

The logo for 'DONE' is displayed in a bold, teal, sans-serif font. The letter 'D' is stylized with a white circular element on its left side. The logo is contained within a white rounded square with a thin teal border.

# PLS SERIES LED DRIVER

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DL-960W-V260X-PLS SPEC V1.0

## Features

- Class I type for insulation
- Input voltage 120-277 V ~ 50/60 Hz
- Efficiency :97%(Typ.)
- Constant power drive and constant current output control mode
- Metal case, protection grade against water and dust: IP67
- Surge level:  
 differential mode :6kV,  
 common mode :15kV
- Only for X version: standby power≤0.5W@ dim-off state
- Available version:  
 X version: 1.default dimming method of Isolated 3 in 1 dimmer  
                   2.available DC source:12V- 300mA
- Guaranteed Lifetime : 5 years



## Applications

Street lighting、 Industrial lighting、 Venue lighting  
 Floodlight lighting、 Landscape lighting 、 Plant lighting

## Model list

Model NO.	Input voltage	Output power	Output voltage	The default current	Eff.	THD.	Power Factor
DL-960W-V260X-PLS	120-277V 50/60Hz	960W	180-260Vdc	4.2A	≥97%	≤10%	≥0.97

### Note:

1. Test conditions: Ta=25°C, under 230Vac input,and after running for 30 minutes with full load .
2. The output power decreases slowly to a half when the Input is below 108±10%Vac. Please refer to the curve of Input voltage VS output power for detail.

## Input characteristics

Parameter	Min	Typ.	Max	remark
Rated input voltage	120Vac	230Vac	277Vac	
Input voltage range	90Vac	230Vac	305Vac	Output power decrease to a half below 120VAC.
Rated frequency range	47Hz	50/60Hz	63Hz	
Power factor	-	0.97	-	@230Vac input ,with full load
T.H.D	-	7%	10%	@230Vac input ,with full load
T.H.D	-	-	20%	@120-277Vac input ,with 60% load
Input current	-	-	4.4A	@230Vac input ,with full load
Inrush current	-	-	135A	230Vac, cold start (25°C)

**Note:**

1. Test conditions: Ta=25°C .

## Output characteristics

Parameter	Min	Typ.	Max	remark
Rated current	-	3.7A	-	With loading 260VDC ,full load
Output current range	3.4A	-	4.8A	
Output voltage range	200V	-	260V	Constant power & constant current range
	180		200	Constant current range
Available power(90-120Vac)	-	384W	-	output power decrease to a half when input voltage being less than 108±10Vac
Rated power(120-277Vac)	-	960W	-	
No-load voltage	-	-	350V	
Efficiency@120Vac	-	95%	-	full load@120Vac Output current 3.7A , 960W

## Output characteristics

Parameter	Min	Typ.	Max	Note
Efficiency@230Vac DL-960W-V260X-PLS	-	97%	-	full load@230Vac Output current 3.7A , 960W
Ripple current (Imax-Imin)/(Imax+Imin)*100%	-	5%	-	full load
Current Accuracy	-5%	-	+5%	full load
Line regulation	-3%	-	+3%	full load
Load regulation	-3%	-	+3%	full load
Starting time	-	500ms	-	Full load @230Vac
12V output voltage	10.8 V	12V	13.2V	
12V output current	0 mA	-	250 mA	Reference ground is "Dim -"
12V output line transient peak current @6W	-	-	500 mA	In a 5.0ms cycle, the maximum duration of the maximum peak current of 500mA is 2ms, and the average value must not exceed 250mA

**Note:** The output current is limited by the input and output voltage, please refer to "I-V WORKING AREA" for details;

## Dimming characteristics

Dimming function		Min	Typ.	Max	Instructions
0-10V Dimming ( Optional )	Safe operation voltage range	0V	-	12V	The dimming voltage beyond the range may lead to a critical damage.
	Dimming output range	0%	-	100%	-
	Rated operation voltage range	0V	-	10V	negative dimming mode is available by program
PWM Dimming ( Optional )	PWM high level	9.5V	-	10.5V	-
	PWM low level	0V	-	0.3V	-
	Rated dimming frequency	300Hz	-	2000Hz	-
	PWM duty cycle	0%	-	99%	negative dimming mode is available by program
Resistor Dimming ( Optional )	Rated external resistance value	0KΩ	-	100KΩ	-
	Dimming output range	0%	-	100%	-

**Note:**

1. Output current of dimming port: 100uA (typical value).
2. The maximum operation voltage for the dimming port is 12V. Wrong voltage beyond this, or a reverse connection, may lead to a critical damage.
3. The default dimming setting of this product is three-in-one, positive logic dimming. Other requirement, such as time-controlled dimming, 0-5V dimming, and so on, please consult the technician for details.
4. Dim-off is only available for positive logic.

