

The logo for DONE, featuring the word "DONE" 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 rectangle with a thin teal border.

# MXL SERIES LED DRIVERS

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DL-100Z-A/P-MXL SPECV E2.0

## Features

- Class I structure
- Input voltage:100-305V ~ 50/60Hz  
 Rated input voltage: 100-277V ~ 50/60Hz 100W max. Output Power  
 Available voltage: 100-305V ~ 50/60Hz 100W max.. Output Power
- Efficiency :90%(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:  
 Output current is adjusted by external potentiometer (A version only)  
 Isolation dimming function: 3-in-1 dimming( P version only )
- 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-100Z-56A/P-MXL	100-277V 50/60Hz	100W	25-56Vdc	2.4A	≥90%	≤7%	≥0.95
DL-100Z-143A/P-MXL	100-277V 50/60Hz	100W	71-143Vdc	0.7A	≥90%	≤7%	≥0.95

- Note:**
1. Test conditions of the above parameters: Ta=25℃, 230Vac input, full load operation for 30 minutes;
  2. The input is less than 85±15Vac, and the output power is reduced to 0W; when the input is 100-277Vac, the rated power is 100W, and special attention should be paid to the application; For details, see input voltage VS output power diagram.

## Input characteristics

Parameter	Min	Typ.	Max	Note
Rated input voltage	100Vac	230Vac	277Vac	
Input voltage range	90Vac	230	305Vac	
Rated frequency	47Hz	50/60Hz	63Hz	
Power factor	-	0.95	-	@230Vac full load, rated input voltage
T.H.D.	-	-	7%	100% load, 230Vac
Input current	-	-	1.25A	100% load, 90Vac
Inrush current	-	-	70A	230Vac, cold start (25°C)

## Output characteristic

Parameter	Min	Typ.	Max	Note
Rated current DL-100Z-56A/P-MXL DL-100Z-143A/P-MXL	-	1.785A 0.7A	-	
Output current range DL-100Z-56A/P-MXL DL-100Z-143A/P-MXL	1.3A 0.5A	-	2.8A 1.05A	-
Output voltage range DL-100Z-56A/P-MXL DL-100Z-143A/P-MXL	25V 71V	-	56V 143V	Constant power range: 36-56V 95-143V
Rated power(100-277Vac)	-	100W	-	Input voltage less than 85±15Vac hours openStart derating to half power
No-load voltage DL-100Z-56A/P-MXL DL-100Z-143A/P-MXL	-	-	60V 160V	
Efficiency@230Vac DL-100Z-56A/P-MXL DL-100Z-143A/P-MXL	89% 89%	90% 90%	-	full load@230Vac
Efficiency@100Vac DL-100Z-56A/P-MXL DL-100Z-143A/P-MXL	89% 89%	90% 90%	-	full load@100Vac

## Output characteristic

Parameter	Min	Typ.	Max	Note
Output Current Ripple	-	-	5%	100% load,20 MHz BW; Ripple =rms/ average
Accuracy of output current	-5%	-	+5%	full load Constant power range
Line regulation	-3%	-	+3%	full load Constant power range
Load regulation	-3%	-	+3%	full load Constant power range
Starting time	-		1000ms	Full load@100-277Vac

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

## Dimming characteristic

Parameter		Min	Typ.	Max	Note
0-10V Dimming (Optional)	Safe applied voltage range	0V	-	10V	When the external voltage is $\geq 12V$ , the dimming will fail
	Dimming output range	10%	-	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	0	-	0.3V	-
	PWM frequency band	300Hz	-	2000Hz	-
	PWM duty cycle	10%	-	99%	Output full power at 99% duty cycle
Resistor Dimming (Optional)	External resistance value	10K $\Omega$	-	100K $\Omega$	-
	Dimming output range	10%	-	100%	-
Multiple time-controlled dimming (optional)	MCU control	Set segment dimming function through program		Working mode	
	Timer control	It is divided into six segments by default and can be customized		24H to achieve a cycle	

**Note:**

1. Output current of dimming port: 100uA (typical value);
2. The P version is 0-10V dimming (0V can be turned off). The maximum voltage of the dimming port is 12V. If the external power supply voltage exceeds 12V or the signal cable is inverted, the power supply will be damaged;
3. Dimming default setting is three in one positive logic dimming (programmable software can be set to timing dimming, 0-5V or other voltage dimming);
4. When set to positive logic dimming function, the 0V dimming is turned off, and the output voltage is 15 Vomax after the dimming is turned off. Be careful when using this function, but customers are advised to use 1-10V dimming.
5. When negative logical dimming is set, the default output is 100% when the dimming light is suspended. Negative logic dimming cannot be turned off. When the voltage of the dimming port is greater than 10V, the maximum power output of the power supply is generated;



## Protection

Function	Function instructions
Input under-voltage protection	When the input voltage is less than 85Vac±10%, the output power gradually decreases. See derating curve for details
Output overload protection	Protection mode:hiccup mode,recovers automatically after fault condition is removed.
Output short circuit protection	Hiccup mode:recovers automatically after fault condition is removed
Over temperature protection	Self-recovery type: when the housing temperature is greater than 95℃, the output power decreases gradually.
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℃ of ambient temperature;
2. Including setting error, line regulation and load regulation.

