model	SE-20-300-650-G1T
Carton Dimensions	290×275×106mm(L×W×H)
Quantity	20 PCS/Layer; 2 Layers/Carton; 40 PCS/Carton
Weight	0.11kg/PC; 5.2kg±5%/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 Environmental 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

- This product must be installed and adjusted by a qualified professional.
- This product is 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 life the product. Please install the product in a environment with good ventilation.
- When you install this product, please avoid being near a large area of metal objects or stacking them to prevent signal interference.
- Please keep the product away from a intense magnetic field, a high pressure area or a place where lightning is easy to occur.
- Please check whether the working voltage used complies with the parameter requirements of the product.
- Before you power on the product, please make sure all the wiring is correct in case of incorrect connection that may cause a short circuit and damage the components, or trigger a accident.
- If a fault occurs, please do not attempt to fix the product by yourself. If you have any question, please contact the supplier.

✻ 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	2022.11.09	Original version	Yang Weiling

LTECH

SE-20-300-650-G1T **Triac/ELV**

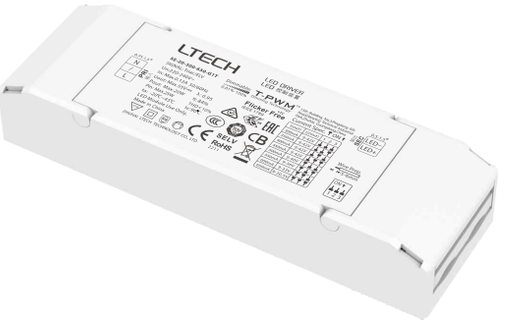
LED智能调光驱动器 (恒流型)

- 外壳采用科思创/三星PC阻燃V0级原料
- 体积小、重量轻; 免螺丝压线翻盖设计
- Triac前沿，ELV后沿切相调光
- 带软启动渐亮功能，让人眼视觉更舒服
- T-PWM™ 数字调光技术，呈现完美的视觉感受
- 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
- 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
- 创新的热管理技术，智能保护电源寿命
- 过载、过温、短路保护，可自动恢复
- 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:
0.01-100%



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。

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

技术参数

型号		SE-20-300-650-G1T		
特征	输出类型	恒流		
	调光接口	Triac前沿/ELV后沿		
	输出特征	隔离		
	防护等级	IP20		
	绝缘等级	II 类 (适用于室内Ⅰ、Ⅱ、Ⅲ类灯具)		
输出	输出电压	9-42Vdc		
	最大输出电压	≤55V		
	工作电流范围	300-650mA		
	负载功率范围	2.7W-20W		
	调光范围	0~100%, 调光深度0.01%		
	纹波电流	最大5.0%@额定电流		
	电流精度	±5%		
	PWM频率	3600Hz		
输入	直流电压范围	200-280Vdc		
	输入电压	220-240Vac		
	频率范围	50/60Hz		
	输入电流	≤0.12A/230Vac		
	功率因数	PF>0.95/230Vac (满载)		
	谐波THD	THD<10%/230Vac (满载)		
	效率 (Typ)	>84%@500mA		
	浪涌电流	冷启动13A(在50% Ipeak下测试twidth=120us)/230Vac		
	抗浪涌	L-N: 2kV		
	漏电流	<0.5mA/230Vac		
环境	工作温度	ta: -20 ~ 45°C tc: 90°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≥1.02-1.35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
		CE	欧盟	EN61347-1，EN61347-2-13，EN62384
		KC	韩国	KC61347-1，KC61347-2-13
		RCM	澳洲	AS61347-1，AS61347-2-13
		ENEC	欧洲	EN61347-1，EN61347-2-13，EN62384
		CB	CB成员国	IEC61347-1，IEC61347-2-13
		EAC	俄罗斯	IEC61347-1，IEC61347-2-13
		BIS	印度	IS 15885(PART 2/SEC 13)
	电磁兼容发射	CCC	中国	GB/T17743，GB17625.1
		CE	欧盟	EN55015，EN61000-3-2，EN61000-3-3，EN61547
		KC	韩国	KN15，KN61547
		RCM	澳洲	EN55015，EN61000-3-2，EN61000-3-3，EN61547
		EAC	俄罗斯	IEC 62493，IEC 61547，EH 55015，IEC 61000-3-2, IEC 61000-3-3
	电磁兼容抗扰度	EN61000-4-2,3,4,5,6,8,11, EN61547		
ErP	功耗	待机功耗	无待机模式	
		网络待机功耗	无网络待机功耗 （可控硅信号为0时，电源功耗为0）	
		空载功耗	无空载模式	
	频闪/频闪效应	IEEE 1789	满足无影响/高频豁免考核级别	
		CIE SVM	Pst LM≤1.0，SVM≤0.4	
	DF	相位因素	DF≥0.9	
其他	产品重量	110g		
	产品尺寸	127×40×23mm(L×W×H)		

