



MXL SERIES LED DRIVERS

DL-50Z-A/P-MXL SPEC E3.0



Features

- Class I structure
- Input voltage: 90-305V ~ 50/60Hz
Rated input voltage: 100-277V ~ 50/60Hz 60W max. Output Power
- Efficiency : 88%(Typ.)
- Constant power drive and constant current output control mode
- Metal shell structure, protection grade: IP67
- Lightning protection level: differential mode 4kV, common mode 6kV
- 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. (Typ.)	T.H.D	PF
DL-50Z-56A/P-MXL	100-277V 50/60Hz	50W	25-56Vdc	1.5A	≥88%	≤10%	≥0.95
DL-50Z-72A/P-MXL	100-277V 50/60Hz	50W	36-72Vdc	0.7A	≥89%	≤10%	≥0.95

Note:

1. Test conditions of the above parameters: Ta=25°C, 230Vac input, full load operation for 30 minutes;
2. The input is less than 80±5Vac, the output power decrease to 0; When the input is 100-277Vac, the rated power is 50W, 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	-	305Vac	less than 80±5Vac, the output power decrease to 0
Rated frequency	47Hz	50/60Hz	63Hz	
Power factor	0.95	-	-	@230Vac full load
T.H.D.	-	-	10%	@230Vac full load
Input current	-	-	0.66A	100% load, 100Vac input
Inrush current	-	-	70A	230Vac, cold start (25°C)

Output characteristic

Parameter	Min	Typ.	Max	Note
Rated current DL-50Z-56A/P-MXL DL-50Z-72A/P-MXL	-	0.9A 0.7A	-	
Output current range DL-50Z-56A/P-MXL DL-50Z-72A/P-MXL	0.4A 0.5A	-	1.7A 1.05A	
Output voltage range DL-50Z-56A/P-MXL DL-50Z-72A/P-MXL	25V 36V	-	56V 72V	Constant power voltage range: 30-56V 48-72V
Rated power(100-277Vac)	-	50W	-	
No-load voltage DL-50Z-56A/P-MXL DL-50Z-72A/P-MXL	-	-	60V 80V	
Efficiency@230Vac DL-50Z-56A/P-MXL DL-50Z-72A/P-MXL	87% 88%	88% 89%	-	full load @230Vac
Efficiency@230Vac DL-50Z-56A/P-MXL DL-50Z-72A/P-MXL	83.5% 85.5%	84.5% 86.2%	-	full load@230Vac

Output characteristic

Parameter	Min	Typ.	Max	Note
Output Current Ripple	-	5% Iomax	-	100% load, 20 MHz BW; Ripple =rms/ average
Accuracy of output current	-5%	-	+5%	full load
Line regulation	-5%	-	+5%	full load
Load regulation	-5%	-	+5%	full load
Starting time	300 ms	-	1000 ms	Full load@100-277Vac

Note:

1. The output current range is limited by the input and output voltages, please refer to "I-V WORKING AREA" for details.
2. When the input voltage is between $85\pm 5\text{Vac}$, the output power may be between off and full load due to the conversion threshold deviation. Please pay special attention.

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 Ω	-	100K Ω	-
	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
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.
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.
Over temperature protection	Self-recovery type: when the housing temperature is greater than 95°C, the output power decrease gradually.
Input under-voltage protection	When the input voltage is less than 80±5Vac, the output power decrease to 0.

Note:

1. Unless otherwise specified, all specifications and parameters shall be measured at the conditions of 230Vac (50Hz), rated load and 25°C of ambient temperature;
2. Including setting error, line regulation and load regulation.

