

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

**DONE**

# MXG SERIES LED DRIVERS

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DL-500W-MXG SPEC V1.2

## Features

- Class I structure
- Input voltage: 120-277 V ~ 50/60 Hz
- Efficiency :94%(Typ.)
- Constant power drive and constant current output control mode
- Metal shell structure, protection grade: IP67
- Lightning protection level: differential mode 6kV, common mode 15kV
- Function selection:

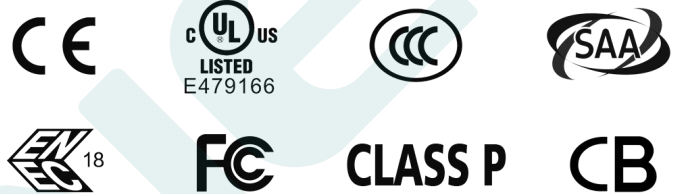


Isolated 3 in 1 dimming

- Lifetime design: 5 years

## Applications

Road 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.	T.H.D	PF
DL-500W-V56X/T/J-MXG	120-277V	500W	25-56Vdc	9.25A	≥94%	≤7%	≥0.97
DL-500W-V428X/T/J-MXG	50/60Hz		228-428Vdc	1.25A			

### Note :

1. Test conditions of the above parameters: Ta=25°C, 230Vac input, full load operation for 30 minutes;
2. When the input is less than 108Vac,the output power gradually decreases to 50% ± 10%.When the input 120-277VAC,rated power 500W.Please refer to “THE OUTPUT POWER VS INPUT VOLTAGE” curve chart for details.
- 3.X, T, or J indicates that the output is configured with different optional functions. X represents the external three-in-one dimming function (0-10V, PWM, external resistance) + auxiliary power supply function; T letter external 3-in-1 dimming function (0-10V, PWM, external resistance) + auxiliary power supply + external NTC function; The letter J represents RJ12 phone line port dimming, knob dimming, cascade dimming. When connecting the network cable to dimmer (Vaux+ 6,12/ DIM+ 5,11/ TXD 3/ RXD 9/ Vaux-/DIM- 1,4,7,10/Communication COM 2,8)
4. Model T supports the external NTC function,when the indicator exhaust temperature exceeds the threshold, the power output decreases. 10K, BK3350-3399 is recommended for external NTC, Murate NCP18XH103J03RB is recommended (setting required temperature parameters by off-line programming).

## Input characteristics

Parameter	Min	Typ.	Max	Note
Rated input voltage	120Vac	230Vac	277Vac	
Input voltage range	90Vac		305Vac	
Rated frequency	47Hz	50/60Hz	63Hz	
Power factor	-	0.97	-	@230Vac full load
T.H.D.	-	-	7%	@230Vac full load
Input current	-	-	5.5A	@120Vac full load
Inrush current	-	-	100A	230Vac, cold start (25°C)

## Output characteristic

Parameter	Min	Typ.	Max	Note
Rated current				
DL-500W-V56X/T/J-MXG	-	8.93A	-	
DL-500W-V428X/T/J-MXG	-	1.17A	-	
Output current range				
DL-500W-V56X/T/J-MXG	5.7A	-	10.8A	
DL-500W-V428X/T/J-MXG	0.75A	-	1.40A	
Output voltage range				
DL-500W-V56X/T/J-MXG	25V	-	56V	
DL-500W-V428X/T/J-MXG	228V	-	428V	
Rated power(90-120Vac)	-	250W	500W	The derating begins when the input voltage is less than $108 \pm 10\%$ Vac
Rated power(120-277Vac)	-	500W	-	
No-load voltage				
DL-500W-V56X/T/J-MXG	-	-	63V	
DL-500W-V428X/T/J-MXG	-	-	460V	
Efficiency@120Vac				
DL-500W-V56X/T/J-MXG	-	92%	-	full load
DL-500W-V428X/T/J-MXG	-	93%	-	

## Output characteristic

Parameter	Min	Typ.	Max	Note
Efficiency@230Vac DL-500W-V56X/T/J-MXG DL-500W-V428X/T/J-MXG	-	94% 95%	-	full load @230Vac
Accuracy of output current	-3%	-	+3%	full load
output ripple current	-	5% maximum current	-	100% load 20MHZ band Wide ripple current = RMS / The average
Line regulation	-3%	-	+3%	full load
Load regulation	-3%	-	+3%	full load
Starting time		-	1000ms 500ms	Full load@120Vac 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 range is limited by the input and output voltage, please refer to "I-V WORKING AREA" for details.

## Dimming characteristic

Dimming function		Min	Typ.	Max	Instructions
0-10V Dimming ( Optional )	Safe applied voltage range	0V	-	12V	When the external voltage is $\geq 12V$ , the dimming will fail
	Dimming output range	0	-	100%	-
	Rated dimming voltage range	0V	-	10V	It can be set to negative dimming mode through program setting
PWM Dimming ( Optional )	PWM high level	9.5V	-	10.5V	-
	PWM low level	0V	-	0.3V	-
	PWM frequency band	300Hz	-	2000Hz	-
	PWM duty cycle	0	-	99%	Output full power at 99% duty cycle
Resistor Dimming ( Optional )	External resistance value	0K $\Omega$	-	100K $\Omega$	-
	Dimming output range	0	-	100%	-

**Note:**

1. Output current of dimming port: 108uA (typical value);
2. The maximum withstand voltage of the dimming port is 12V. If the external power supply voltage exceeds 12V or the signal line is reversely connected, the power supply will be damaged.

## Protection

Function	Function instructions
Input under-voltage protection	When the input voltage is less than 108Vac, the output power decreases to $50\% \pm 10\%$ .
Output overload protection	Protection mode:hiccup mode,recovers automatically after fault condition is removed.
Output short circuit protection	Reduce current:recovers automatically after fault condition is removed
Over temperature protection	Self-recovery type: when the housing temperature is greater than $90^{\circ}C$ , the output power decreases to $50\% \pm 10\%$ .
Output over-voltage protection	Protection mode: Hiccup mode or clamped in output highest voltage , the product is not damaged, LED driver works normally after fault condition is removed.

**Note:**

1. Unless otherwise specified, all specifications and parameters shall be measured at the conditions of 230Vac (50Hz), rated load and  $25^{\circ}C$  of ambient temperature;
2. Including setting error, line regualtion and load regualtion.