LED电流选择

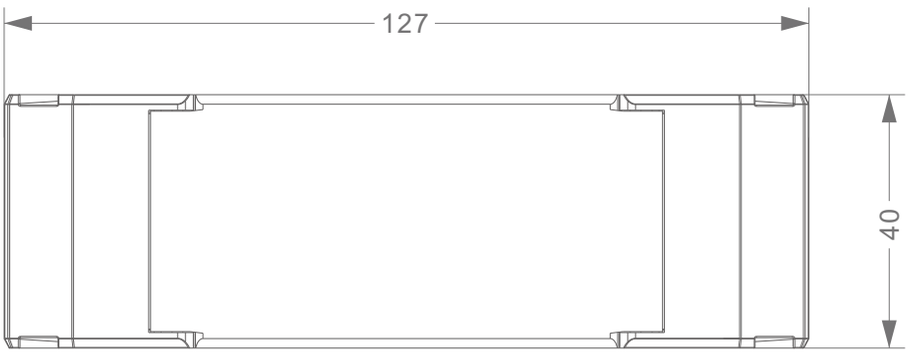
DIP开关选择电流

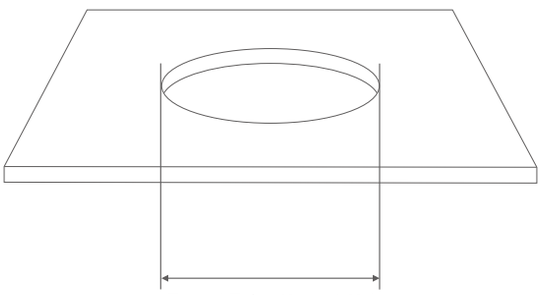
	DIP开关									
SE-20-300-650-G1T	电流输出	300mA	350mA	400mA	450mA	500mA	550mA	600mA	650mA	ON
	电压输出	9-42V	9-42V	9-42V	9-42V	9-40V	9-36V	9-33V	9-30.5V	
	功率输出	2.7-12.6W	3.15-14.7W	3.6-16.8W	4.05-18.9W	4.5-20W	4.95-19.8W	5.4-19.8W	5.85-19.82W	OFF

* DIP开关设置不同的电流后，需要断电后再通电，这样新设置的电流才有效。
* 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，9-21.5V的输出电压范围可串联3-7颗LED， 最大串联数量以LED实际电压为准。