## Environmental

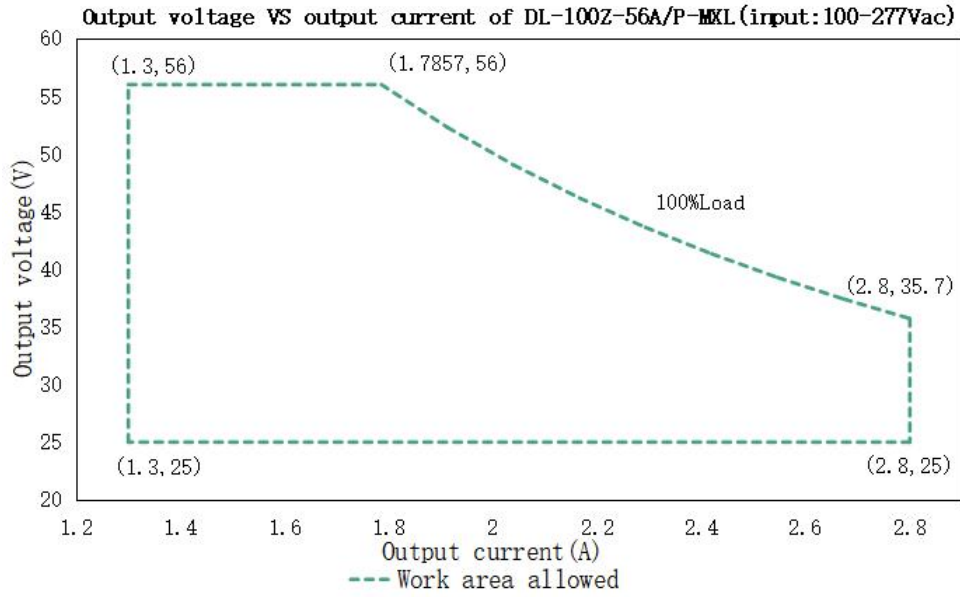
Environmental categories	Parameter
Working temperature	-40 ~ +55℃@100-277Vac
Max.Case Temp.	-40 ~ 95℃
Working humidity	20 ~ 90% RH, non condensing
Storage temperature、humidity	-40~+90℃, 10 ~ 90% RH
Resistant to vibration	10 ~ 500Hz, 5G 12 min/cycle, X, Y, Z axis 72 min each
MTBF	230Khrs min. MIL-HDBK-217F (Ta=25℃)
Lifetime	50000 hours @Tcase≤75℃,230Vac, 80% Load, Please refer to "Tcase VS Lifetime" section

## Safety and EMC

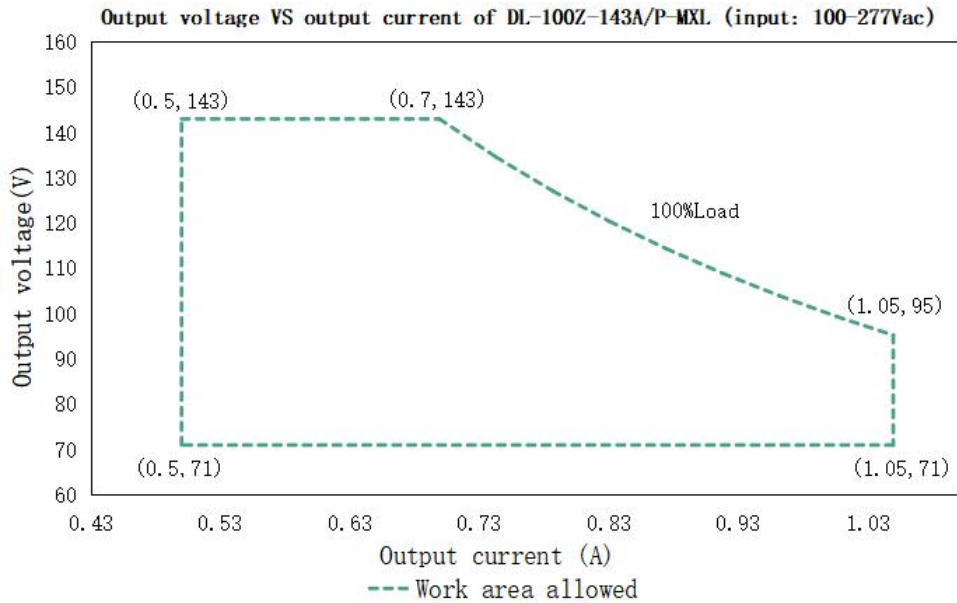
Safety categories	Standard
Safety	GB19510.1、GB19510.14、EN61347-1、EN61347-2-13、IEC61347-1、IEC61347-2-13、AS/NZS61347.1、AS61347.2.13、EN 62384、UL8750;
EMC	EN 55015、EN 61000-3-2 、GB/T 17743、GB17625.1、 EN 61000-3-3
Surge protection	Differential mode L-N $\pm 6KV$ ( 2 ohm ) ,common mode L, N-PE $\pm 15 KV$ ( 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:1.5KVac O/P-DIM:1.5KVac
Insulation impedance	I/P-PE:100M $\Omega$ / 500VDC; I/P-O/P:100M $\Omega$ / 500VDC / 25 $^{\circ}C$ / 70% RH
Leakage current	<0.7mA@230Vac