Environmental

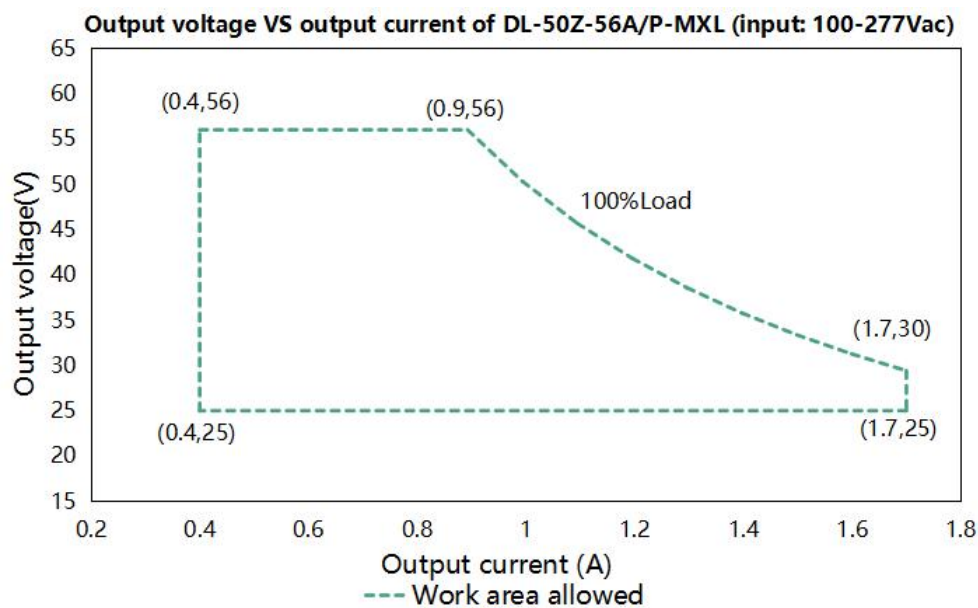
Environmental categories	Parameter
Working temperature	-40 ~ +55°C @100-277Vac (refer to "Life Curve ")
Max.Case Temp.	-40 ~ 90°C
Working humidity	20 ~ 90% RH, non condensing
Storage temperature、 humidity	-40 ~ +90°C, 10 ~ 90% RH
Resistant to vibration	10 ~ 500Hz, 5G 12 min/cycle, X, Y, Z axis 72 min each
MTBF	230Khrs min. MIL-HDBK-217F (Ta=25°C)
Lifetime	50,000 hours @Tcase≤75°C, 230Vac, 80% Load, please refer to "Tcase VS Lifetime" section.

Safety and EMC

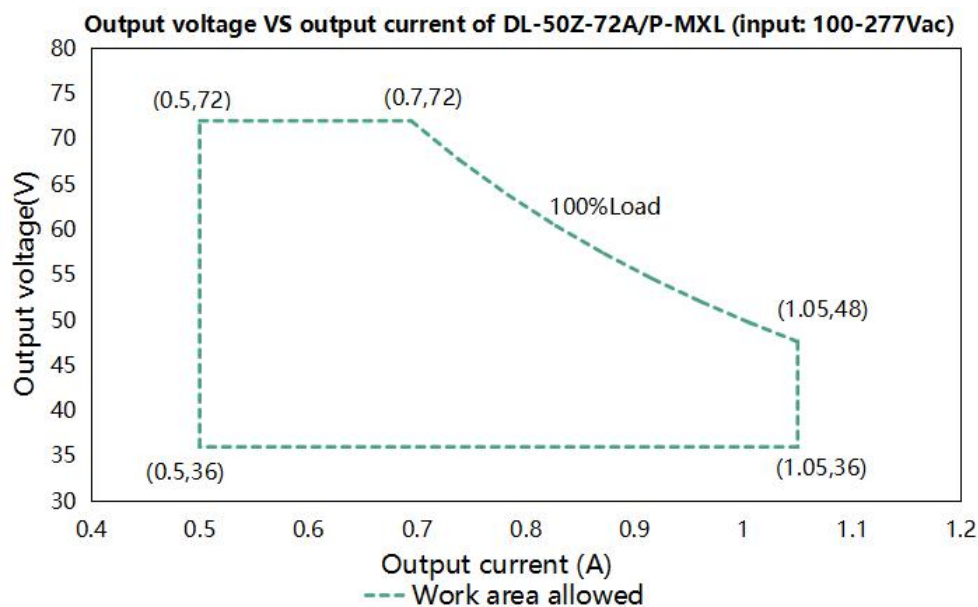
Safety categories	Standard
Safety	GB19510.1、GB19510.14、EN61347-1、EN61347-2-13、IEC61347-1、IEC61347-2-13、AS/NZS61347.1、AS61347.2.13、EN 62384、UL8750;
EMC	EN 55015、EN 61000-3-2 、GB/T 17743、GB17625.1、 EN 61000-3-3
Surge protection	Differential mode L-N $\pm$ 4KV (2 ohm) ,common mode L,N-PE $\pm$ 6KV (12 ohm); Refer to IEC61000-4-5 2014 Criterion B
High-pot test	I/P-O/P: 3.75KVac I/P-PE: 1.5KVac O/P-P: 0.5KVac I/P-DIM:1.5KVac O/P-DIM:1.5KVac
Insulation impedance	I/P-PE:100M Ω /500VDC; I/P-O/P:100M Ω /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