## Protection

Protection	description
Under voltage protect	When the input voltage is less than $108 \pm 10\%$ VAC, the output power decreases to a half.
Over Load Protection	hiccup mode, and automatically recovers after abnormal load conditions being removed
Output short circuit protection	hiccup mode, and automatically recovers after abnormal load conditions being removed
Over temperature protection	When the casing temperature is greater than $90^{\circ}$ C, the output power decreases to a half. Recovers automatically when the abnormal condition being removed.

**Note:**

1. Unless otherwise specified, all parameters should be measured at the condition of 230Vac (50Hz) input, with rated load, and ambient temperature of 25°C;

## Environmental

Environmental categories	Parameter
Working temperature	-40 ~ +55 @ 120-277VAC, 120Vac ambient temperature 40°C; 230Vac ambient temperature 55°C (refer to "service life curve ")
Safety shell temperature	-40 ~ 90°C
Working humidity	20 ~ 95% RH
Storage temperature、humidity	-40~+80°C, 10 ~ 95% RH
Resistant to vibration	10 ~ 500Hz, 5G 12 min/cycle, X, Y, Z axis 72 min each
MTBF	50Khrs min. MIL-HDBK-217F (Ta=25°C)
Lifetime	70000 h @ housing temperature ≤75 °C, 230Vac, 100% load, see section "housing temperature and life"

## Safety and EMC

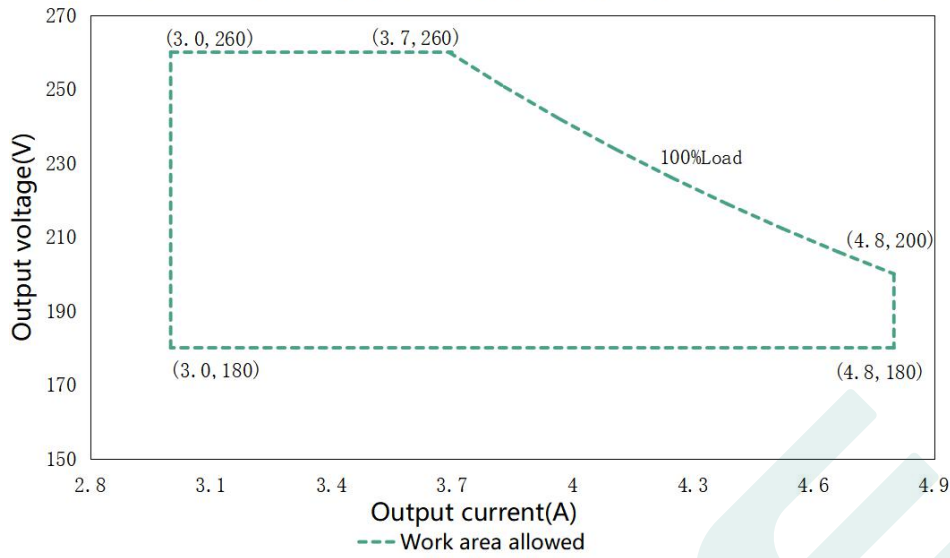
Safety categories	Standard
Safety	EN61347-1、EN61347-2-13、IEC61347-1、IEC61347-2-13、AS/NZS61347.1、AS61347.2.13、EN 62384、UL8750;
EMC	EN 55015、EN 61000-3-2 、 EN 61000-3-3
Surge leve	Differential mode L-N ± 6 KV (2Ω),common mode L, N-PE± 15 KV (12Ω) ;Refer IEC61000-4-5 2014
High-pot test	I/P-PE :1.5KVac O/P-PE : 1.5KVac I/P-DIM:1.5KVac O/P-DIM:1.5KVac
Insulation impedance	I/P-PE:100MΩ / 500VDC; O/P-PE:100MΩ / 500VDC / 25°C/ 70% RH
Leakage current	< 0.7mA @277Vac

### Note:

- 1.Attention! As a component of the whole, the EMC performance of the final product is not only decided by the driver, even if the driver is well-designed and fulfil all the required compliance. The final equipment manufacturers must re-qualify EMC Directive on the complete product.
- 2.For the driver will be in OVP restart model when it works in no-load, so the driver on-load is recommended.