**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

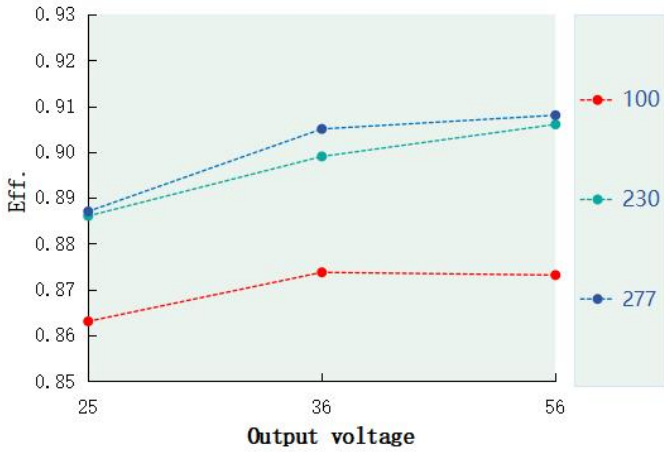


Load	Output								
Load working Voltage	25V	29V	33V	36V	42V	46V	48V	52V	56V
Io_MAX	1.785A	1.783A	1.78A	2.778A	2.37A	2.17A	2A	1.92A	1.785A
Po_MAX	45.6W	51.7W	59W	100W	100W	100W	100W	100W	100W

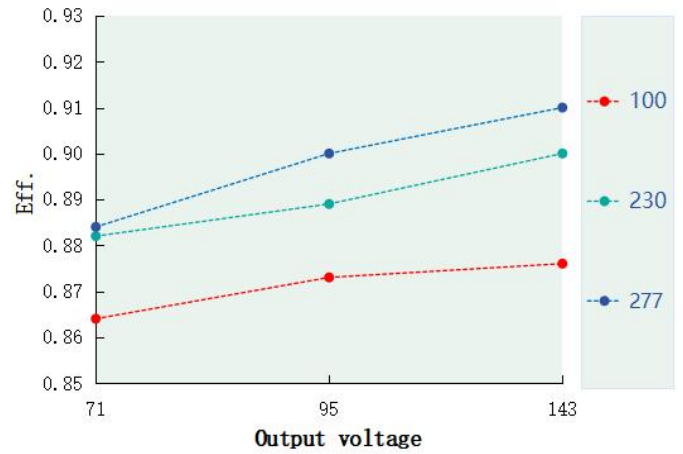


Load	Output								
Load working Voltage	71V	78V	86V	95V	100V	110V	115V	120V	143V
Io_MAX	1.05A	1.05A	1.05A	1.05A	1A	0.9A	0.869A	0.83A	0.7A
Po_MAX	74.5W	81.9W	90.3W	100W	100W	100W	100W	100W	100W

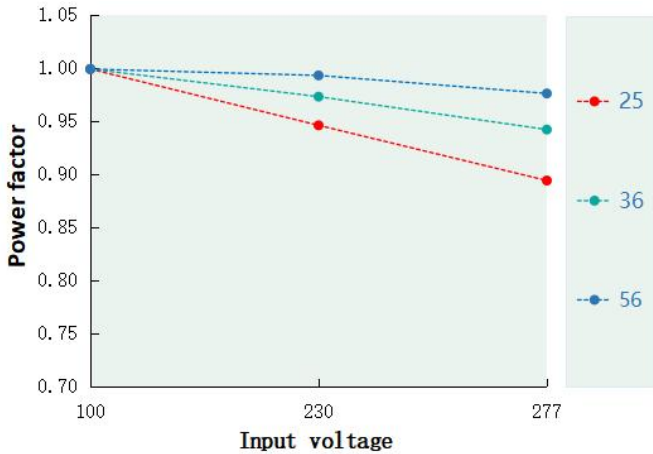
**Eff. VS Output voltage(DL-100Z-56A/P-MXL)**