## Environmental

Environmental categories	Parameter
Working temperature	-40 ~ +50°C @200-277Vac, -40 ~ +40°C @120-200Vac (refer to "Life Curve ")
Working humidity	20 ~ 95% RH, non condensing
Tc temperature	90°C
Storage temperature, humidity	-40~+85°C, 10 ~ 95% RH
Resistant to vibration	10 ~ 500Hz, 5G 12 min/cycle, X, Y, Z axis 72 min each
MTBF	230Khrs min. MIL-HDBK-217F (Ta=25°C)
Lifetime	70000 hours @Tcase≤75°C,230Vac, 80% Load, Please refer to "Tcase VS Lifetime" curve

## Safety and EMC

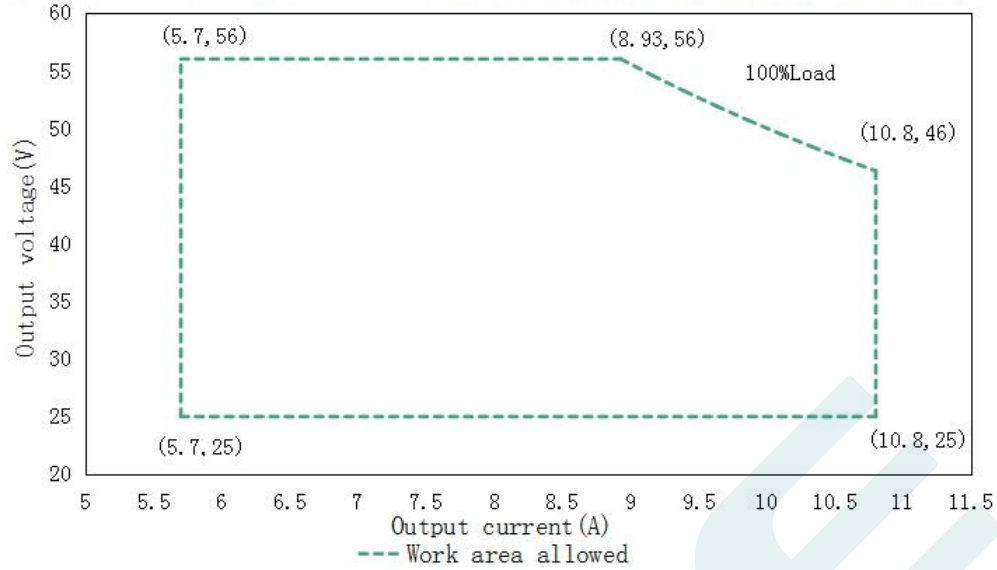
Safety categories	Standard
Safety	GB19510.1、GB19510.14、EN61347-1、EN61347-2-13、IEC61347-1、IEC61347-2-13、AS/NZS61347.1、AS61347.2.13 UL8750;
EMC	EN IEC 55015、 EN IEC 61000-3-2 、 GB/T 17743、 GB17625.1、 EN 61000-3-3
Surge protection	Differential mode L-N ±6KV (2 ohm) ,common mode L, N-PE± 15 KV ( 12 ohm ); Refer to IEC61000-4-5 2014 Criterion B
High-pot test	I/P-O/P:3.75KVac I/P-PE :1.5KVac O/P-PE : 0.5KVac I/P-DIM:3.75KVac O/P-DIM:1.5KVac
Insulation impedance	I/P-PE:100MΩ / 500VDC; I/P-O/P:100MΩ / 500VDC / 25°C/ 70% RH
Leakage current	<0.7mA@277Vac

### Note:

- The driver is considered as a component that will be operated in combination with the final equipment. Since EMC performance will be affected by the complete installation,the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.

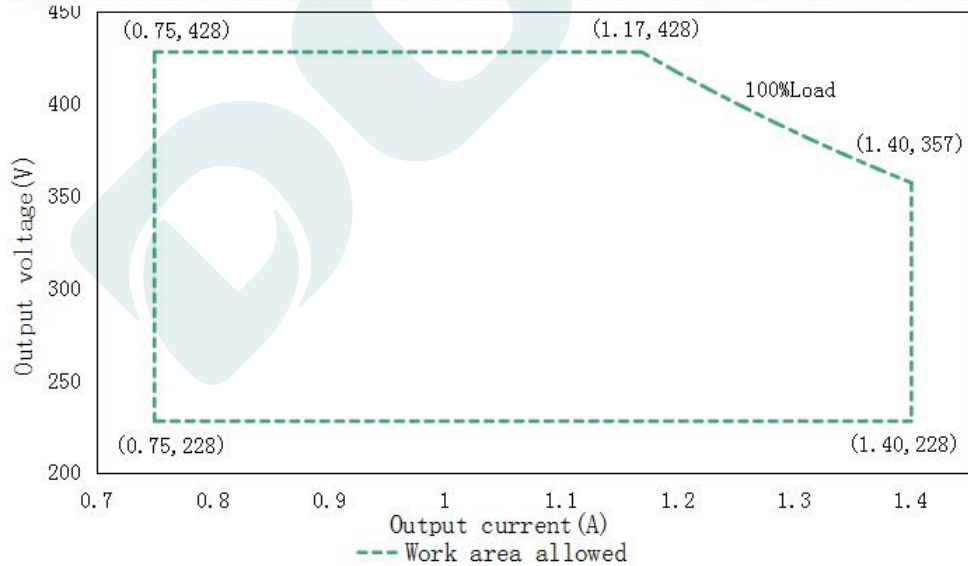
## I-V Working area

Output voltage VS output current of DL-500W-V56X/T/J-MXG (input: 120-277Vac)



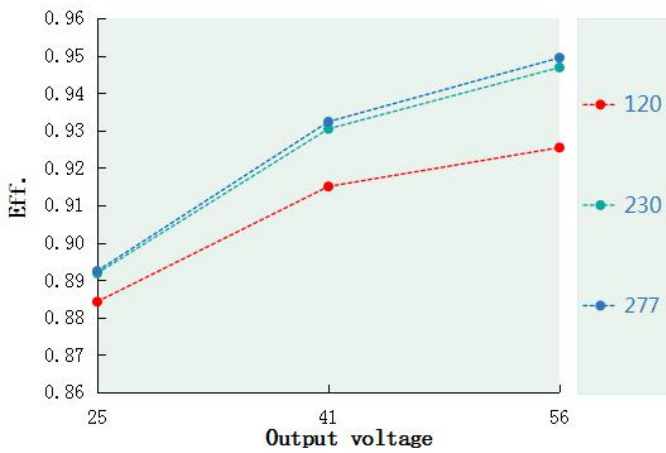
Load	Output								
Load working Voltage	25V	29V	33V	37V	42V	45V	48V	52V	56V
Io_MAX	10.8A	10.8A	10.8A	10.8A	10.8A	10.8A	10.4A	9.6A	8.93A
Po_MAX	270W	313W	356W	400W	454W	486W	500W	500W	500W

Output voltage VS output current of DL-500W-V428X/T/J-MXG (input: 120-277Vac)