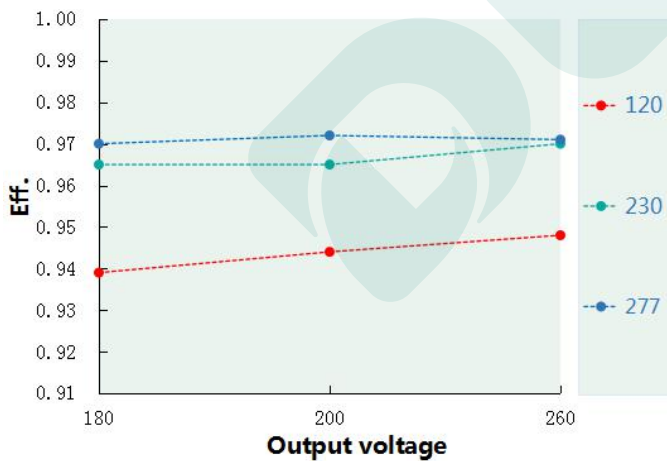
## I-V Working area

Output voltage VS output current of DL-960W-V260X-PLS(input: 120-277Vac)

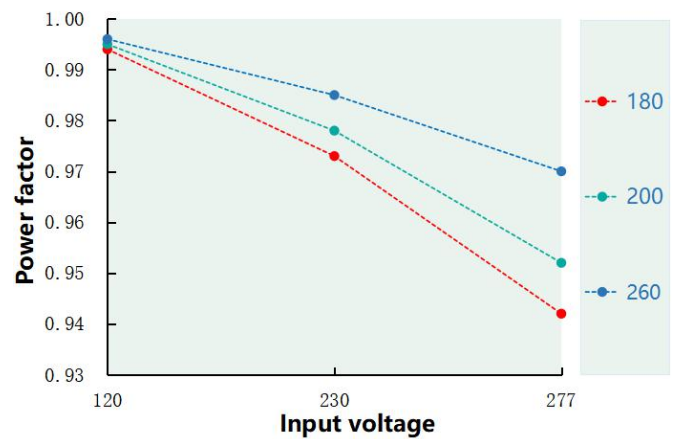


Load	Output								
Load working Voltage	180V	185V	190V	200V	210V	225V	230V	250V	260V
Io_MAX	4.8A	4.8A	4.8A	4.8A	4.57A	4.27A	4.17A	3.84A	3.7A
Po_MAX	864W	888W	912W	960W	960W	960W	960W	960W	960W

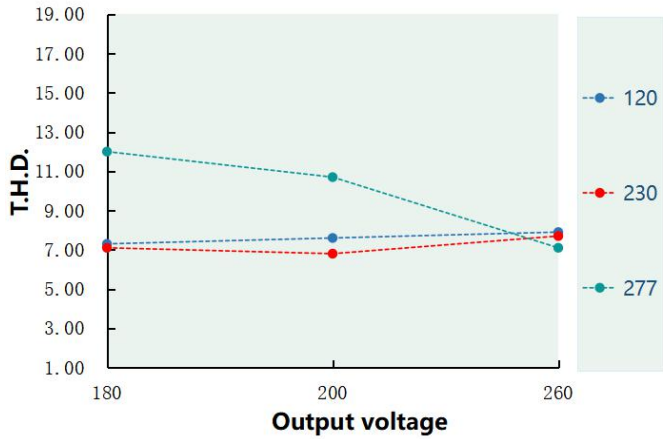
Eff. VS Output voltage DL-960W-V260X-PLS