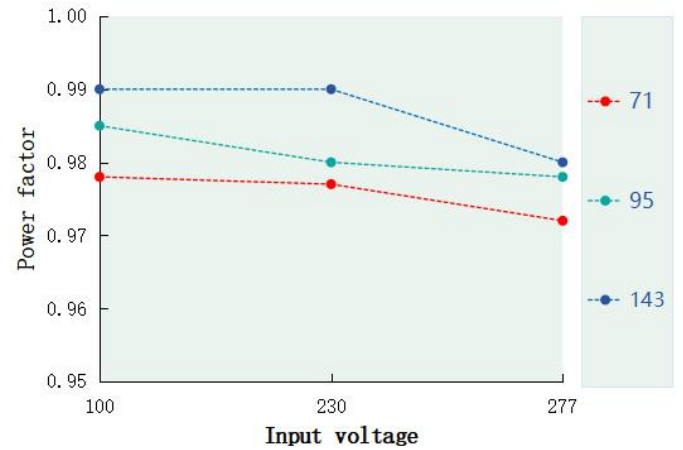
**Eff. VS Output voltage(DL-100Z-143A/P-MXL)**



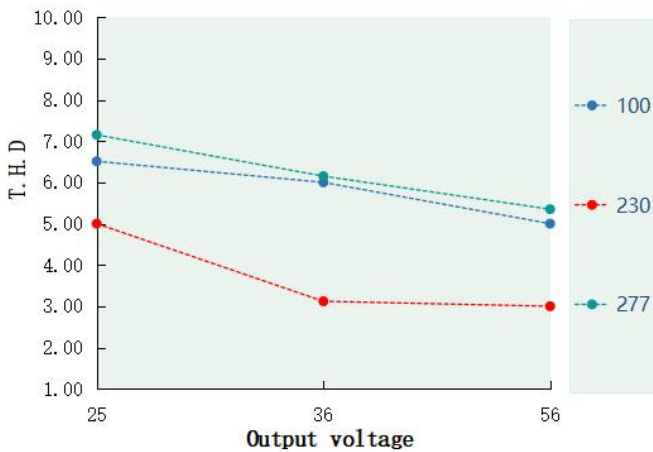
**Power factor VS Input voltage(DL-100Z-56A/P-MXL)**



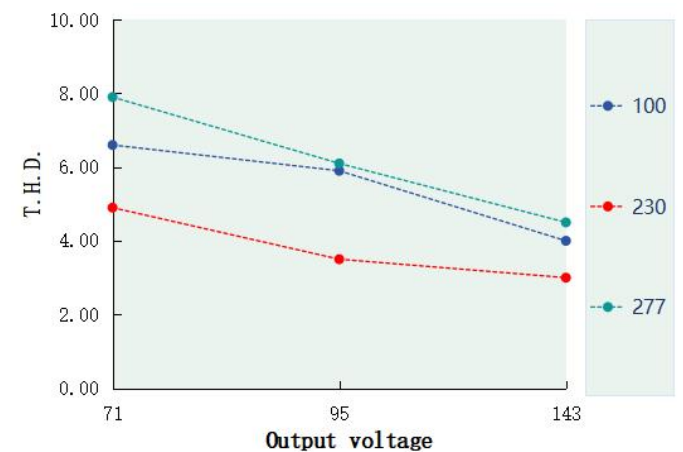
**Power factor VS Input voltage(DL-100Z-143A/P-MXL)**



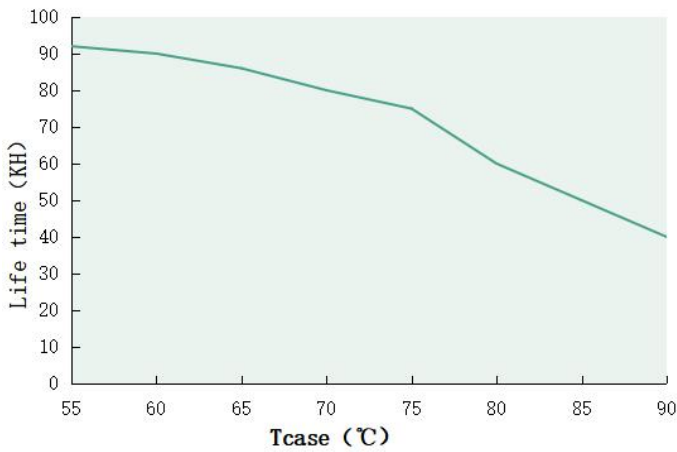
**T.H.D. VS Output voltage(DL-100Z-56A/P-MXL)**



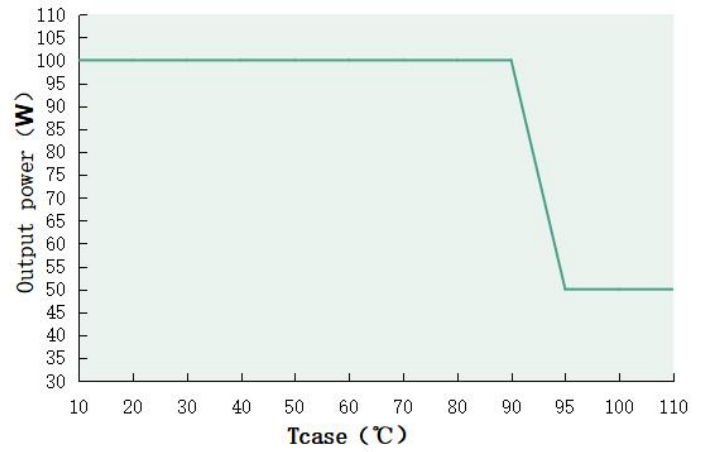
**T.H.D. VS Output voltage(DL-100Z-143A/P-MXL)**



