

500GSL Series Specification

500GSL系列规格书

V1.5

2024/1/11

Powerland Signatures					Customer Approval Signature
Prepared	Checked		Approved	Marketing	
	ME	研发经理			

Please return us one copy of the document with your approval signature.

请客户确认签字后回传我司此规格承认书。

Powerland Technology Inc.

南京博兰得电子科技有限公司

Building 9, No. 1 Zidan Road., Qinhuai District., Nanjing 210014, China.

江苏省南京市秦淮区紫丹路 1 号 9 栋

Email: sales@powerlandtech.com Phone: +86-25-85582306

Features

- Dimming port programming without driver power on
- CC/CV hybrid output
- High efficiency (Max 95%), active power factor correction
- Ultra low THD at light load
- Isolated 0~10V/ PWM/Rset dimming, Dim to off option
- 12V/200mA AUX Output
- UL recognized
- IP65



Description

500W LED Drivers offers digital programmable drivers with wide-range adjustable output current, together with 12V/200mA auxiliary output (optional) for smart lighting.

The output current of this series are programmable, and designed for 0-10V/PWM/Rset dimming applications.

Model Name Definition

500	GSL	56	CV	G - XX
Rated Output Power	Series name	Maximum output voltage	Constant current and constant voltage output	Options: Output with FG line
				Options

Specifications

Part Number	Max. Output Power	Programmable Current Region@CC	Output Voltage Range	Programmable Voltage Region@CV	Efficiency @277VAC
500GSL48CVG	500W	4.76-11.90A	25-48V	42-48 V	95%
500GSL56CVG	500W	4.17-10.42A	28-56V	48-56 V	95%
500GSL80CVG	500W	3.13-7.81A	38-80V	64-80 V	95%
500GSL140CVG	500W	1.79-4.46A	67-140V	112-140V	95%
500GSL180CVG	500W	1.43-3.57A	84-180V	140-180 V	95%
500GSL240CVG	500W	1.04-2.60A	115-240V	192-240 V	95%
500GSL300CVG	500W	0.83-2.08A	144-300V	240-300V	95%
500GSL375CVG	500W	0.67-1.67A	180-375V	300-375V	95%
500GSL460CVG	500W	0.53-1.33A	225-460V	375-460V	95%

Note: Efficiency value is typical value.

Suffix “-XX” Function Optional Model Table

-XX	Input Interface	Output Interface	Dimming Interface
-CJJ3	Jnicon M19 3 pins male	Jnicon M19 3 pins female	Jnicon M16 3 pins female
-CLL3	LLT M19 3 pins male	LLT M19 3 pins female	LLT M16 3 pins female
-CQQ3	Chogori Middle 3 pins male	Chogori Middle 3 pins female	Chogori 500 3 pins female
-CJJW	Jnicon M19 3 pins male	Jnicon M19 3 pins female	RJ12 6P6C *2
-CLLW	LLT M19 3 pins male	LLT M19 3 pins female	RJ12 6P6C *2
-CQQW	Chogori Middle 3 pins male	Chogori Middle 3 pins female	RJ12 6P6C *2
-C14LW	C14	LLT M19 3 pins female	RJ12 6P6C *2
-C2JJ3	Jnicon M25 3 pins male + Jnicon M25 3 pins female	Jnicon M19 3 pins female	Jnicon M16 3 pins female
-C2LL3	LLT M25 3 pins male + LLT M25 3 pins female	LLT M19 3 pins female	LLT M16 3 pins female
-C2QQ3	Chogori Large 3 pins male + Chogori Large 3 pins female	Chogori Middle 3 pins female	Chogori 500 3 pins female
-C2JJW	Jnicon M25 3 pins male + Jnicon M25 3 pins female	Jnicon M19 3 pins female	RJ12 6P6C *2
-C2LLW	LLT M25 3 pins male + LLT M25 3 pins female	LLT M19 3 pins female	RJ12 6P6C *2
-C2QQW	Chogori Large 3 pins male + Chogori Large 3 pins female	Chogori Middle 3 pins female	RJ12 6P6C *2

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	90 Vac	-	305 Vac	
Input DC Voltage	127 Vdc	-	300 Vdc	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.75 mA	At 277Vac / 60Hz input , grounding effectively
Input AC Current	-	-	2.1A	Measured at full load and 277 Vac input.
	-	-	4.8A	Measured at full load and 120 Vac input.
Inrush Current	-	-	65A	At 220Vac input, 25°C cold start,
PF	0.9	-	-	At 100-277Vac, full load
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Io set	-	5%Io set	At 25°C and full load condition
Total Output Current Ripple (pk-pk)	-	-	10%Io max	At 25°C and full load condition, 20 MHz BW
Startup Overshoot Current	-	-	20%Io max	At 25°C and full load condition
No Load Output Voltage		57		500GSL56CV(G) only
Line Regulation	-	-	±1%	Measured at full load
Load Regulation	-	-	±1%	