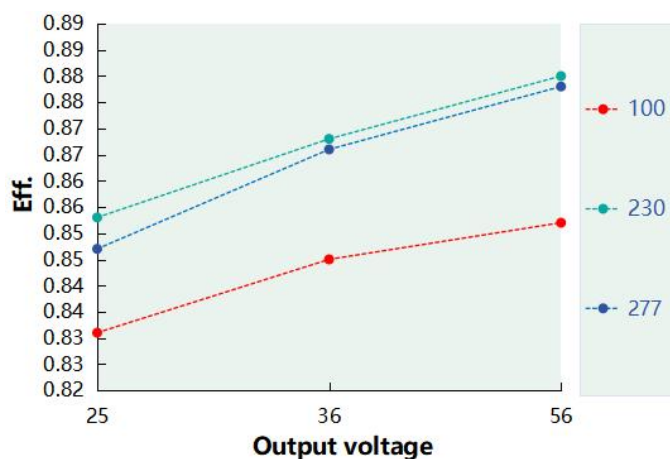


Load	Output								
Load working Voltage	25V	27V	30V	35V	40V	45V	50V	53V	56V
Io_MAX	1.7A	1.7A	1.7A	1.43A	1.25A	1.1A	1A	0.94A	0.9A
Po_MAX	42.5W	45.9W	50W	50W	50W	50W	50W	50W	50W

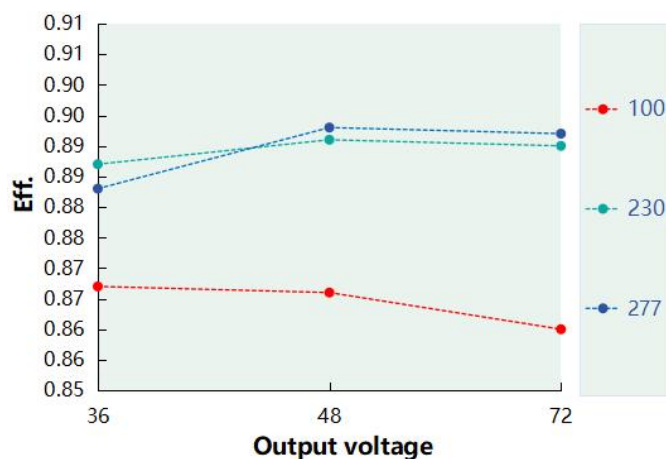


Load	Output								
Load working Voltage	36V	39V	42V	45V	48V	52V	58V	64V	72V
Io_MAX	1.05A	1.05A	1.05A	1.05A	1.05A	0.96A	0.86A	0.78A	0.7A
Po_MAX	37.8W	40.9W	44.1W	47.25W	50W	50W	50W	50W	50W

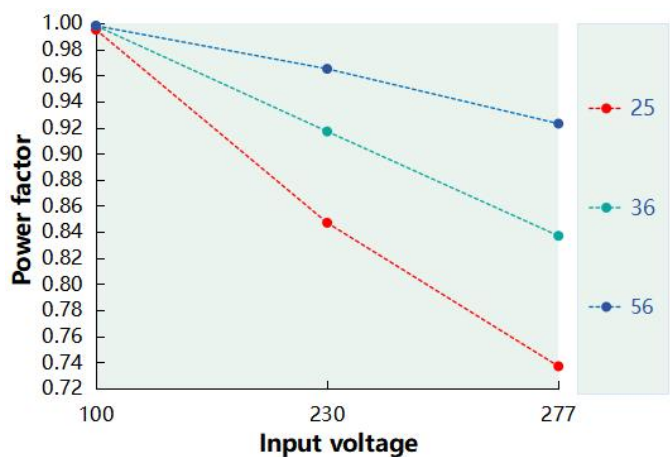
Eff. VS Output voltage (DL-50Z-56A/P-MXL)



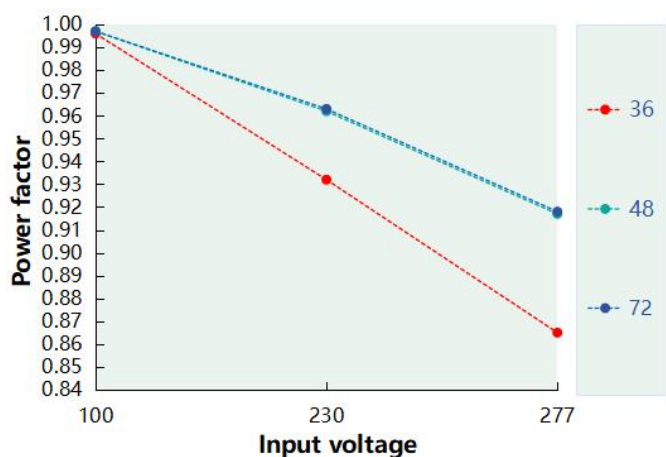
Eff. VS Output voltage (DL-50Z-72A/P-MXL)