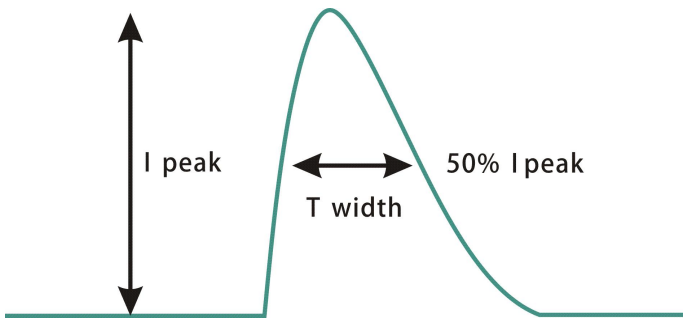
case VS Lifetime(DL-100Z-MXL)



Output power VS Tcase (DL-100Z-MXL)

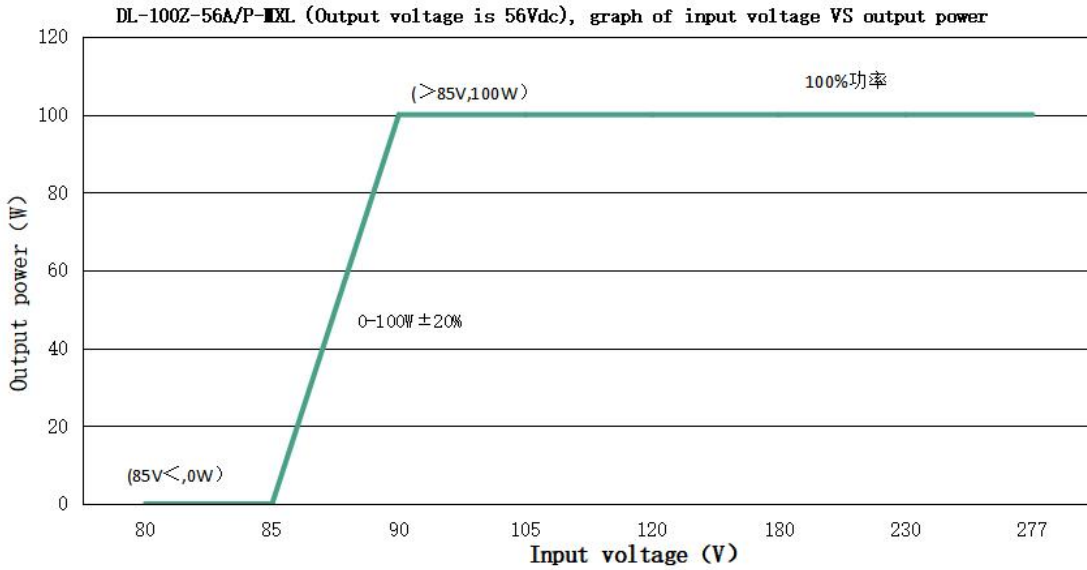


Inrush Current(DL-100Z-56A/P-MXL)



Input voltage	Peak current	T(@50% Peak current)
100V	23.5A	100US
230V	54A	100US
277V	65A	100US