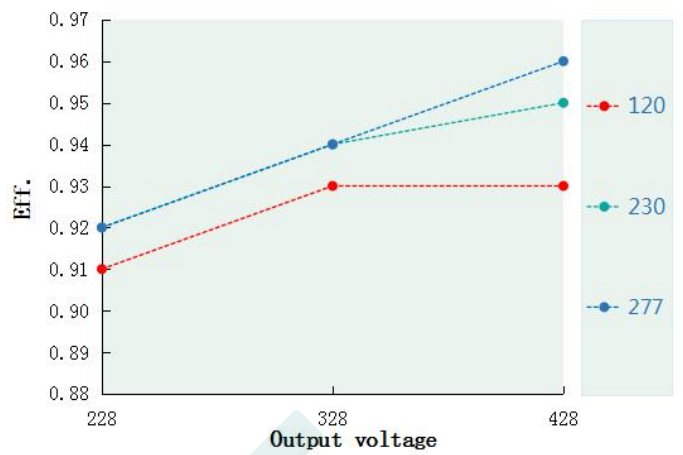


Load	Output								
Load working Voltage	228V	253V	278V	303V	328V	353V	378V	403V	428V
Io_MAX	1.40A	1.40A	1.40A	1.40A	1.40A	1.40A	1.32A	1.24A	1.17A
Po_MAX	319W	354W	389W	424W	459W	494W	500W	500W	500W

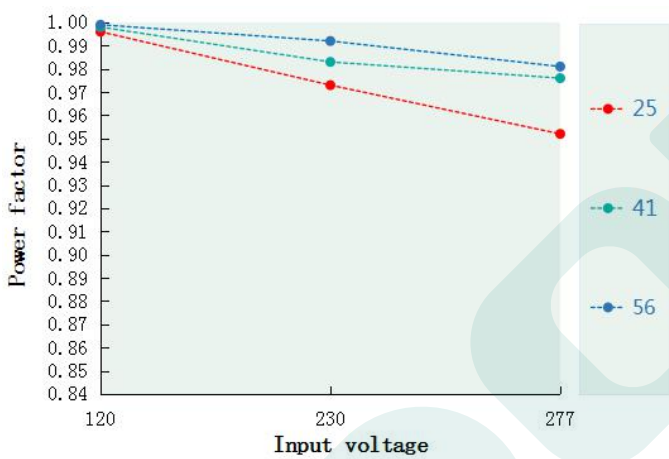
Eff. VS Output voltage(DL-500W-V56X/T/J-MXG)



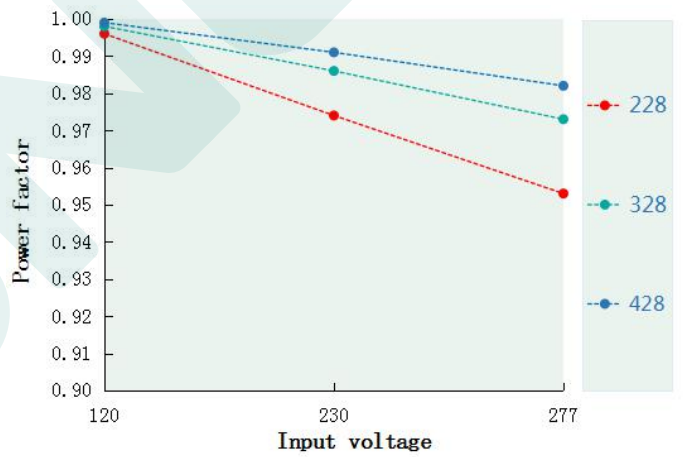
Eff. VS Output voltage(DL-500W-V428X/T/J-MXG)



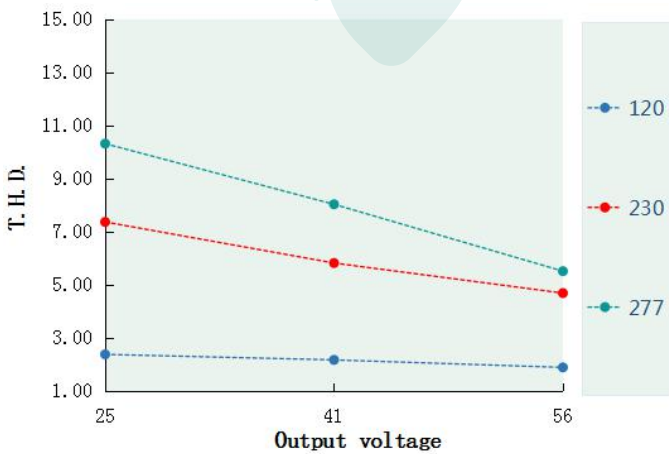
Power factor VS Input voltage(DL-500W-V56X/T/J-MXG)



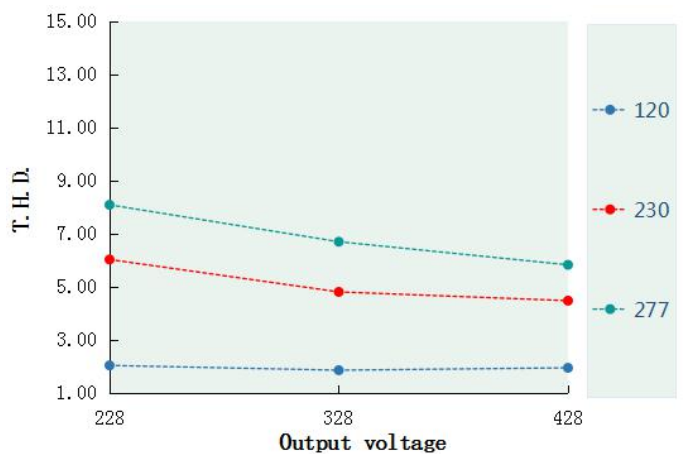
Power factor VS Input voltage(DL-500W-V428X/T/J-MXG)



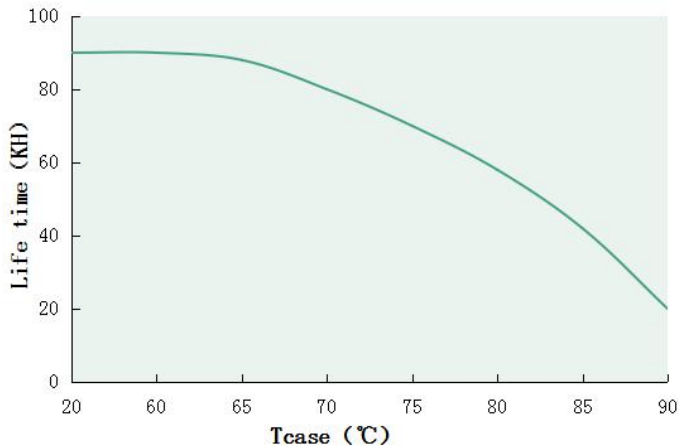
T.H.D. VS Output voltage(DL-500W-V56X/T/J-MXG)