Turn-on Delay Time	-	0.8 s	1.5 s	Measured at 120Vac input.
Temperature Coefficient of I_o set	-0.03%/°C	-	0.03%/°C	Case temperature = 0°C ~Tc max
12V Auxiliary Output Voltage	11V	12 V	15 V	
12V Auxiliary Output Source Current	0 mA	-	200 mA	Return terminal is "Dim"
OTP Tc(Note1)	85°C	90°C	100°C	Output current will drop to 50% lowest, or shut down.
SCP				Hiccup mode, Auto recover

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Standby power	-	-	1.5 W	Measured at 220Vac/50Hz; Dimming off
MTBF	-	234,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK- 217F)
Lifetime	-	80,000 Hours	-	Measured at 220Vac input, 80%Load and 75°C case temperature; See lifetime vs. Tc curve for the details
Operating Case Temperature Tc(Note1)	-40°C	-	90°C	
Operating Ambient Temperature Ta	-40°C	-	50°C	At 220-277Vac input.
Storage Temperature	-40°C	-	+85°C	Humidity: 5%RH to 100%RH
Dimensions Inches (L × W × H) Millimeters (L × W × H)	14.41 × 4.18 × 2.32 366 × 106.2 × 59			
Net Weight/pcs	-	3.3kg	-	
Package	L480 x W235 x H155 4PCS/Ctn			

Note1: There are three points could be maximum Tc point, depending on different Vac input and Vdc output. These three points (Tc, Tc1, Tc2) position are shown in below mechanical drawing.

Dimming Specifications

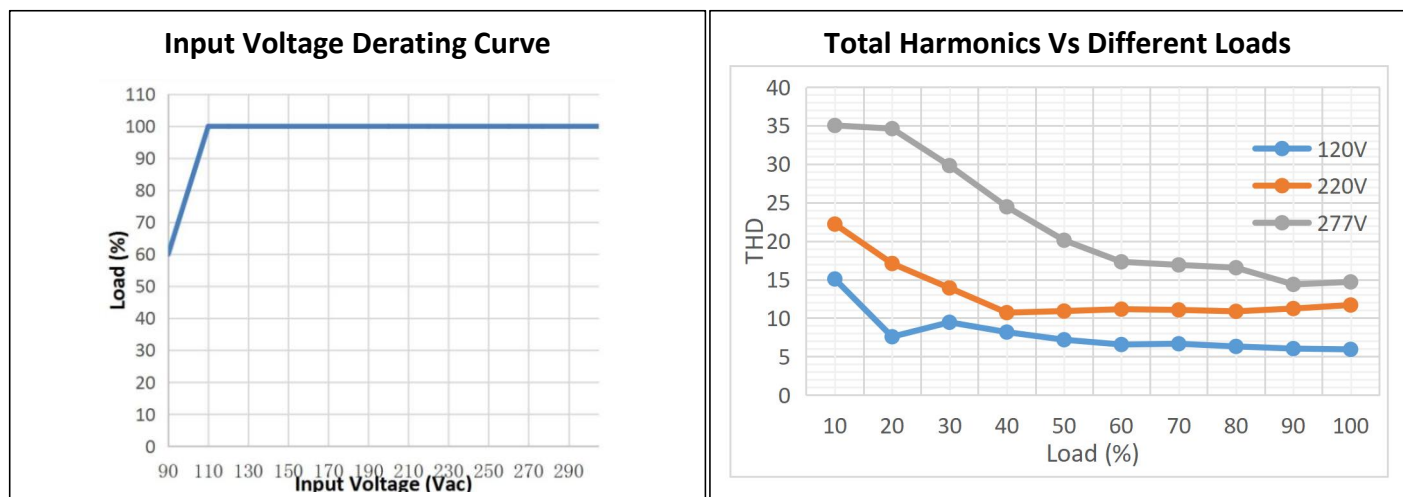
Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin	-1 V	-	15 V	
Source Current on Vdim (+) Pin	90 uA	100 uA	110 uA	
Dimming Output Range	10%Io set	-	Io set	80%Io max ≤ Io set ≤ 100%Io max
	8%Io max	-	Io set	Io set < 80%Io max
Recommended Dimming Input Range	0 V	-	10 V	Default 0-10V dimming mode.
Dim off Voltage	0.3 V	0.5 V	0.8V	
Dim on Voltage	0.5V	0.7 V	1 V	
Hysteresis	-	0.2 V	-	
PWM_in High Level	9.8 V	10V	10.2 V	PWM is disabled default, please inform us if need this function enable.
PWM_in Low Level	-0.3 V	-	0.6 V	
PWM_in Frequency Range	200 Hz	-	3 KHz	