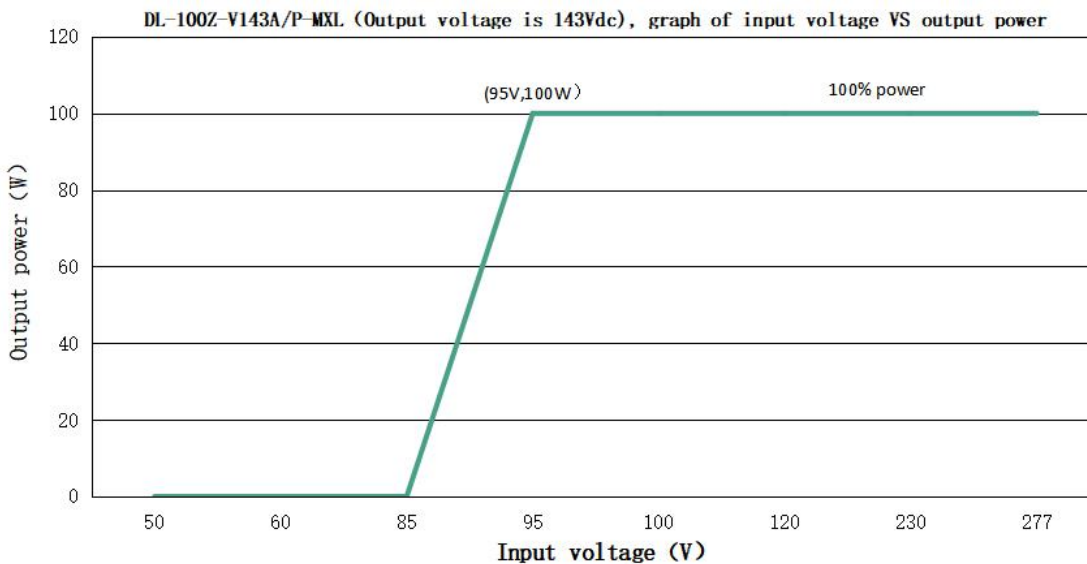
## Output power VS Input voltage



**DL-100Z-56A/P-MXL(When the output voltage is 56Vdc, the rated output current value and output power corresponding to different input voltage)**

Input Voltage	70Vac	85Vac	200Vac	220Vac	230Vac	240Vac	277Vac
Iout	0A	0A	1.785A	1.785A	1.785A	1.785A	1.785A
Pout	0W	0W	100W	100W	100	100W	100W

**Note:** Output power will decrease gradually when input voltage less than 90Vac±10%;When the input voltage is 85Vac,the output power is reduced to 0W.



**DL-100Z-56A/P-MXL(When the output voltage is 56Vdc, the rated output current value and output power corresponding to different input voltage)**

Input Voltage	70Vac	85Vac	200Vac	220Vac	230Vac	240Vac	277Vac
Iout	0A	0A	1.785A	1.785A	1.785A	1.785A	1.785A
Pout	0W	0W	100W	100W	100	100W	100W

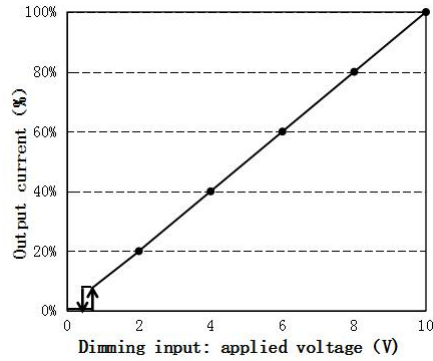
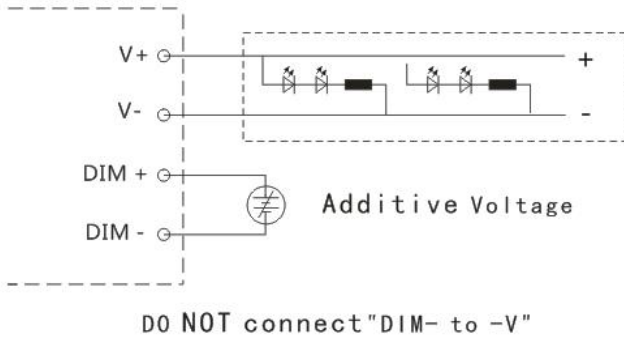
**Note:** Output power will decrease gradually when input voltage less than 90Vac±10%;When the input voltage is 85Vac,the output power is reduced to 0W.

## Dimming operation

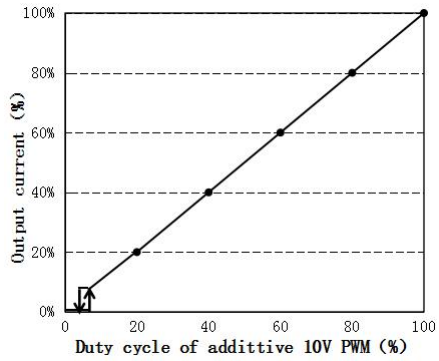
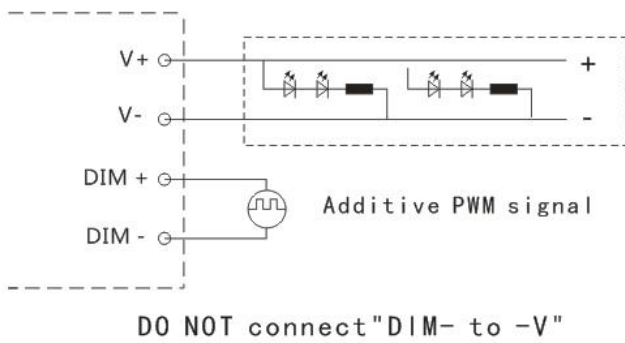
### ※ Three-in-one dimming function (P version only)