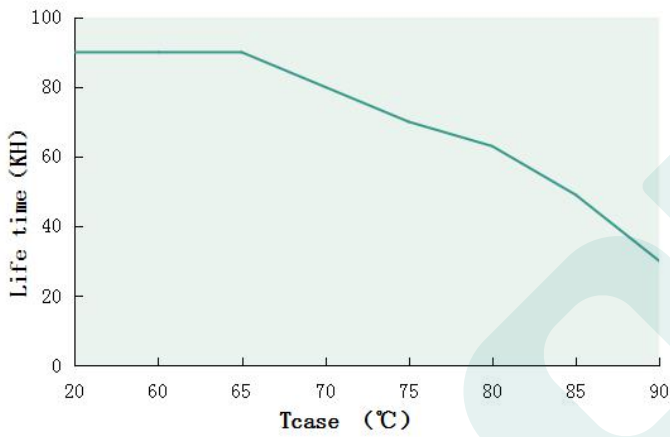
Power factor VS Input voltage DL-960W-V260X-PLS



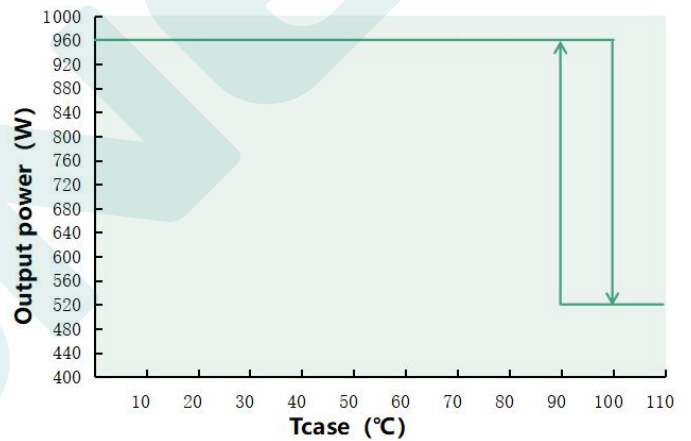
**T.H.D VS Output voltage DL-960W-V260X-PLS**



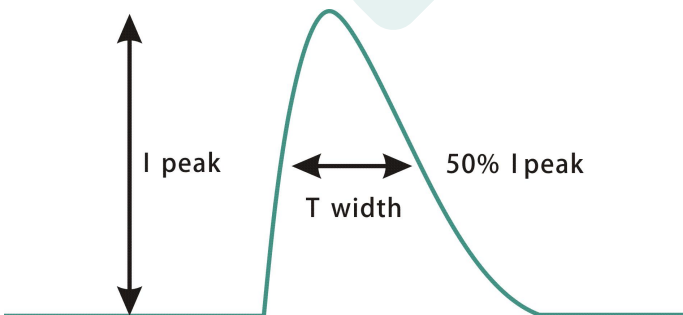
**Tcase VS Lifetime(DL-960W-V260X-PLS)**