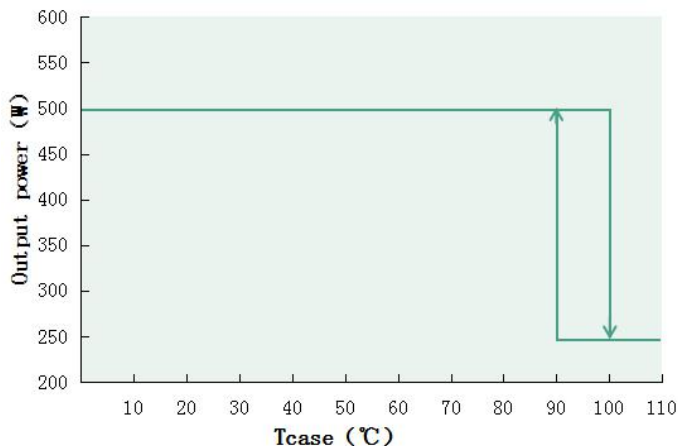
T.H.D. VS Output voltage(DL-500W-V428X/T/J-MXG)



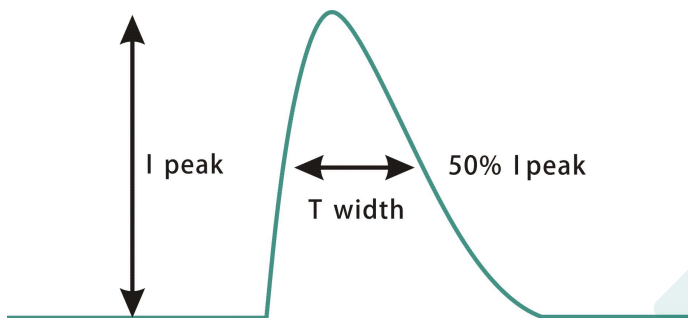
**Tcase VS Lifetime(DL-500W-MXG)**



**Output power VS Tcase (DL-500W-MXG)**

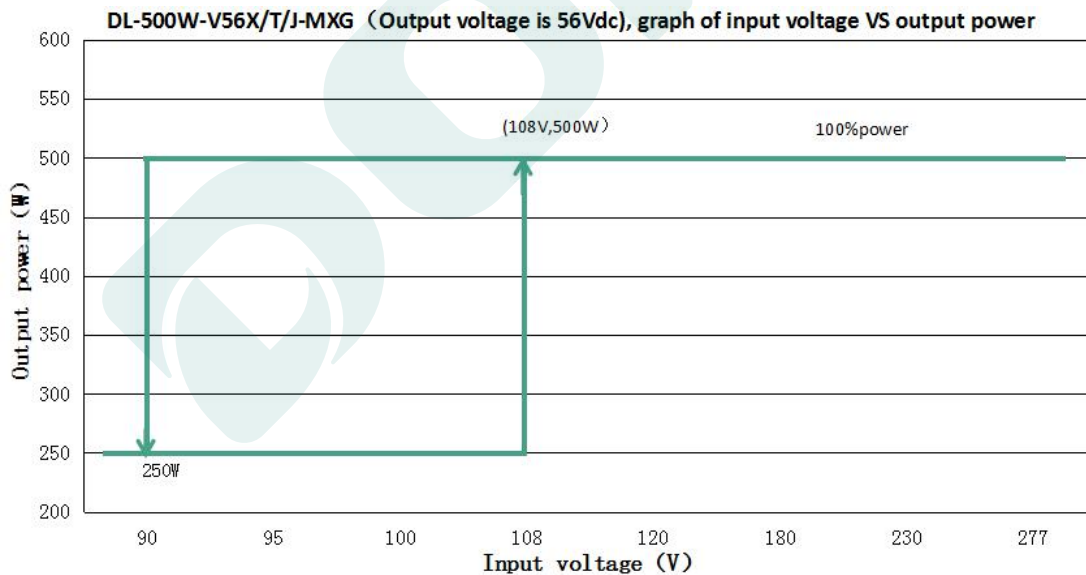


**Inrush Current(DL-500W-MXG)**



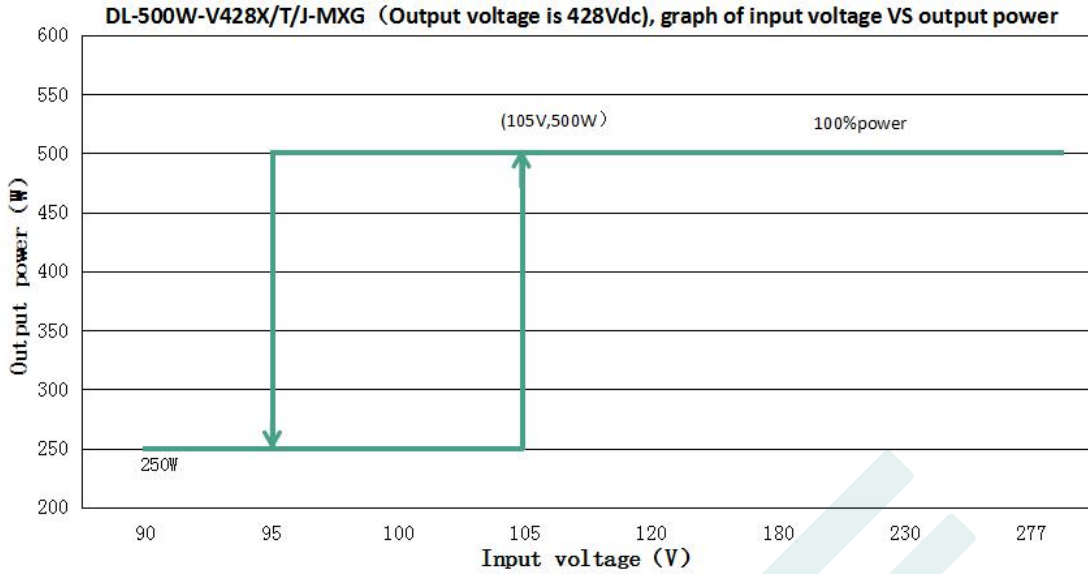
Input voltage	Peak current	T(@50% Peak current)
120Vac	29A	1000us
220Vac	43A	660us
277Vac	59A	1400us

**Output power VS Input voltage**



**DL-500W-V56X/T-MXG (When the output voltage is 56Vdc, the rated output current value and output power corresponding to different input voltage)**

Input Voltage	90Vac	96Vac	100Vac	108Vac	120Vac	180Vac	230Vac	277Vac
Iout	4.47A	4.47A	4.47A	8.93A	8.93A	8.93A	8.93A	8.93A
Pout	250W	250W	250W	500W	500W	500W	500W	500W



**DL-500W-V428X/T-MXG (When the output voltage is 428Vdc, the rated output current value and output power corresponding to different input voltage)**

Input Voltage	90Vac	96Vac	100Vac	108Vac	120Vac	180Vac	230Vac	277Vac
Iout	0.58A	0.58A	0.58A	1.17A	1.17A	1.17A	1.17A	1.17A
Pout	250W	250W	250W	500W	500W	500W	500W	500W

- Note:**
- 1.Input voltage will fluctuate, resistance error and other factors. At the decrease or increase of power ( $V_{in}=108V_{ac}$ ), it will move left and right, with the range of  $108V \pm 10\%$ .
  2. When the input voltage is 90-105Vac, the output power range is  $250W \pm 10\%$ .