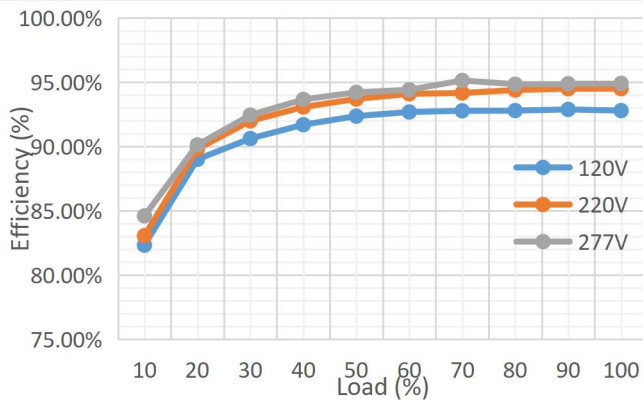
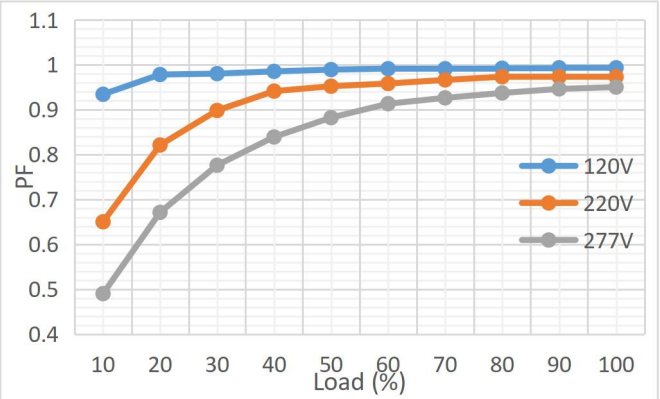
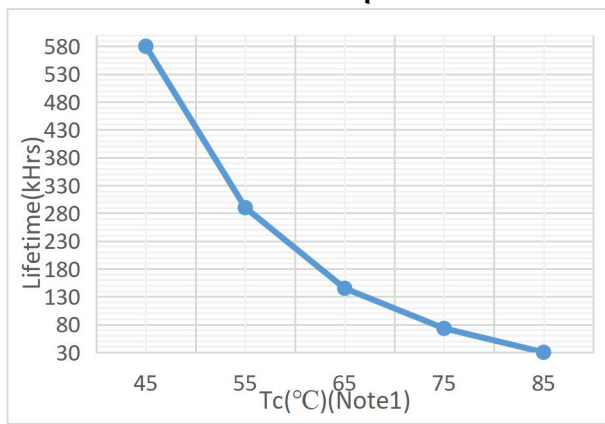
PWM_in Duty Cycle	1%	-	100%
PWM Dimming off	3%	5%	7%
PWM Dimming on	5%	7%	9%

Safety & EMC Compliance

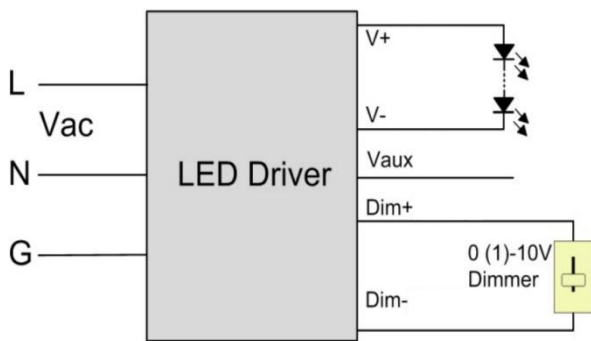
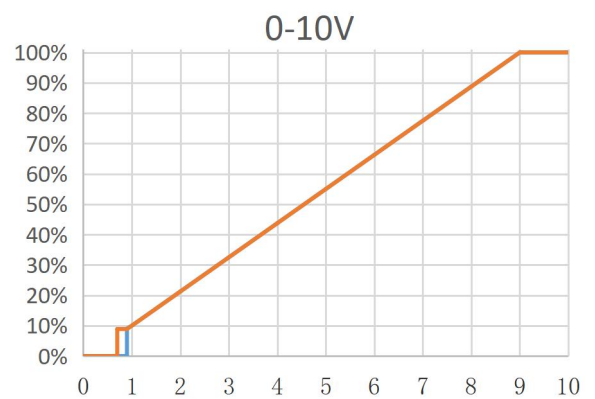
Safety Category	Standard
UL/CUL	UL8750,CAN/CSA-C22.2 No. 250.13-12
EMI Standards	Notes
FCC Part 15	ANSI C63.4:2009 Class B This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired Operation.
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN 61000-4-4	Electrical Fast Transient / Burst-EFT: level 3, criteria A
EN 61000-4-5	Surge Immunity Test: AC Power Line: line to line 4 kV, line to earth 6 kV
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS
EN 61000-4-8	Power Frequency Magnetic Field Test
EN 61000-4-11	Voltage Dips
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