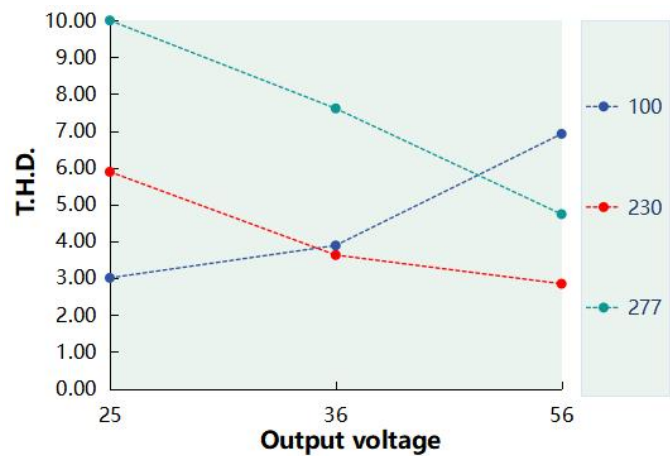
Power Factor VS Input Voltage (DL-50Z-56A/P-MXL)



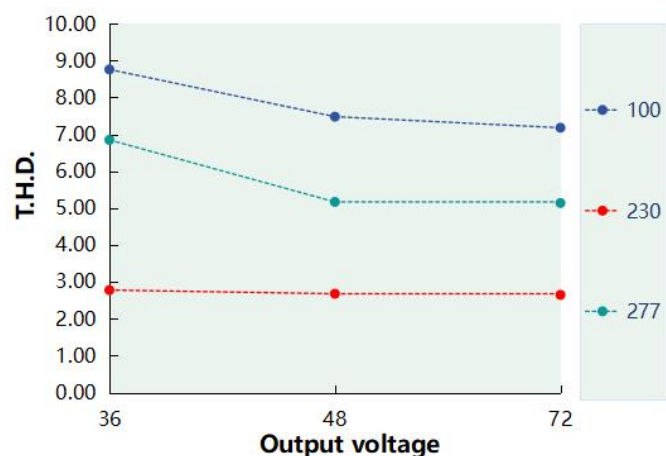
Power Factor VS Input Voltage (DL-50Z-72A/P-MXL)



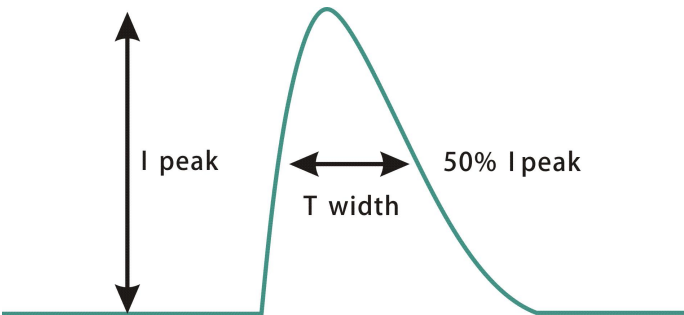
T.H.D. VS Output voltage (DL-50Z-56A/P-MXL)



T.H.D. VS Output voltage (DL-50Z-72A/P-MXL)

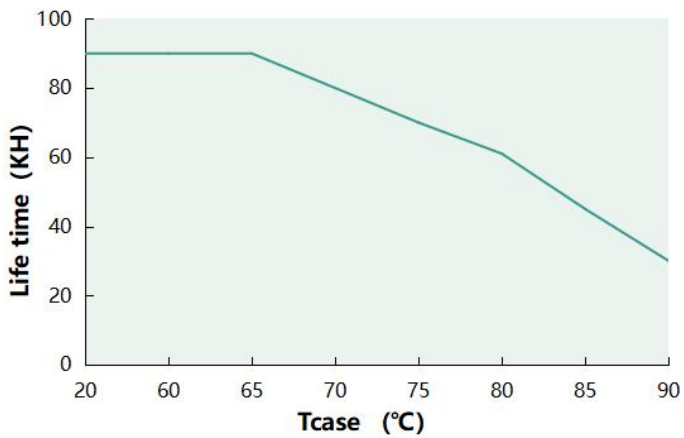


Inrush Current (DL-50Z-MXL)

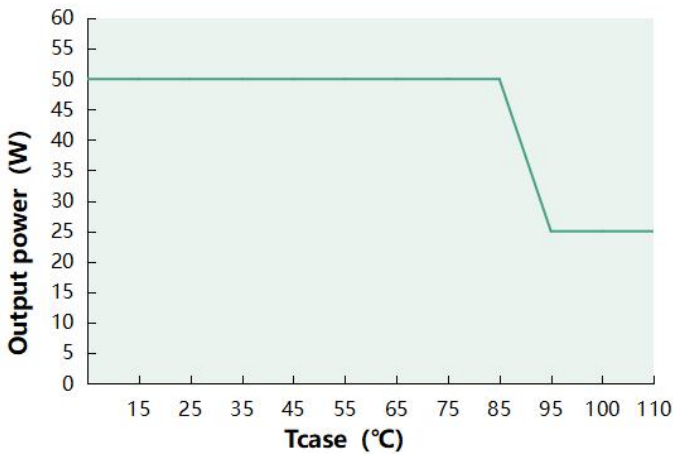


Input voltage	Peak current	T(@50% Peak current)
100Vac	30A	1.82us
230Vac	57A	1.84us
277Vac	80A	1.9us