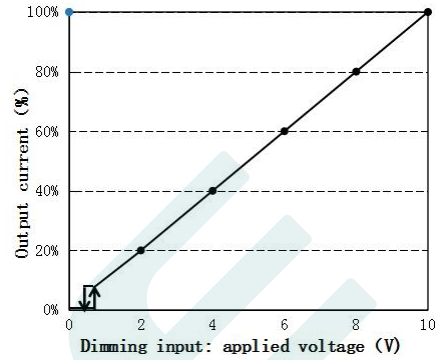
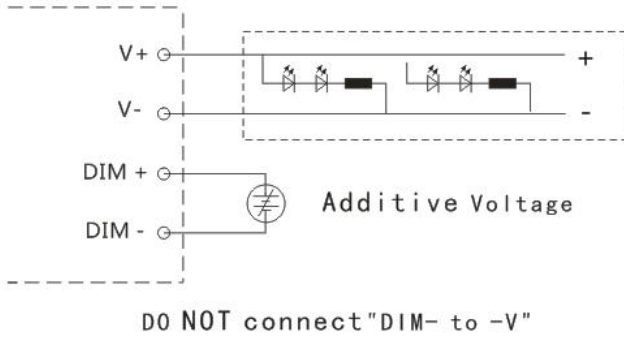
## Dimming operation

### ※ Three-in-one dimming function

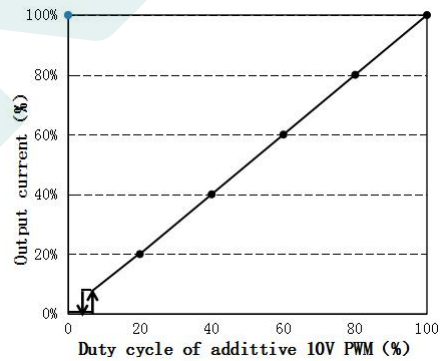
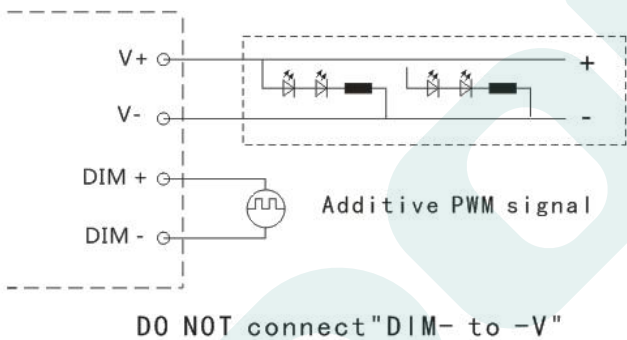
#### The method of dimming (X/T)

- A. connect a resistor 0-100K or 0-10V DC voltage or 10V PWM signal between DIM+ and DIM- to adjust the output current.
- B. output current of dimming port: 108uA (typical value).

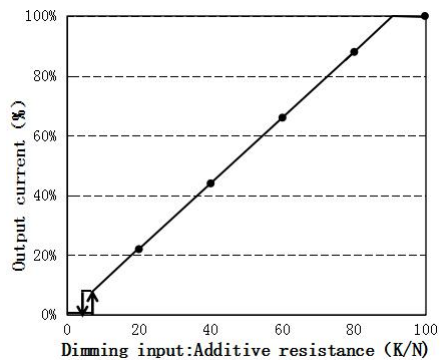
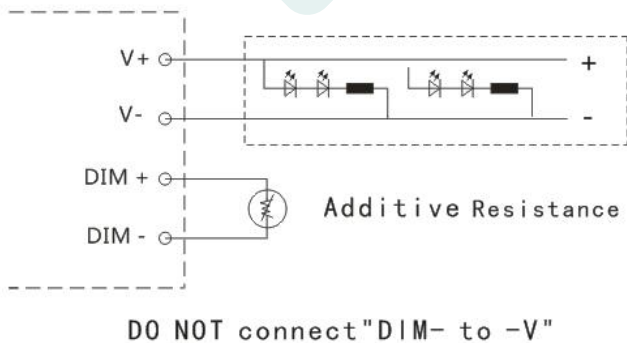
#### ◎ With an applied voltage of 0-10V:



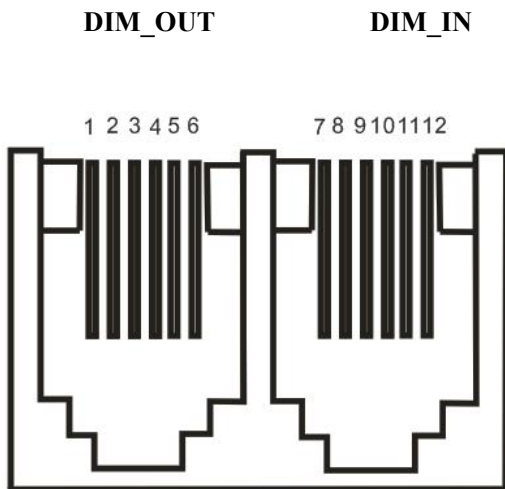
#### ◎ Applying additive 10V PWM signal (Frequency range: 300Hz-2K Hz) :



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

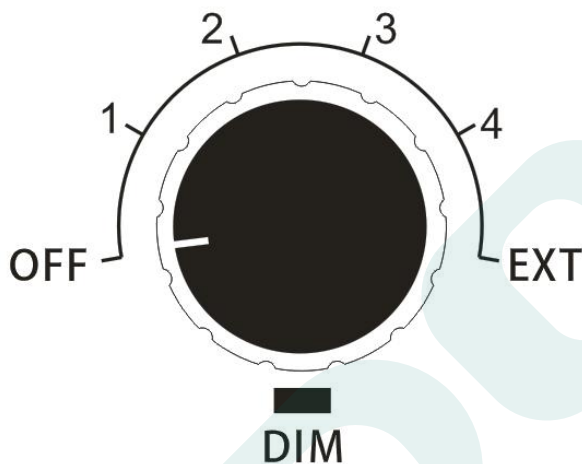


**J-type dimming mode**



RJ12 PIN	定义
3	TXD
9	RXD
5/11	DIM+
2/8	Communication COM
6/12	Vaux+
1/4/7/10	Vaux-/DIM-

**RJ12 JACK**



开关	定义
Off	Turn off
1	25%loset
2	50%loset
3	75%loset
4	100%loset
EXT	External dimming

The J-type power supply does not have light dimming, but only has dimming knob and RJ12 interface. When the dimming knob is not set to EXT in master-slave cascading mode, the RJ12 interface can receive 3-in-1 dimming signal. The function of the RJ12 interface is the same as that of the X/T type light dimming.