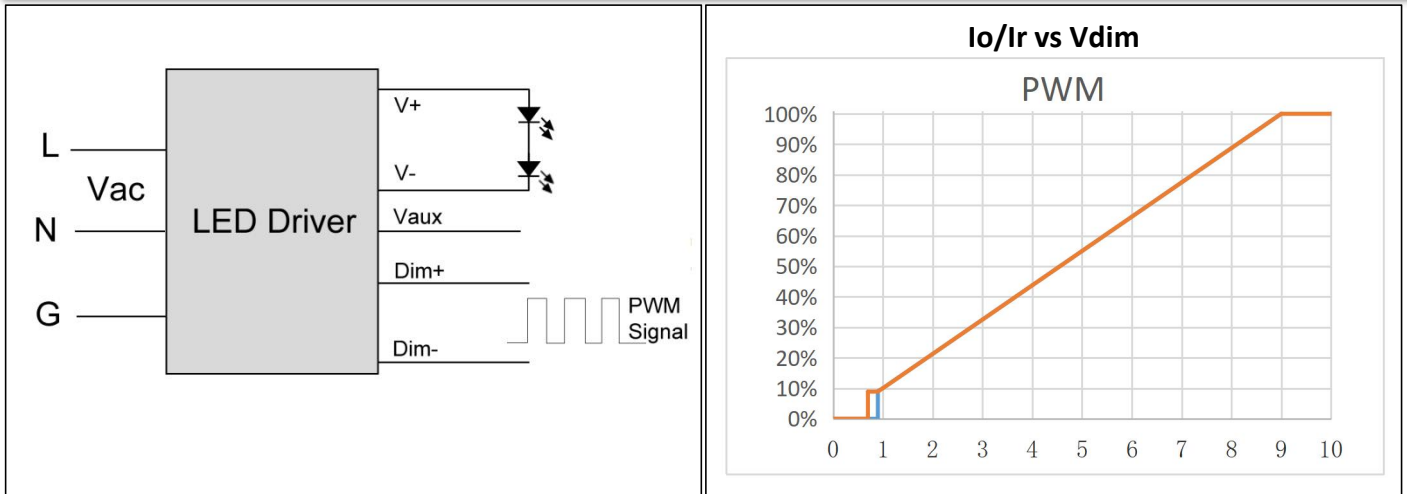
Performance Curve



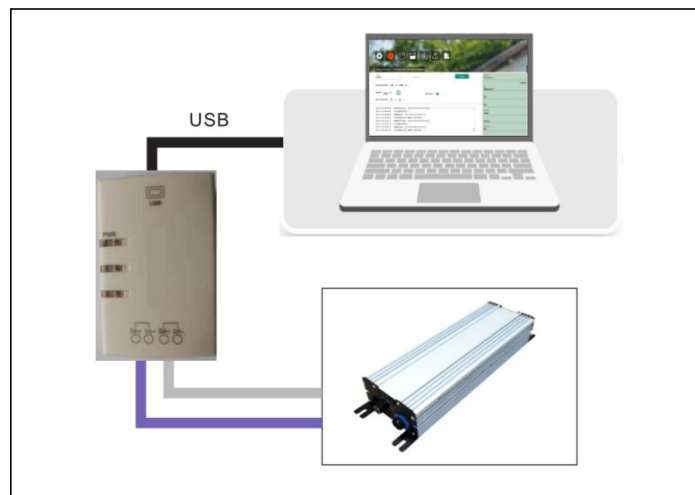
Efficiency Vs Different Loads

Power Factor Vs Different Loads

Life Vs Shell Temperature


0-10V Analog Dimming & PWM Dimming


I_o/I_r vs V_{dim}


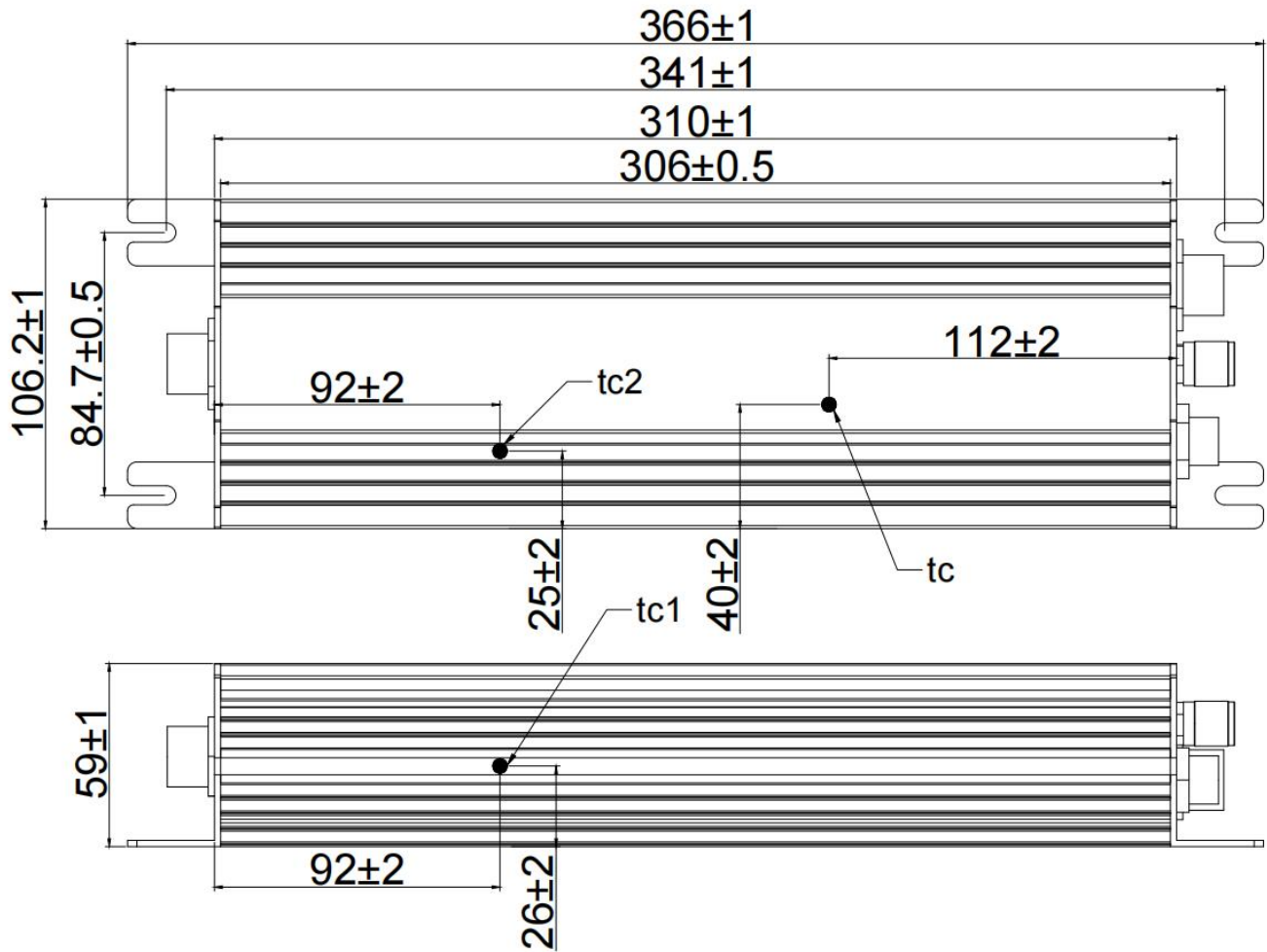


Programming wiring diagram



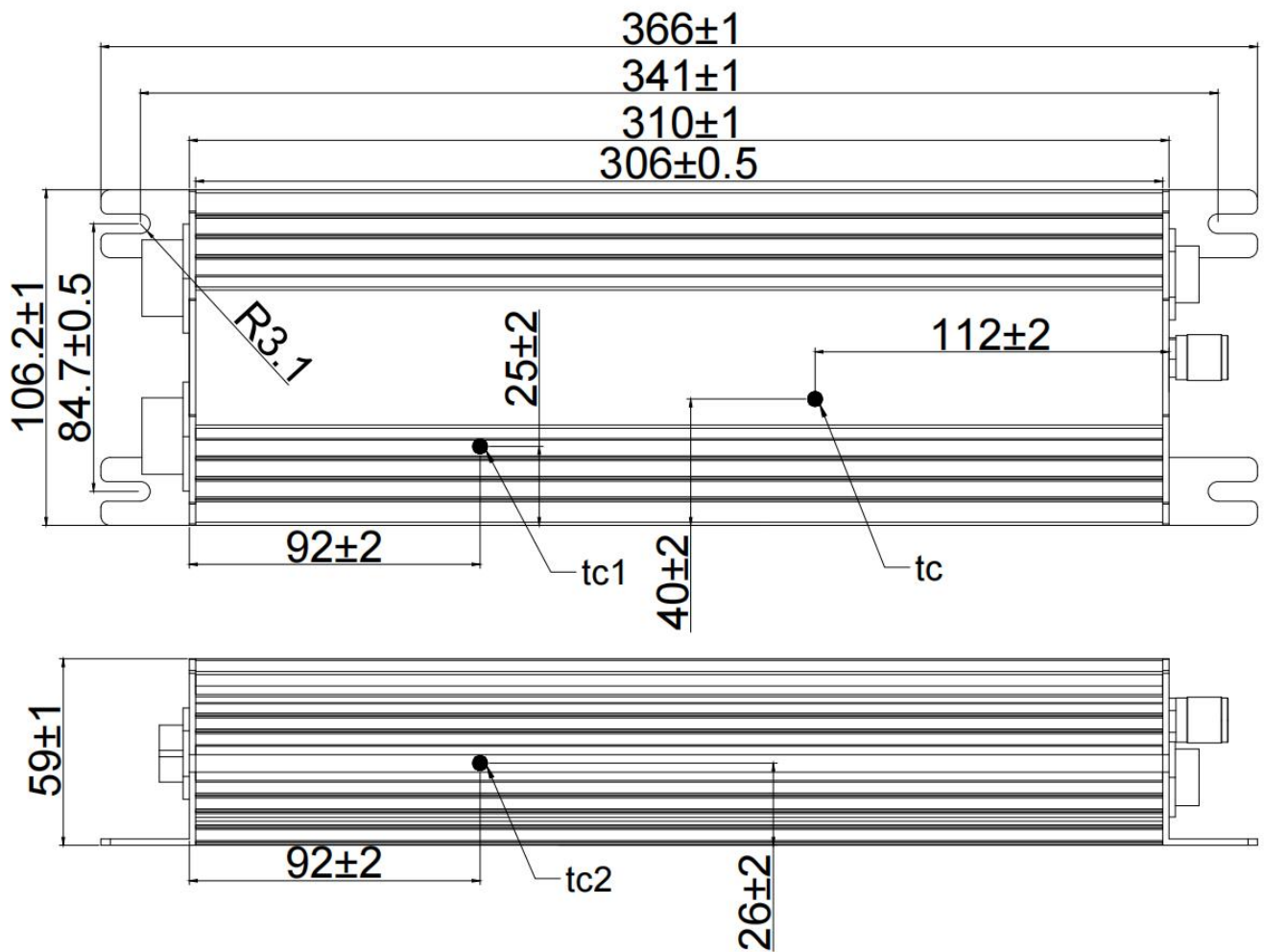
Mechanical Specification

-CJJ3/-CLL3/-CQQ3/-CJJW/-CLLW/-CQQW Model Mechanical Drawing



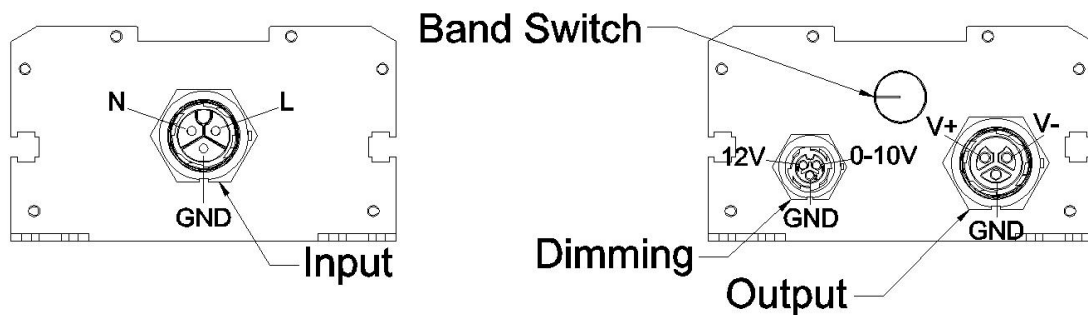
Unit: mm