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

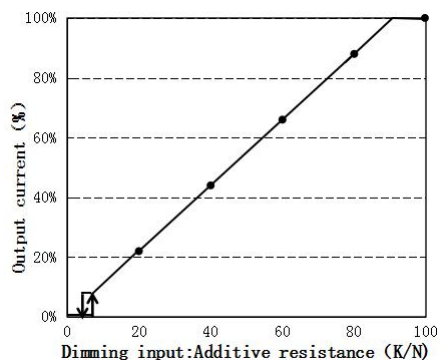
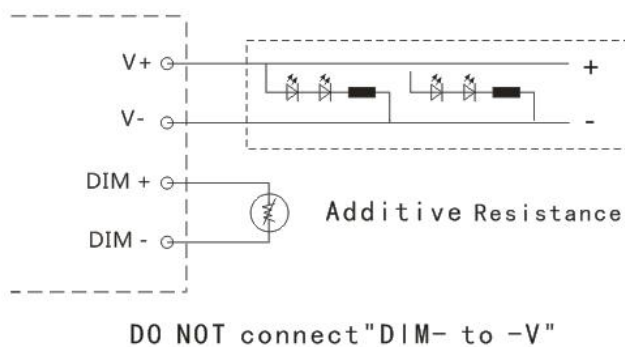
#### ◎ With an applied voltage of 0-10V:



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



#### ◎ With an additional 10-100K resistor:



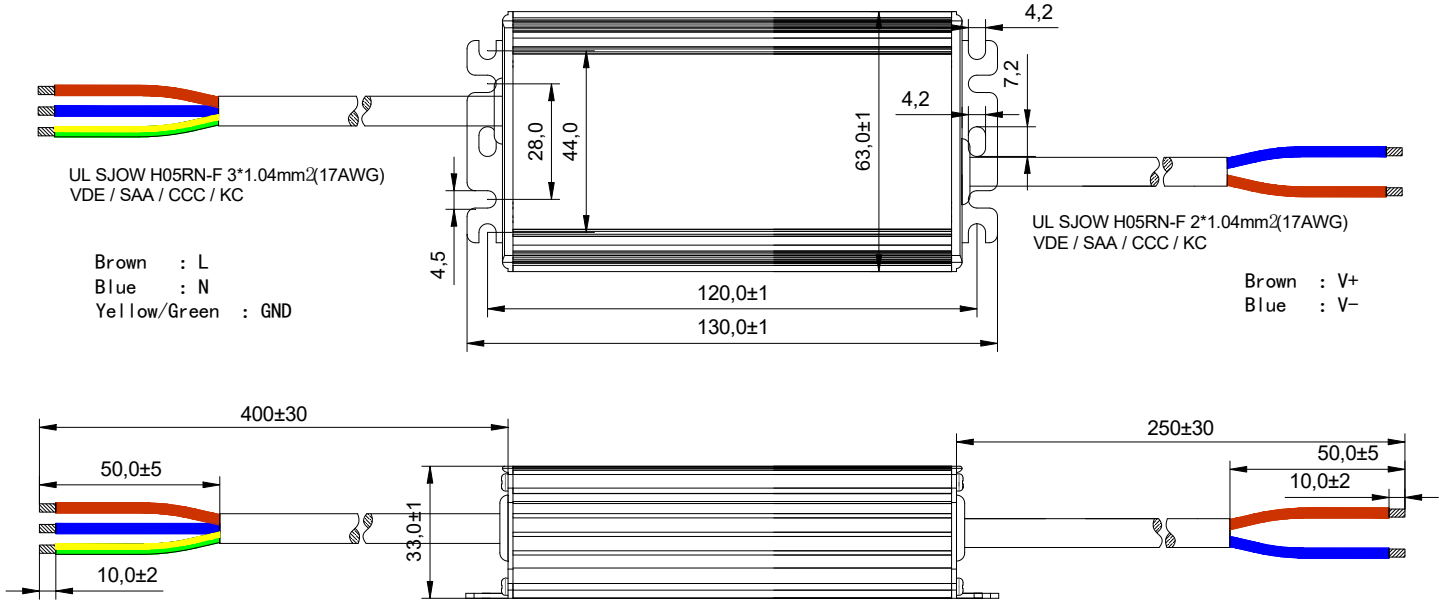
### Note:

1. Positive and negative logic dimming can be programmed.
2. Dimming off only applies to positive logic. For other requirements, please contact technical personnel.