Connect multiple power supplies that have an RJ12 port to each other in the following mode: Connect the DIM\_OUT port to the DIM\_IN port of the next power supply. The power supply that is not connected to the DIM\_OUT port is the host. The power supply that is connected to the DIM\_OUT port is the slave power supply. Adjust the dimming knob of the host, and other slave power sources will also be dimmed along with the host power supply. Regardless of the slave knob switch in any state, all states of the slave as the master.

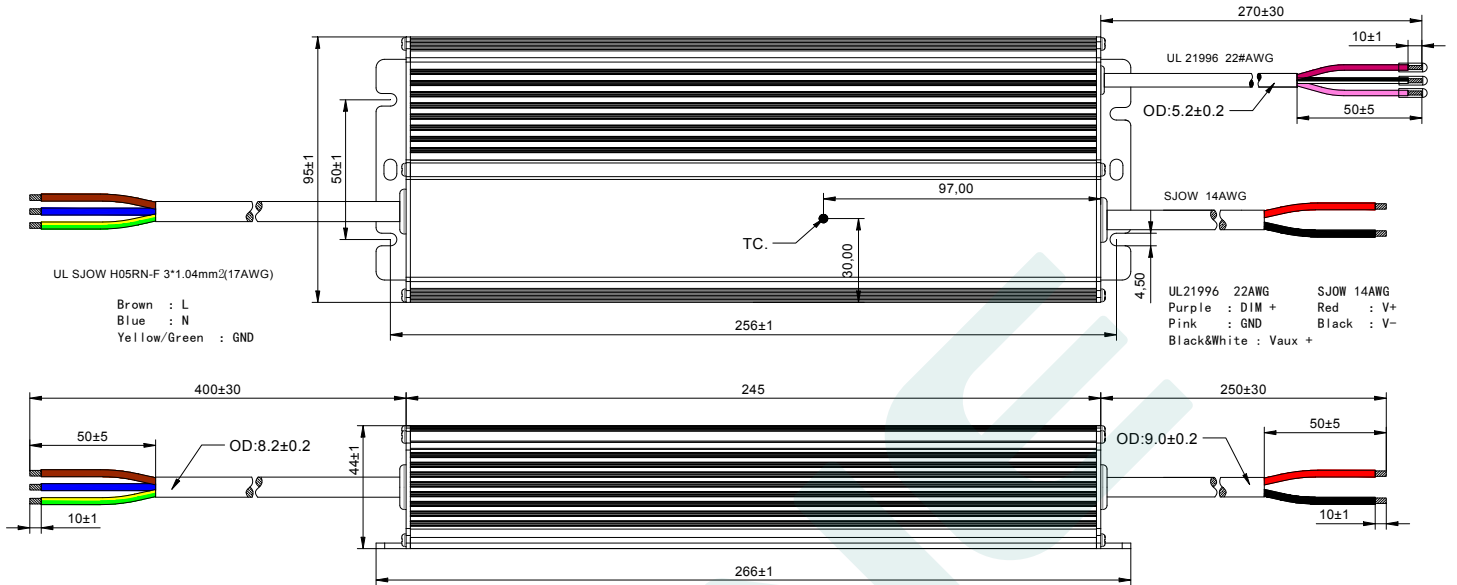
**NOTICE:**

1. RJ12 port is not waterproof. Pay attention to the operating environment to avoid the influence of water on the power supply.
2. The J-type power supply can only be cascaded with the same defined parameters as RJ12. When the number of cascades exceeds 6, do not short-circuit the output of the auxiliary power supply (Vaux+,Vaux-); otherwise, the expansion ports and cables may be damaged.