-C2JJ3/-C2LL3/-C2QQ3/-C2JJW/-C2LLW/-C2QQW Model Mechanical Drawing

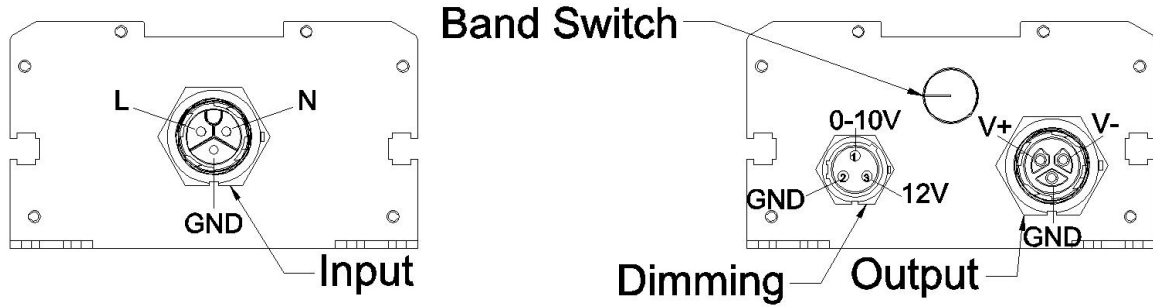


Unit: mm

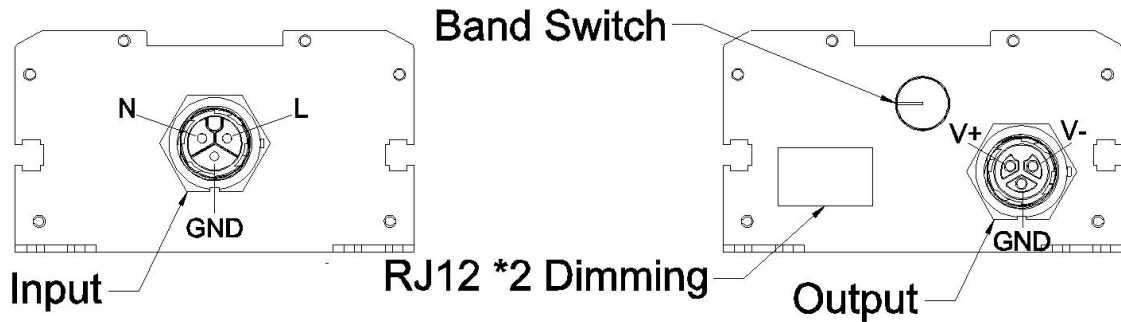
-CJJ3/-CLL3 End Cap



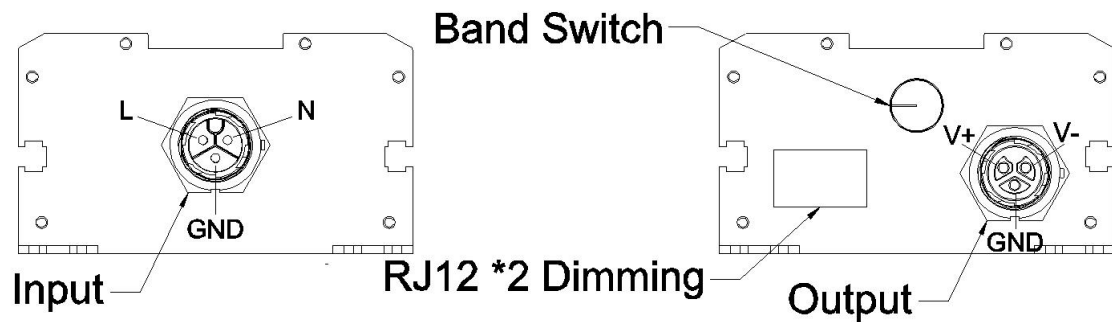
-CQQ3 End Cap



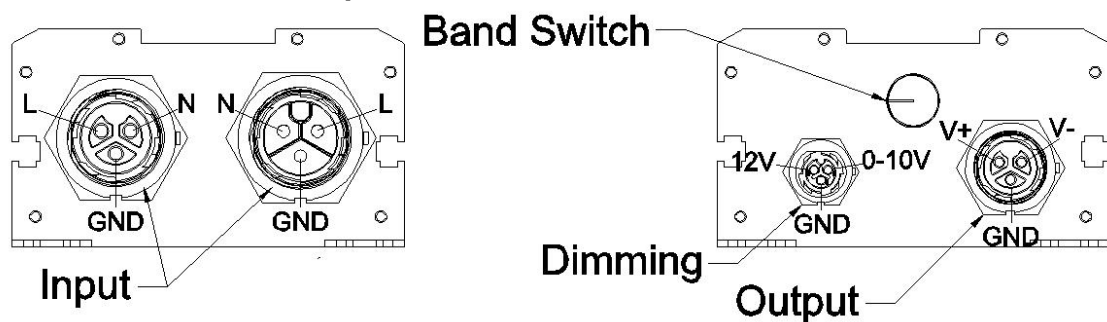
-CJJW/-CLLW End Cap



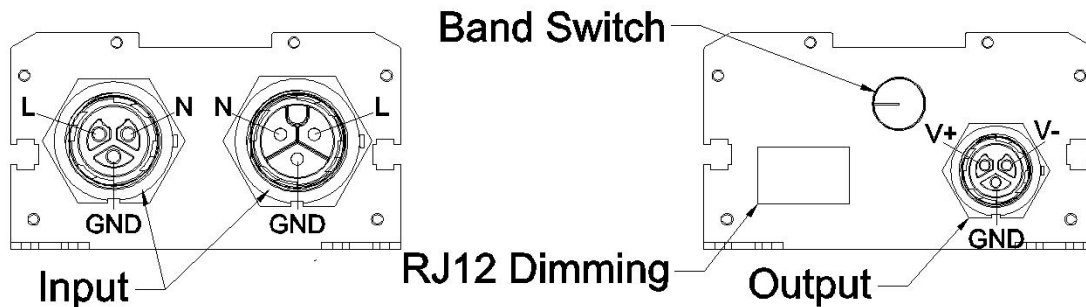
-CQQW End Cap



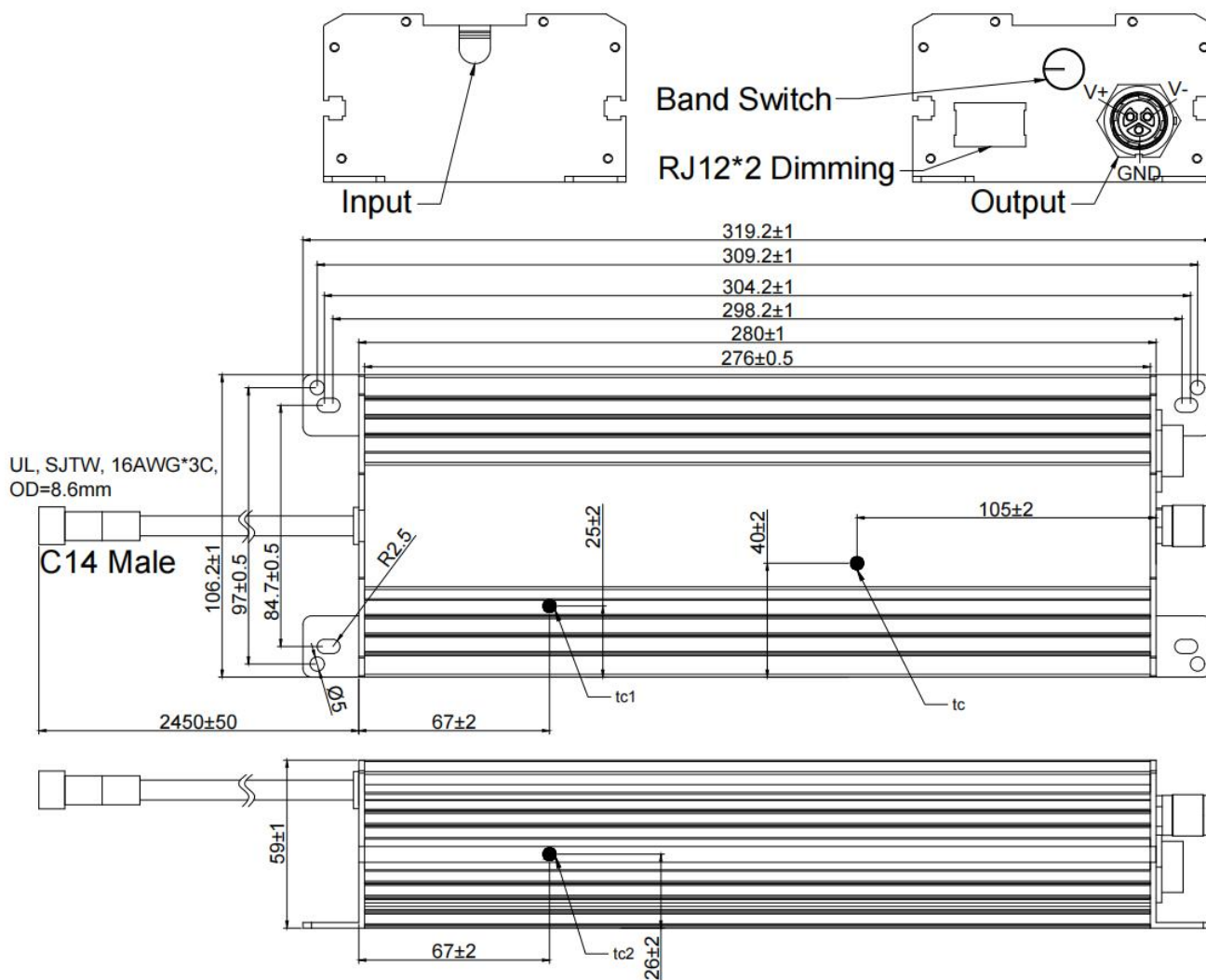
-C2JJ3/-C2LL3/-C2QQ3 End Cap



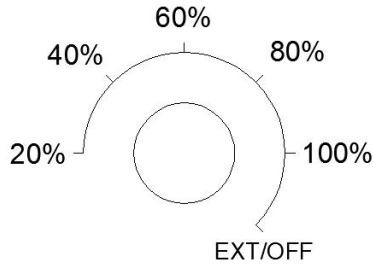
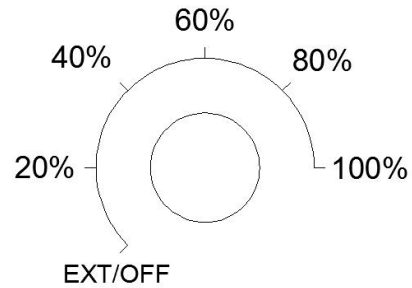