尺寸图

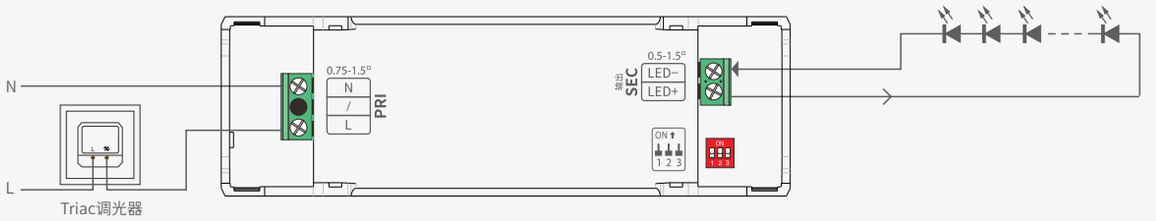
单位：mm



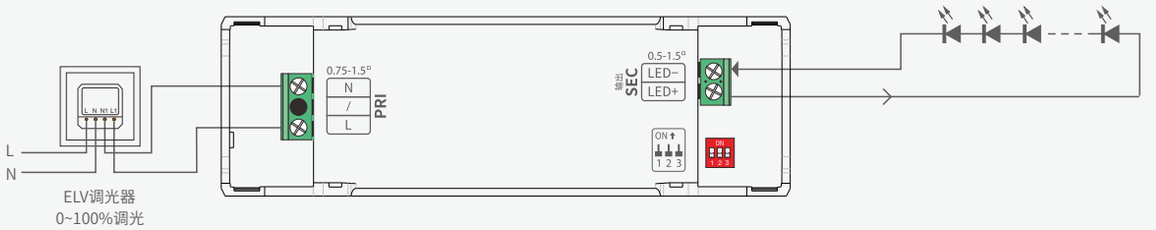


连线图

Triac 连接方式



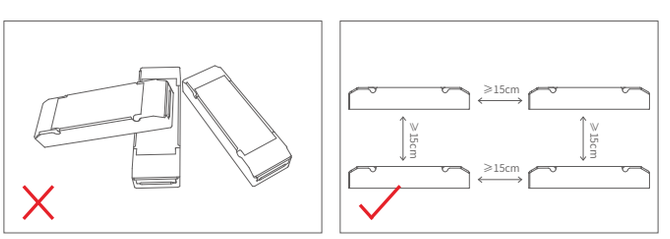
ELV 连接方式



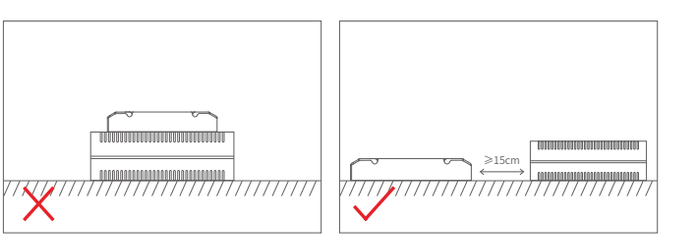
保护盖应用图

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。

安装注意事项

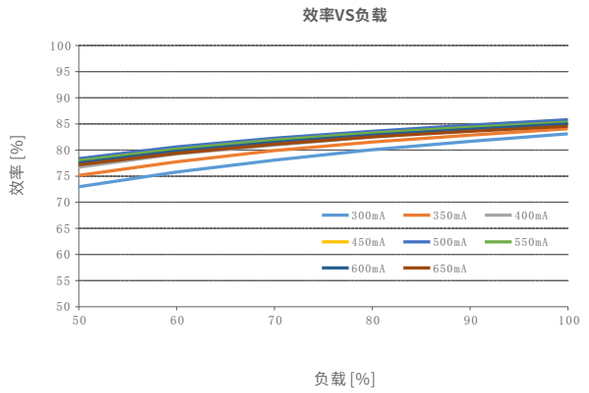


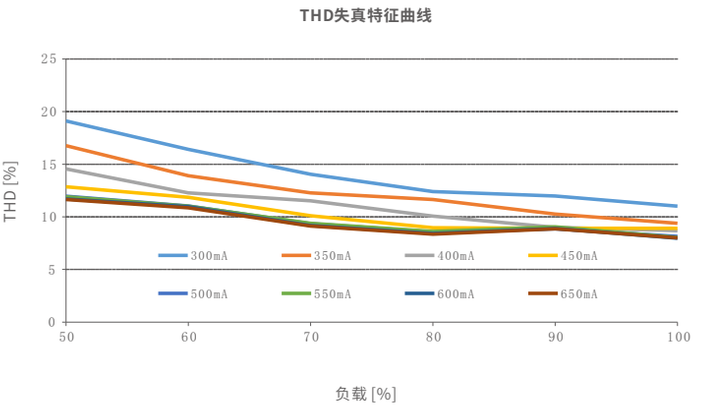
请勿将产品堆叠摆放，产品与产品间隔距离应≥15cm，避免影响产品散热和使用寿命。