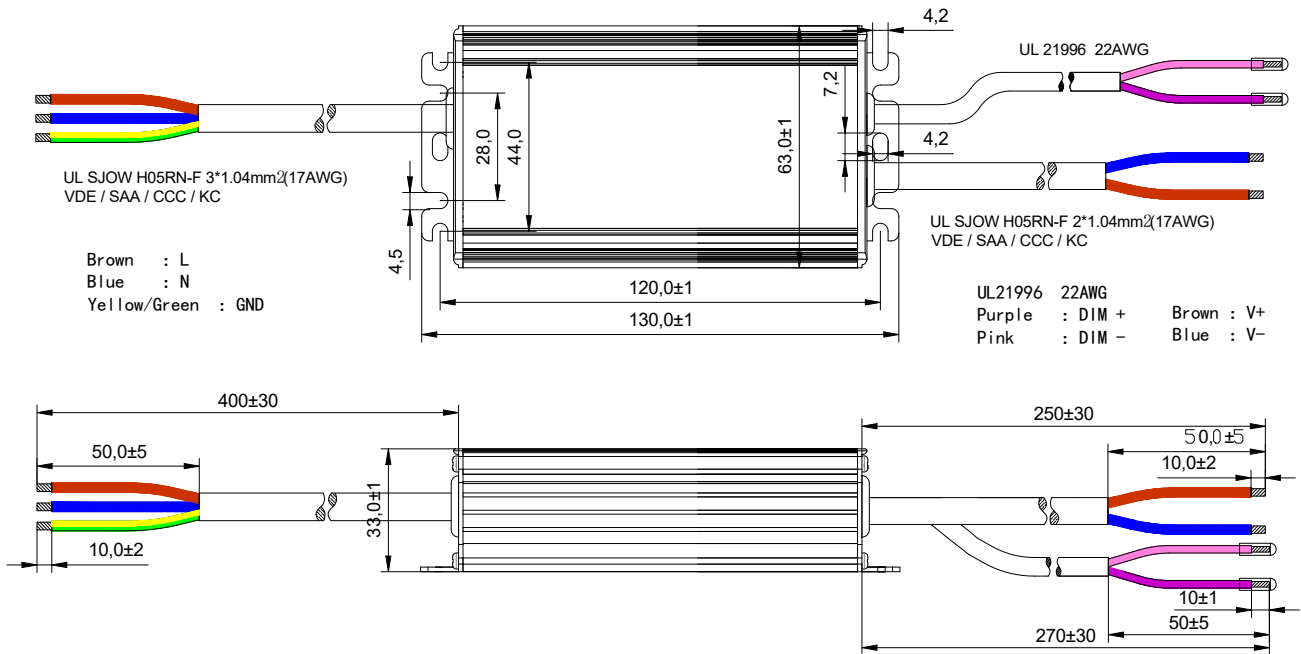
# Mechanical specification

Size (mm) L130\*W63\*H33

## DL-100Z-56A/143A-MXL



## DL-100Z-56P/143P-MXL

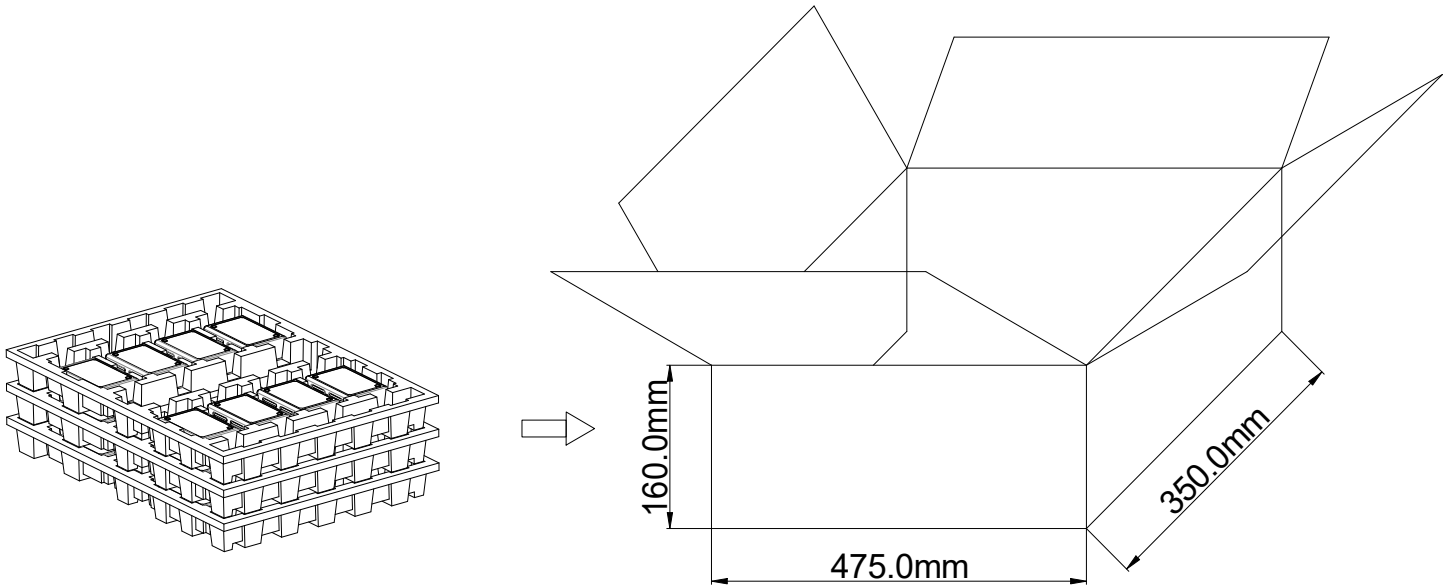


# Weight

Weight 405g

## Packaging

Packaging (mm) L475\*W350\*H160



Note: One Carton 3 layers and 8 pcs each layer, total 24pcs/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
2024.7.16	Initial version.	E2.0	

**MANUFACTURER**

EDIT

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APPROVE

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