-C2JJW/-C2LLW/-C2QQW End Cap



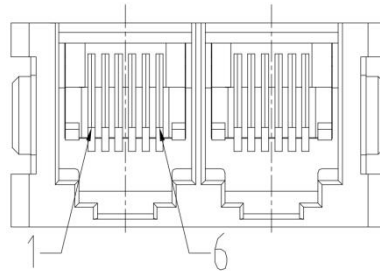
-C14LW Model Mechanical Drawing



Unit: mm

**-CJJ3/-CLL3/-CQQ3/-CJJW/-CLLW/-CQQW/
-C2JJ3/-C2LL3/-C2QQ3/-C2JJW/-C2LLW/-C
2QQW Model Knob Switch Screen Printing**

**-C14LW Model Knob Switch Screen
Printing**

Band Switch Definition

Tap Position	Definition
EXT/OFF	No output when dimming port not connect to the dimmer, Dimming enable when dimmer connected.
20%	20% $\pm$ 10% Output Current, 0-10V/PWM dimming disable
40%	40% $\pm$ 10% Output Current, 0-10V/PWM dimming disable
60%	60% $\pm$ 10% Output Current, 0-10V/PWM dimming disable
80%	80% $\pm$ 10% Output Current, 0-10V/PWM dimming disable
100%	100% $\pm$ 5% Output Current

RJ12 Interface


Pin	Definition
1, 6	12V
2, 5	0-10V
3, 4	GND

Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2020.12.22	V1.0			
2021.2.3	V1.1	Add -C2L/-C2Q/-C2LW/-C2QW Model		
		Add RJ12 Interface definition		
		Update mechanical specification		
2021.4.6	V1.2	Update Mechanical Drawing		
		Update the model according to UL certification		
			Operating Case Temperature for Warranty Tc_w	Operating Ambient Temperature Ta

			Operating Case Temperature for Safety T_{c_s}	Operating Case Temperature T_c
2021.10.14	V1.3	Update Performance Curve		
		Update Mechanical Drawing		
		Delete swing line structure model		
2022.8.26	V1.4	Update company logo		
		Update Performance Curve		
		Update Mechanical Specification		Add T_{c1} and T_{c2} point
2024.1.11	V1.5	Update Mechanical Specification		Add tolerances