**Output power VS Tcase(DL-960W-V260X-PLS)**

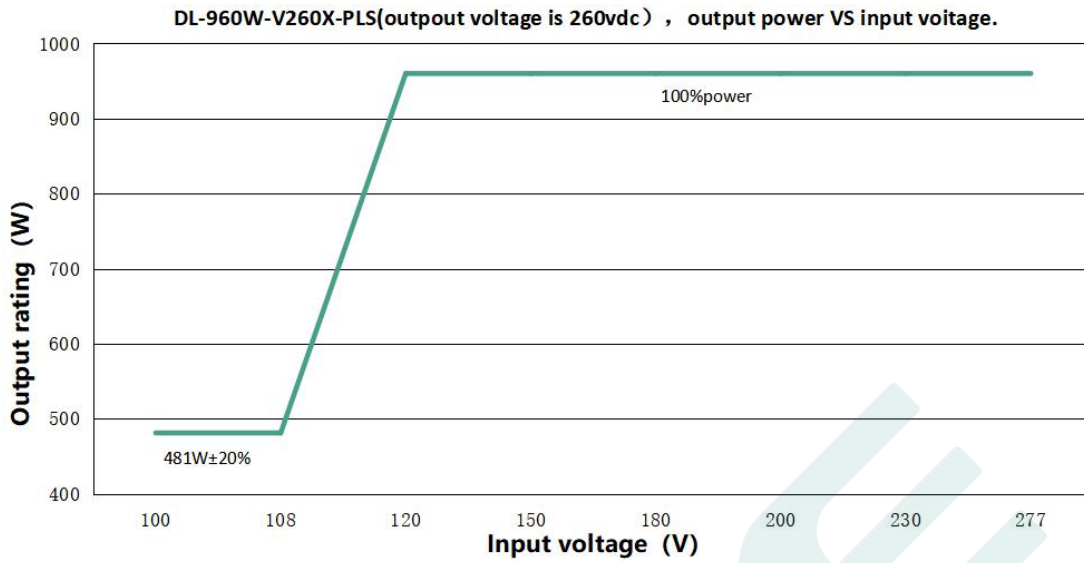


**Input Inrush Peak Current(DL-960W-V260X -PLS)**



Input voltage	Inrush peak current	T (@50% Peak current)
120Vac	86A	800us
230Vac	110A	630us
277Vac	128A	618us

**Output power VS Input voltage**



DL-960W-V260X-PLS(For output 260Vdc, the rated output current & power under different input voltage)

Input Voltage	108Vac	120Vac	150Vac	180Vac	200Vac	230Vac	250Vac	277Vac
Iout	1.85A	3.7A	3.7A	3.7A	3.7A	3.7A	3.7A	3.7A
Pout	481W	960W	960W	960W	960W	960W	960W	960W

**Note :** When the input voltage is below 108±10Vac,the output power decreases to 481W±20%.

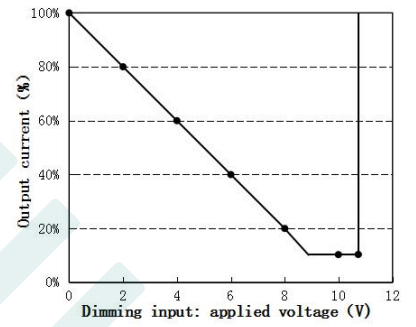
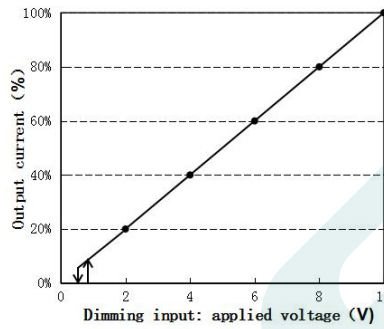
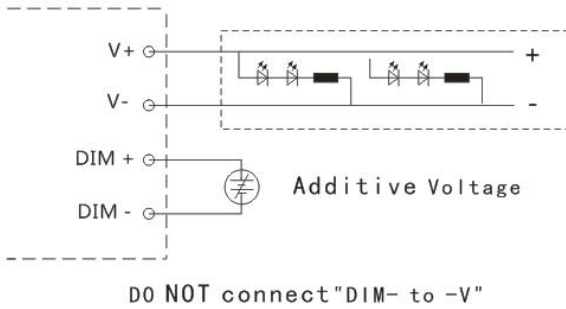
## Dimming function

### Three-in-one dimming function (X version only)

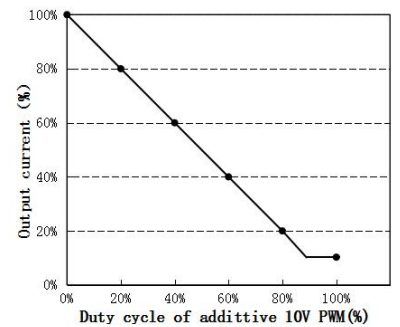
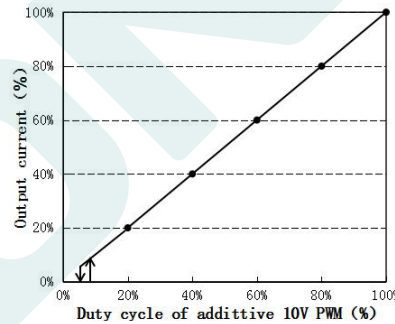
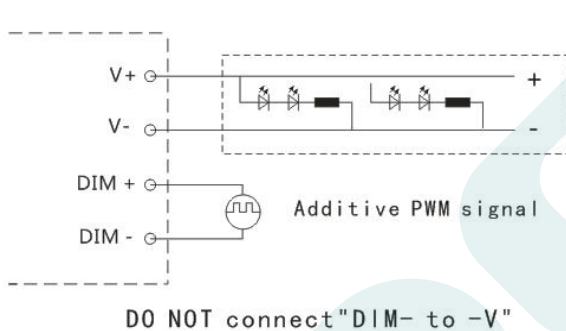
A. To adjust the output current, applying one of the three methods between DIM+ and DIM- : a resistor of 0-100K, or any voltage of 0-10V , or a PWM signal with amplitude of 10V. .