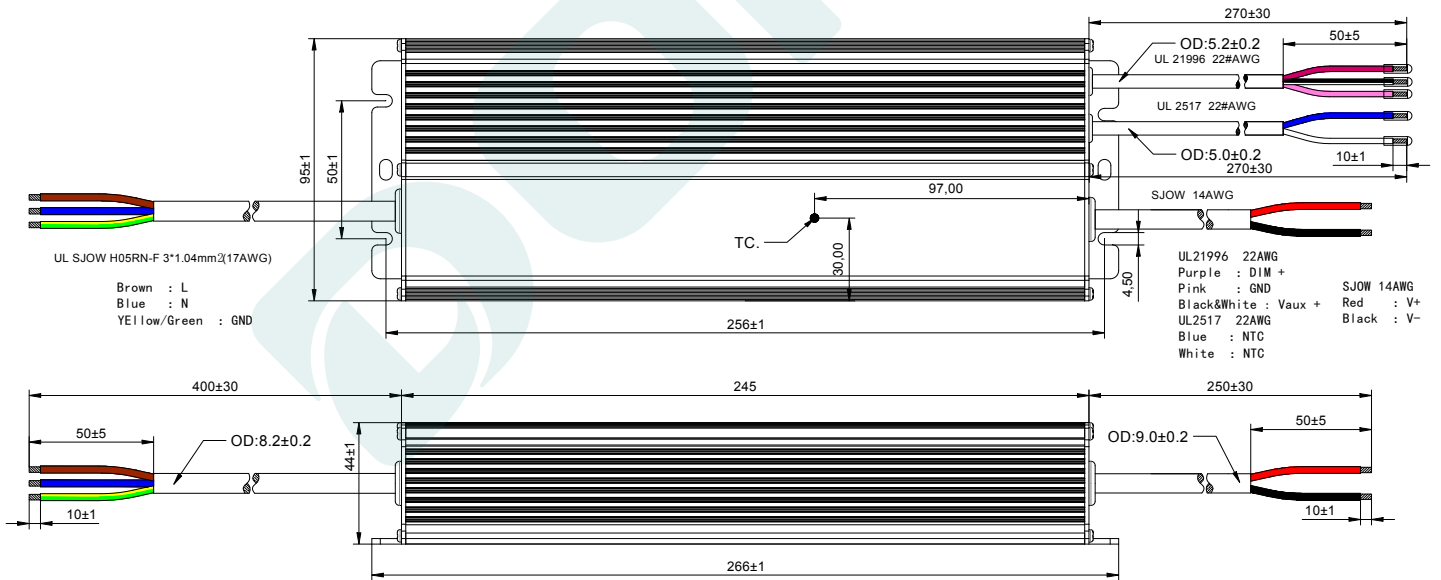
# Mechanical specification

Size (mm) L266mm\*W95mm\*H44mm

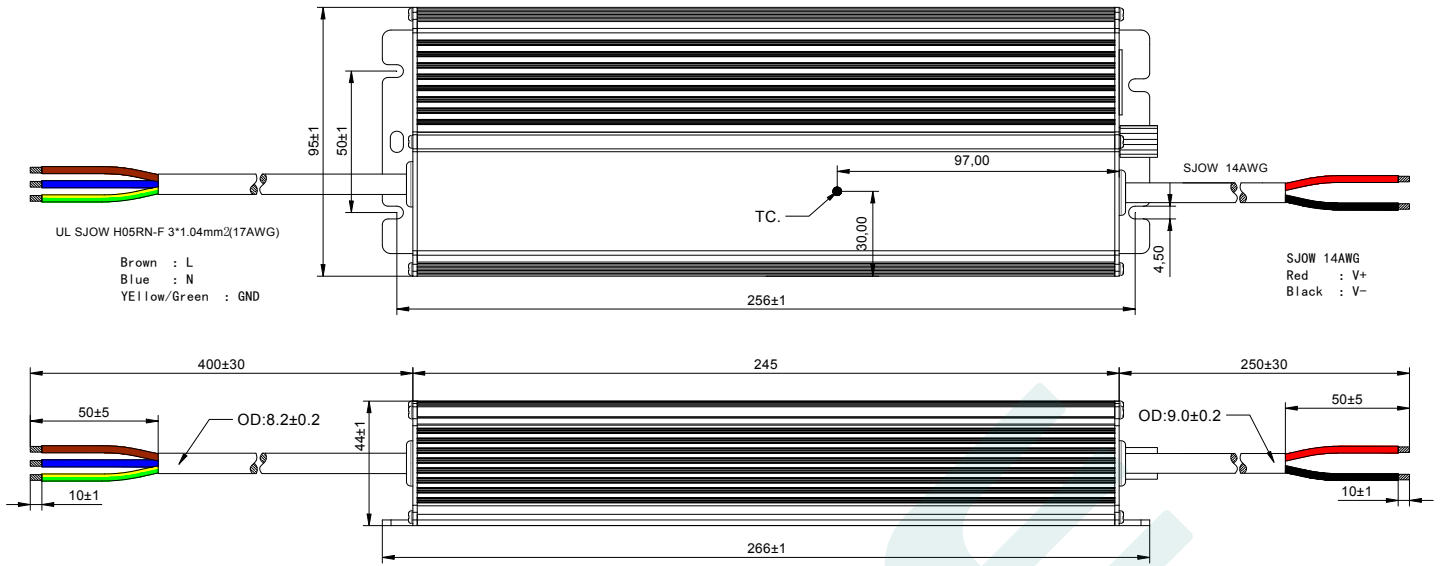
## DL-500W-V56X-MXG



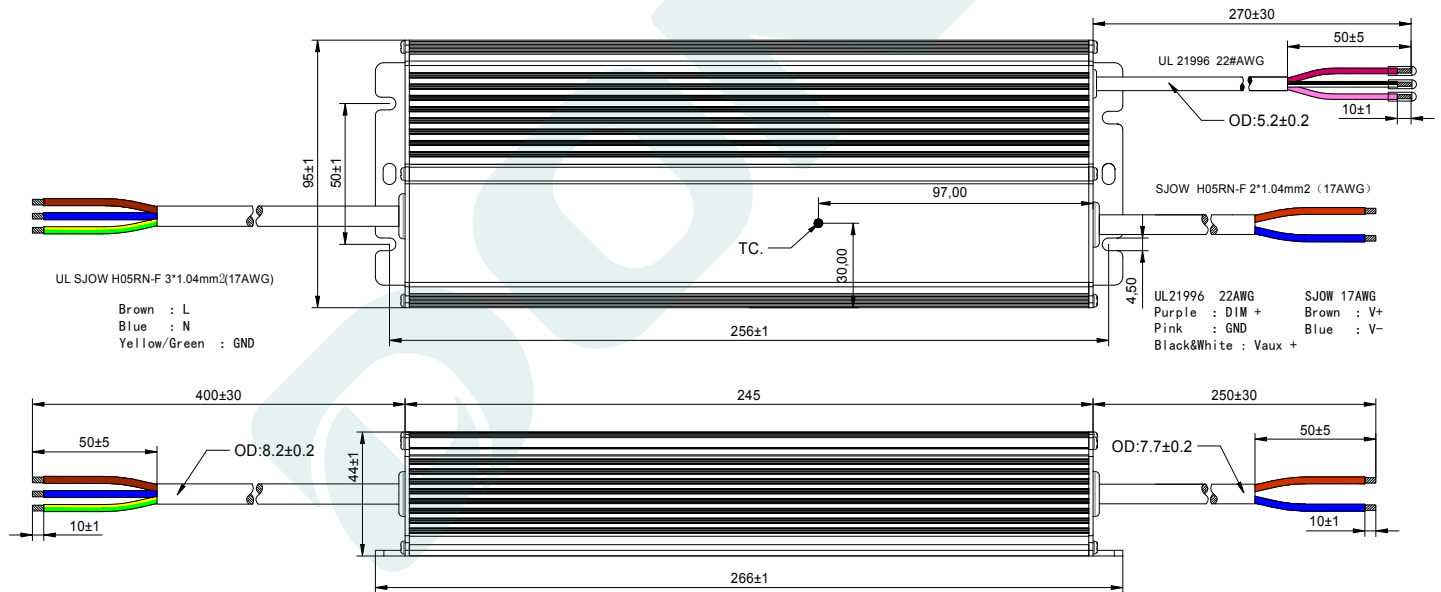
## DL-500W-V56T-MXG



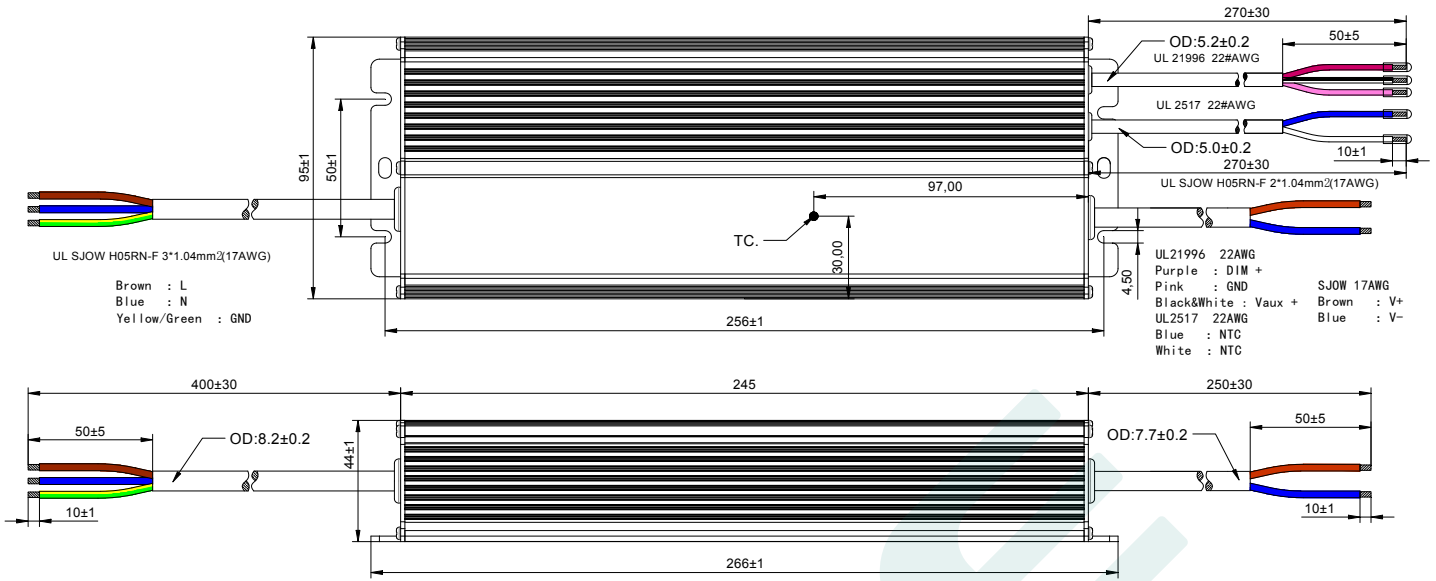
**DL-500W-V56J-MXG**



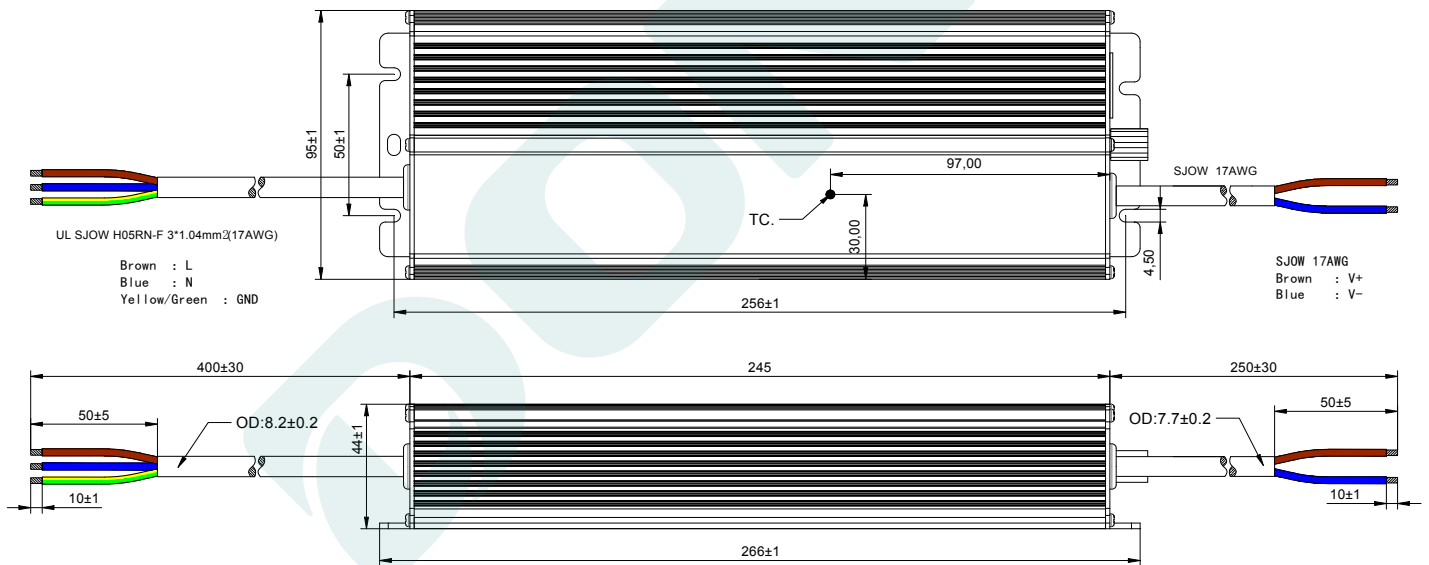
**DL-500W-V428X-MXG**



**DL-500W-V428T-MXG**



**DL-500W-V428J-MXG**

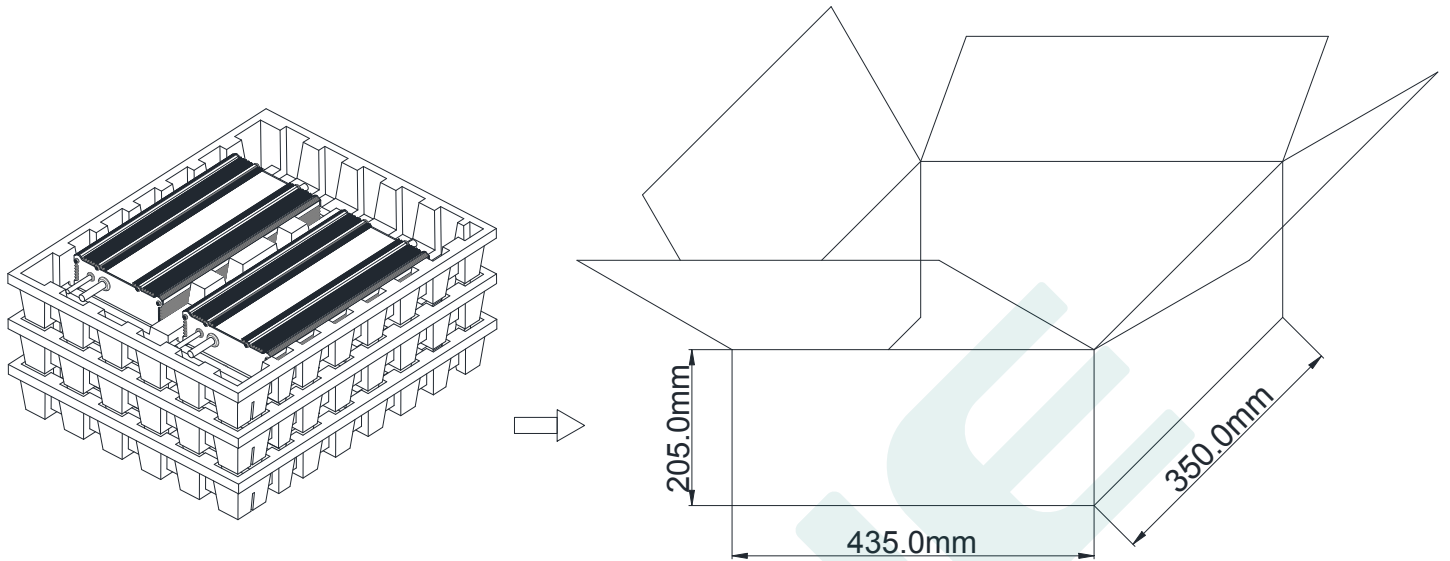


**Weight**

Weight 2035 g

## Packaging

Packaging (mm) L435\*W350\*H205



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

**Note:**

1. According to the certificate obtained by the LED DRIVER, the LED DRIVER with the English label is sold in Europe, America and India.
2. The LED DRIVER with Chinese label is only used for China market.

**Version**

DATE	DESCRIPTION	REV.	CHECK
2022.05.11	Initial version.	V1.0	
2022.12.05	Add high voltage models	V1.1	
2023.3.13	Add J-type power supply	V1.2	

**MANUFACTRUER**

EDIT	CHECK	APPROVE