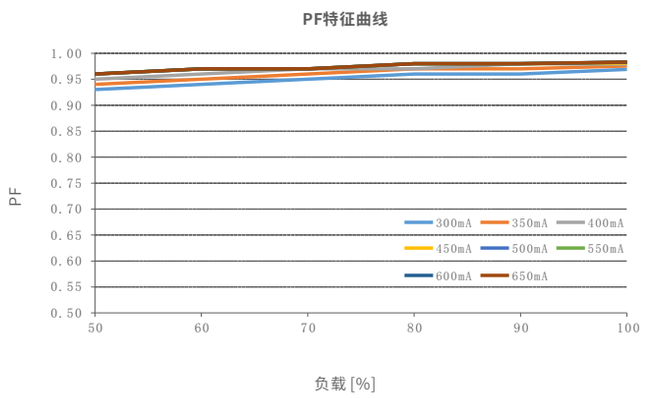


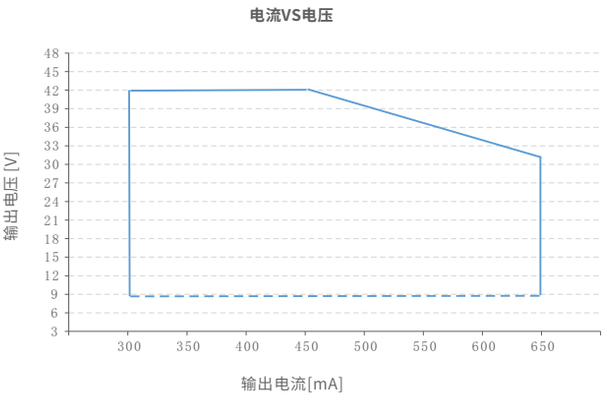
请勿将产品置于电源上方，与电源间隔距离应≥15cm，避免影响产品散热而减少使用寿命。

关系图表









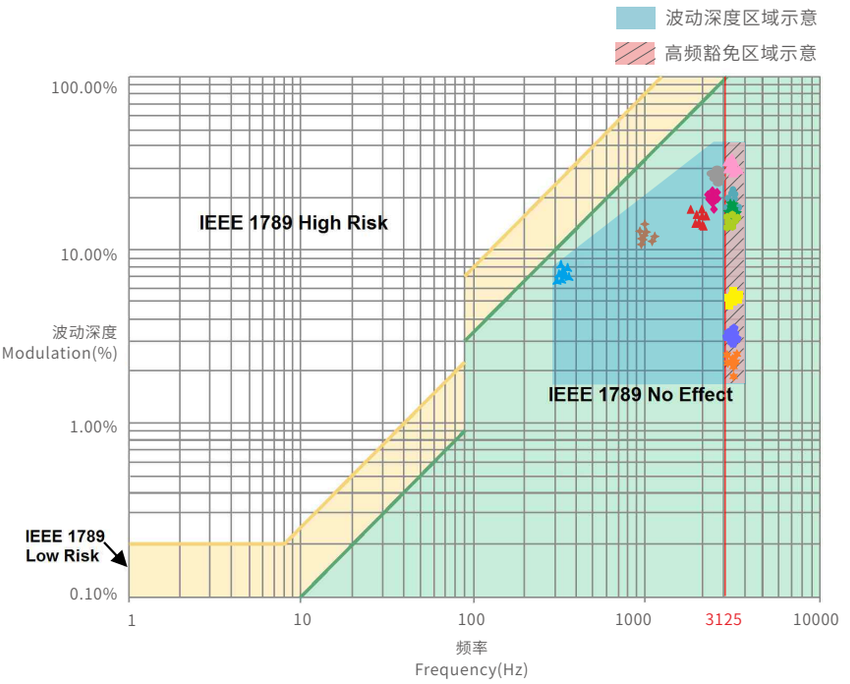
SE-20-300-650-G1T

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 ⩽ 8Hz	0.2
8Hz < f ⩽ 90Hz	0.025 × f
90Hz < f ⩽ 1250Hz	0.08 × 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 ⩽ 10Hz	0.1
10Hz < f ⩽ 90Hz	0.01 × f
90Hz < f ⩽ 3125Hz	(0.08/2.5) × 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-20-300-650-G1T
包装箱尺寸	290×275×106mm(L×W×H)
数量	20PCS/层; 2层/箱; 40PCS/箱
重量	0.11kg/PC; 5.2kg±5%/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。
- 本产品（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	2022.11.09	正稿	杨魏玲