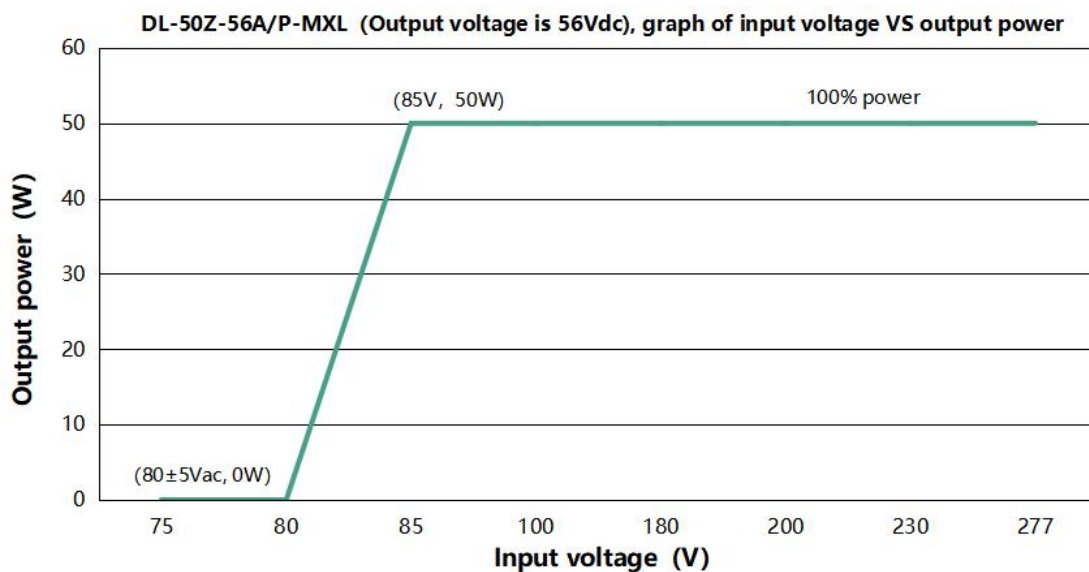
Life time VS Tcase (DL-50Z-MXL)



Output power VS Tcase (DL-50Z-MXL)



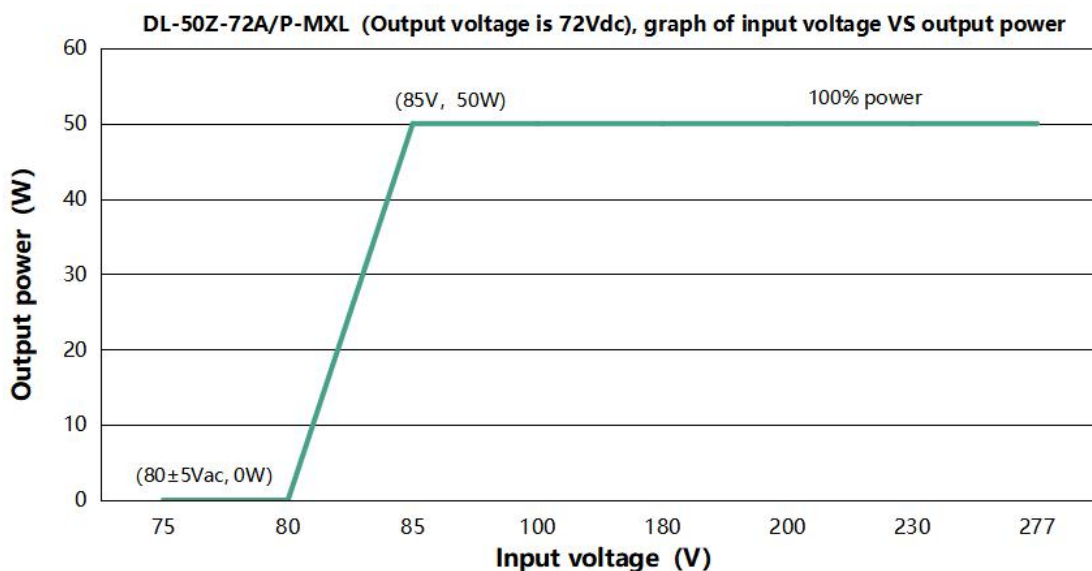
Output power VS Input voltage



DL-50Z-56A/P-MXL(输出电压为 56Vdc 时, 不同输入电压对应的额定输出电流值和输出功率)

输入电压	75Vac	80Vac	85Vac	100Vac	180Vac	200Vac	230Vac	277Vac
电源输出电流 I_o	0A	0A	0.9A	0.9A	0.9A	0.9A	0.9A	0.9A
电源输出功率 P_o	0W	0W	50W	50W	50W	50W	50W	50W

Note: Input voltage less than $80\pm 5\text{Vac}$, the output power decrease to 0.