B. output current of dimming port: 100uA (typical value).

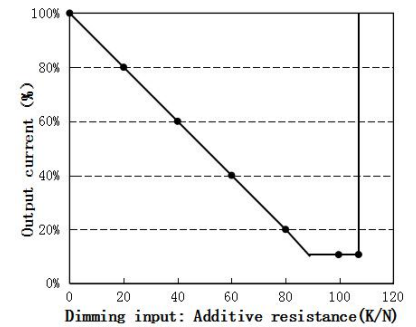
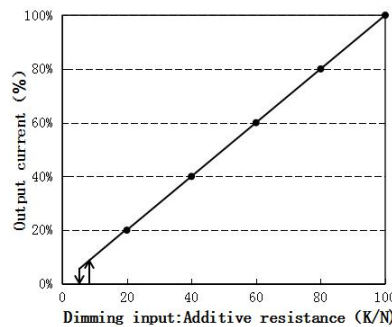
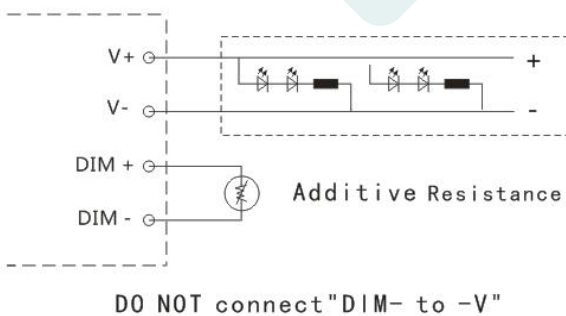
#### © With 0-10V dimming voltage:



#### © With 10V PWM signal (Frequency range: 300Hz-2K Hz) :



#### © With an additional 0-100K resistor:



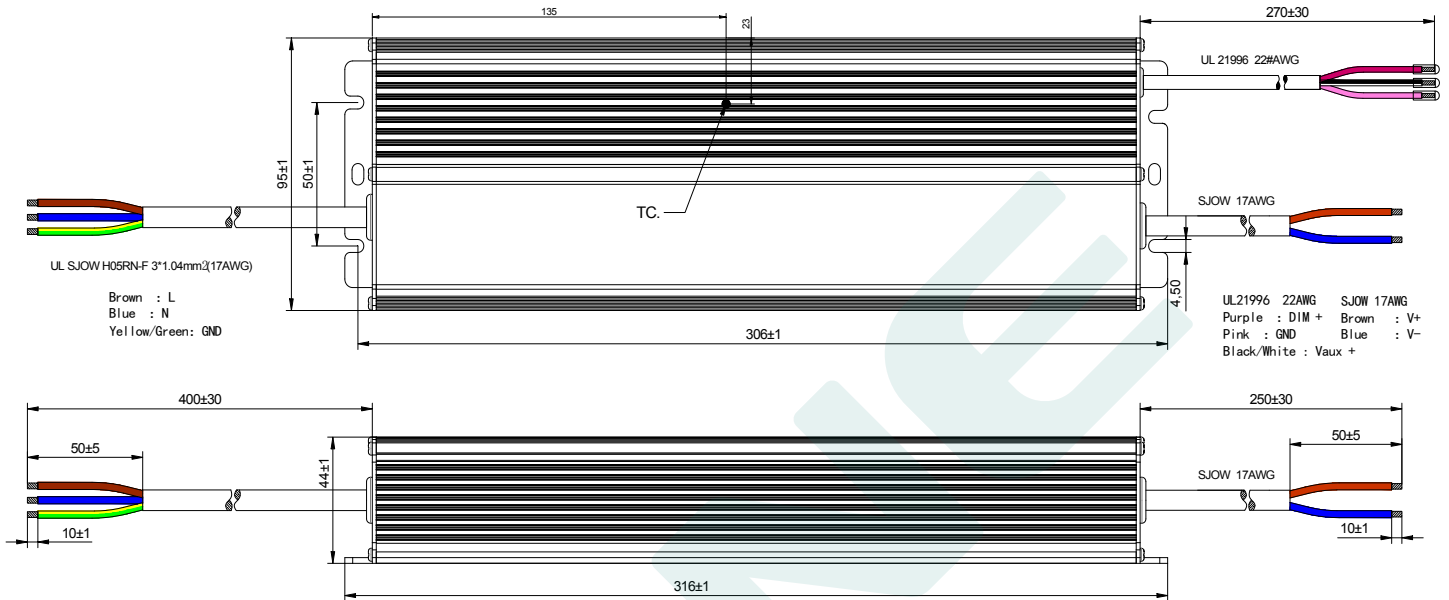
#### Note:

- Both operation way, of positive logic or negative logic, can be selected by program.
- The dimming-off suits for positive logic only. The other requests could contact the technician.

## Mechanical specification

**Size (mm)** L316mm\*W95mm\*H44mm

**Dimension drawing**  
**DL-960W-V260X-PLS**

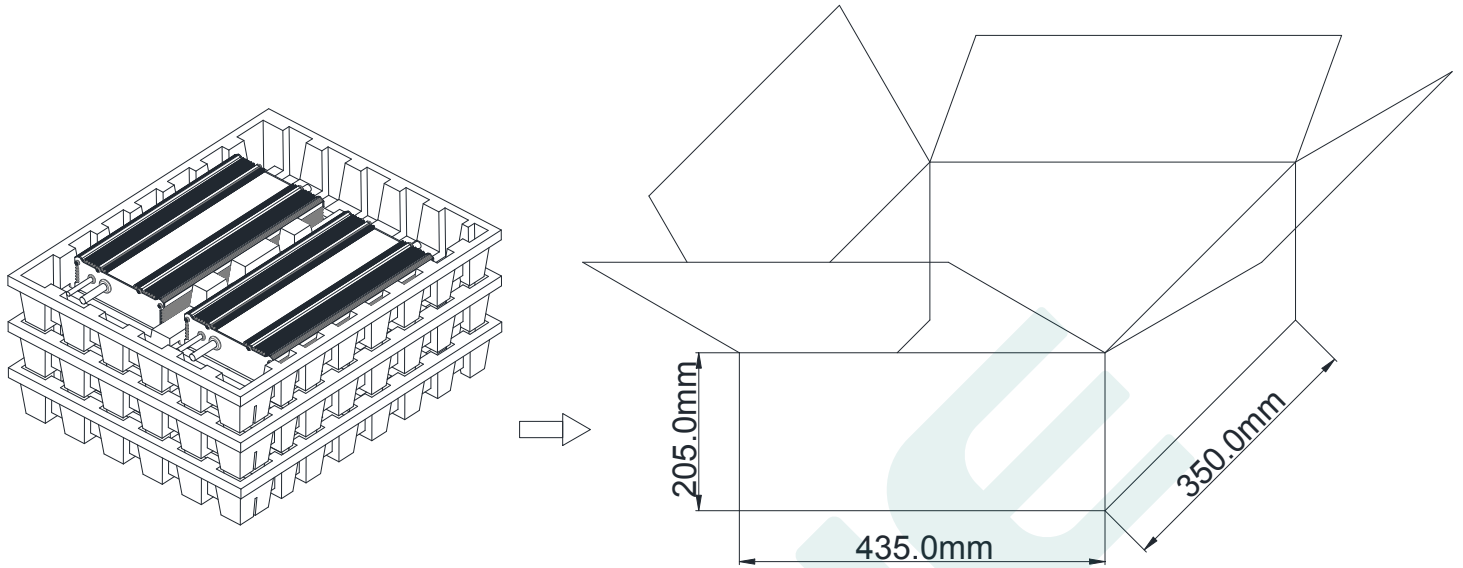


## Weight

**Weight** 2550 g

## Packaging

Packaging (mm) 435\*350\*205



Note: One Carton 3 layers and 2 pcs each layer, total 6pcs/carton.

**Note:**

1. According to the qualified certificate of the LED DRIVER, that with English label is for sale in Europe, America and India.
2. That with Chinese label are used for Chinese market.

**Version**



Date	Description	REV.	Check
2023.6.7	Initial version	V1.0	

**MANUFACTRUER**

EDIT

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