DL-50Z-72A/P-MXL(输出电压为 72Vdc 时, 不同输入电压对应的额定输出电流值和输出功率)

输入电压	75Vac	80Vac	85Vac	100Vac	180Vac	200Vac	230Vac	277Vac
电源输出电流 I_o	0A	0A	0.7A	0.7A	0.7A	0.7A	0.7A	0.7A
电源输出功率 P_o	0W	0W	50W	50W	50W	50W	50W	50W

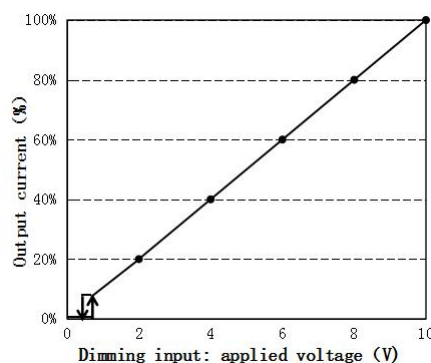
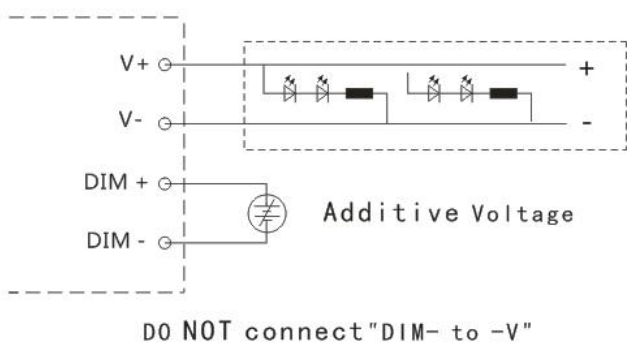
Note: Input voltage less than $80\pm 5\text{Vac}$, the output power decrease to 0.

Dimming operation

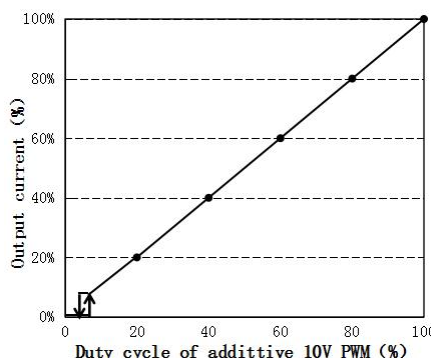
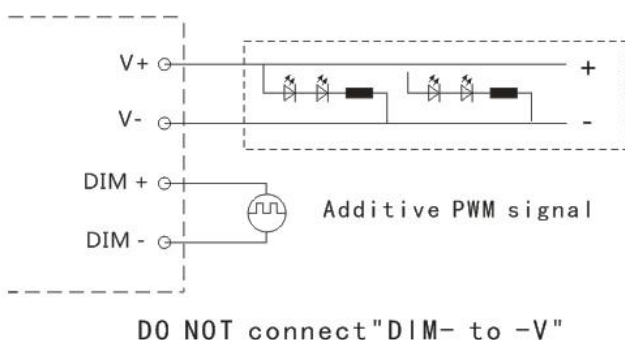
※ Three-in-one dimming function (P version only)

- 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).

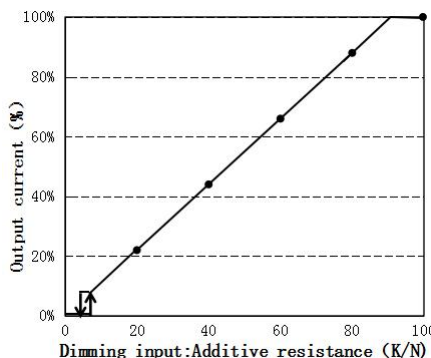
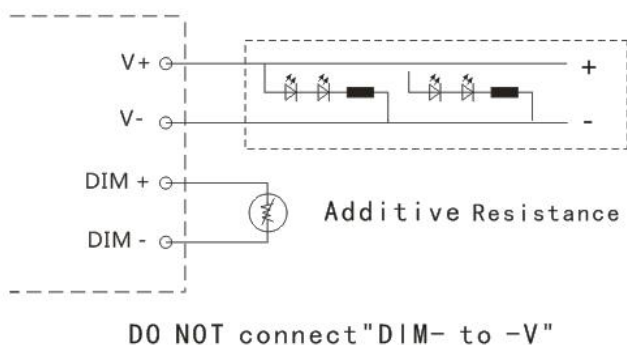
◎ With an applied voltage of 0-10V:



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



◎ With an additional 10-100K resistor:



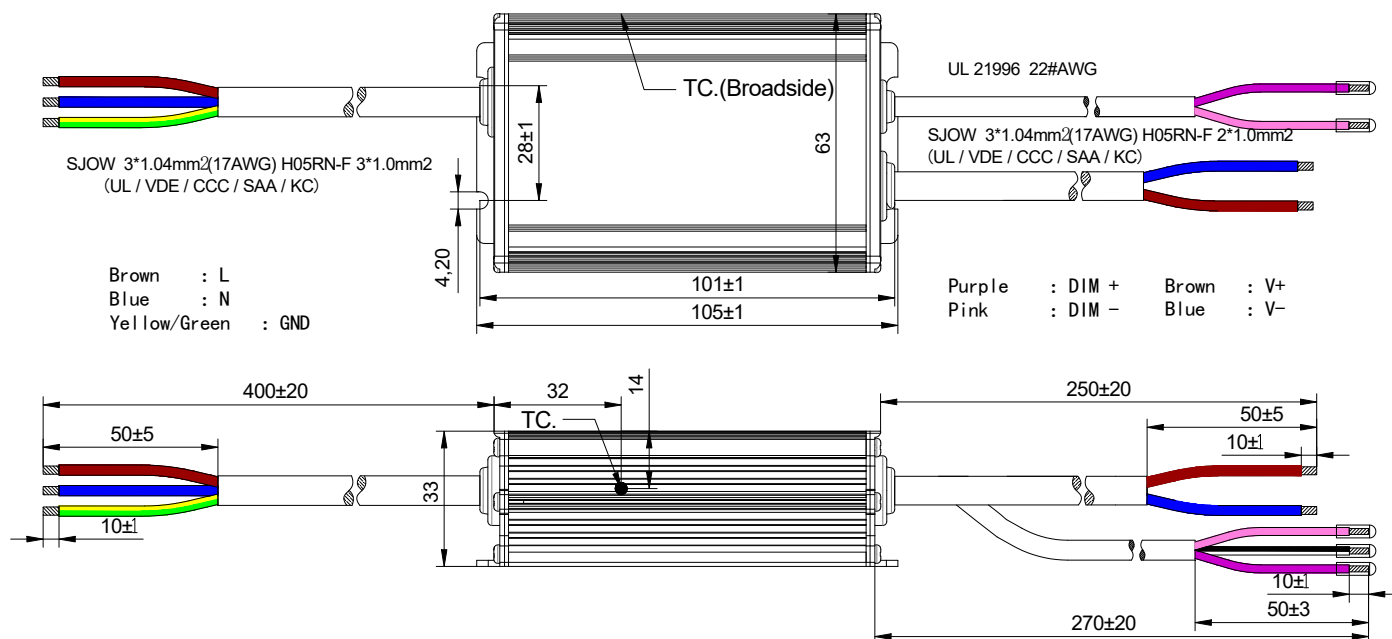
Note:

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

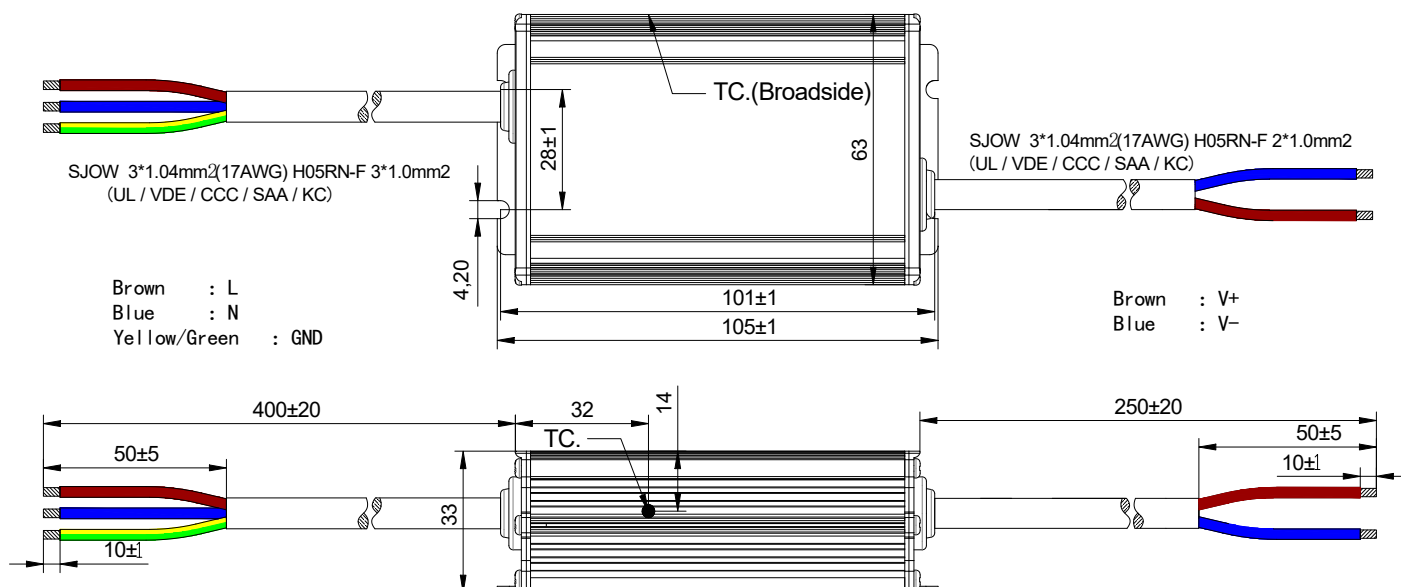
Mechanical specification

Size (mm) L105*W63*H33

DL-50Z-56P/72P-MXL



DL-50Z-56A/72A-MXL

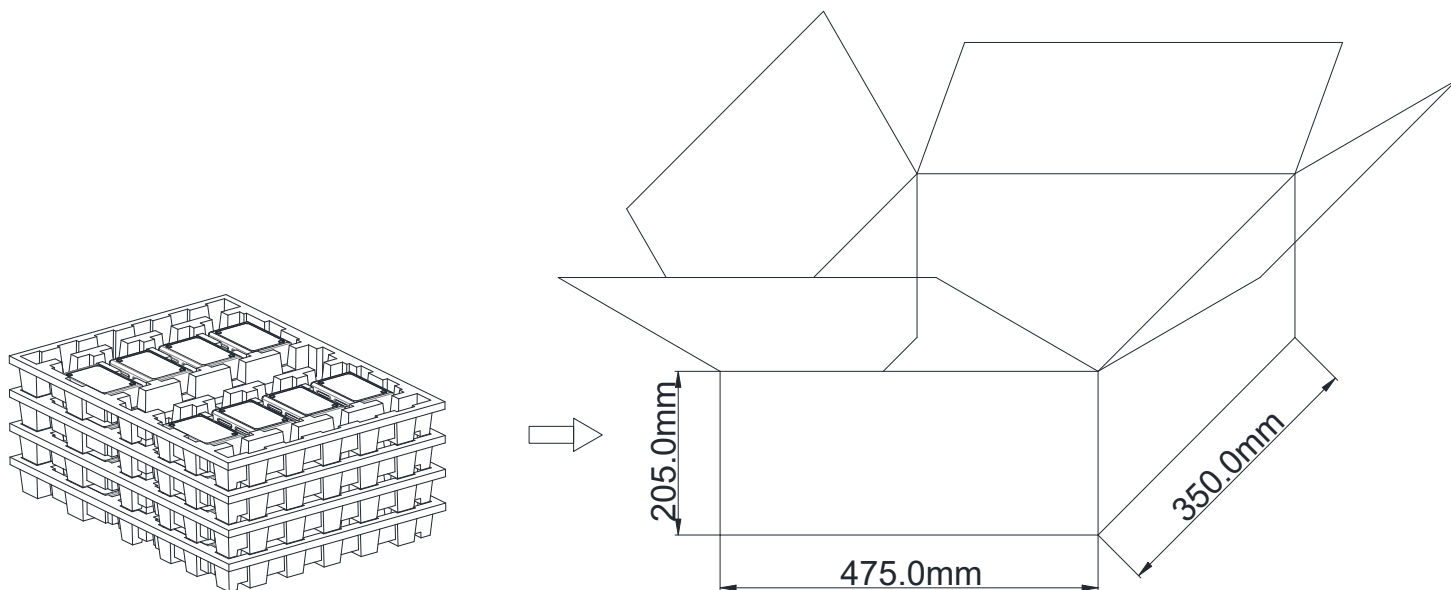


Weight

Weight 450g

Packaging

Packaging (mm) L475*W350*H205



Note: One Carton 4 layers and 8 pcs each layer, total 32pcs/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
2024.8.21	Initial version.	E3.0	

MANUFACTRUER		
EDIT	CHECK	APPROVE