

**DONE**

# MXC SERIES LED DRIVERS

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DL-40Z-A/P-MXL SPECV E2.0

## Features

- Class I structure
- Input voltage:100-277V ~ 50/60Hz
- Efficiency :87%(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)
  - Input over-voltage protection ( Only the p version is optional )
- Lifetime design: 5 years

## Applications

Road lighting、Industrial lighting、Venue lighting  
 Floodlight lighting、Landscape lighting 、Plant lighting

## 型号列表

Model NO.	Input voltage	Output power	Output voltage	The default current	Eff.	T.H.D	PF
DL-40Z-56A/P-MXL	AC 100-277V 50/60Hz	40W	25-56Vdc	0.715A	≥87%	≤10%	≥0.95

**Note:**

1. Test conditions of the above parameters: Ta=25°C, 230Vac input, full load operation for 30 minutes;



## Input characteristics

参数	最小值	典型值	最大值	备注
Rated input voltage	100Vac	230Vac	277Vac	
Input voltage range	90Vac		305Vac	
Rated frequency	47Hz	50/60Hz	63Hz	
Power factor	0.95	-	-	@230Vac full load,rated input voltage
T.H.D.	-	-	10%	100% load, 230Vacinput
Input current	-	-	0.6A	100% load, 230Vacinput
Inrush current	-	-	50A	230Vac, cold start (25°C)
No-load power consumption	-	-	10W	No load, 230Vac input
Stand-by power consumption	-	-	3W	Dimmer terminal voltage < 0.5V±0.1,

## Output characteristic

参数	最小值	典型值	最大值	备注
Rated current DL-40Z-56A/P-MXL	-	0.715A	-	
Output current range DL-40Z-56P-MXL DL-40Z-56A-MXL	0.35A 0.45	-	1.34A	-
Output voltage range DL-40Z-56A/P-MXL	25V	-	56V	-
Rated power(100-277Vac)	-	40W	-	-
No-load voltage DL-40Z-56A/P-MXL	-	-	66V	
Efficiency@200Vac DL-40Z-56A/P-MXL	83%	87%	-	full load@200Vac

## 输出特性

参数	最小值	典型值	最大值	备注
Efficiency@230Vac DL-40Z-56A/P-MXL	83%	87%	-	full load@230Vac
Output Current Ripple	-	5%电流最大值	-	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	300ms	-	1000ms	Full load@100-277Vac

**Note:**

- 1.The output current range is limited by the input and output voltage, please refer to "I-V WORKING AREA" for details.
2. When the output voltage is in the constant power range, the current accuracy is -5%-+5%; when the output voltage is below the constant power range, the current accuracy is -10%-+10%;

## Dimming characteristic

Parameter		Min	Typ.	Max	Note
1-10V Dimming (Optional)	Safe applied voltage range	1V	-	12V	When the external voltage is $\geq 12V$ , the dimming will fail
	Dimming output range	10%	-	100%	-
	Rated dimming voltage range	1V	-	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 X version is 0-10V dimming, and the P version is 1-10V 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  $0.46 \cdot V_{omax}$  after the dimming is turned off. Be careful when using this function, but customers are advised to use 1-10V dimming.

## Protection

Function	Function instructions
Input under-voltage protection	When the input voltage is less than 80Vac $\pm$ 10%, recovers automatically after fault condition is removed.
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 90°C, the output power decreases gradually.

### 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
Max.Case Temp.	-40 ~ 90°C
Working humidity	20 ~ 95% RH, non condensing
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	230Khrs min. MIL-HDBK-217F (Ta=25°C)
Lifetime	75000 hours @Tcase≤75°C,230Vac, 80% Load, Please refer to "Tcase VS Lifetime" section

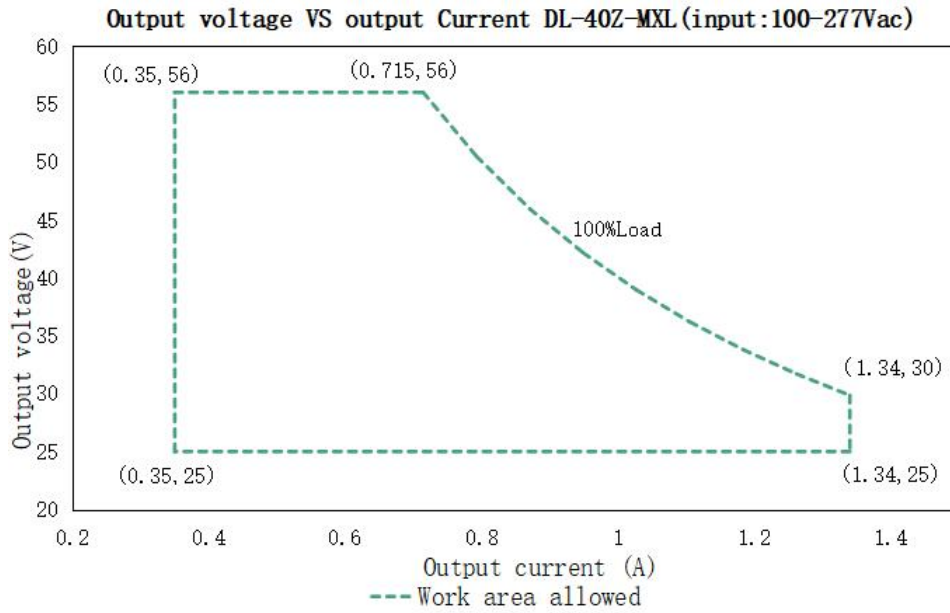
## Safety and EMC

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 $\pm 4\text{KV}$ ( 2 ohm ) ,common mode L, N-PE $\pm 6\text{KV}$ ( 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 $^{\circ}\text{C}$ / 70% RH
Leakage current	<0.7mA@277Vac

**Note:**

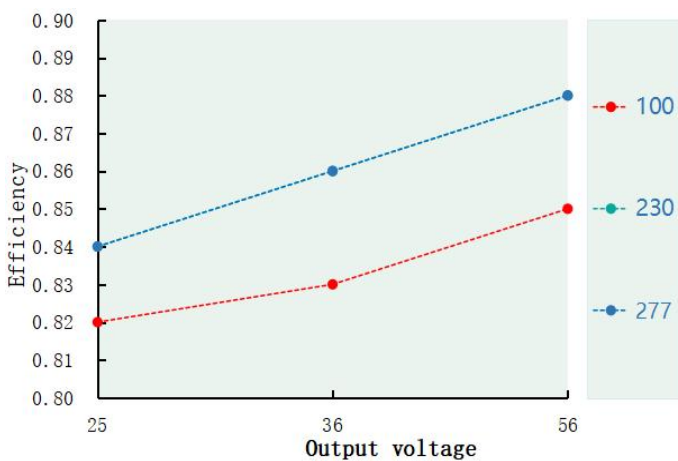
The driver is considered as a component that will be operated in combination with the final equipment. Since EMC performance will be affected by the complete installation,the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.

## I-V Working area

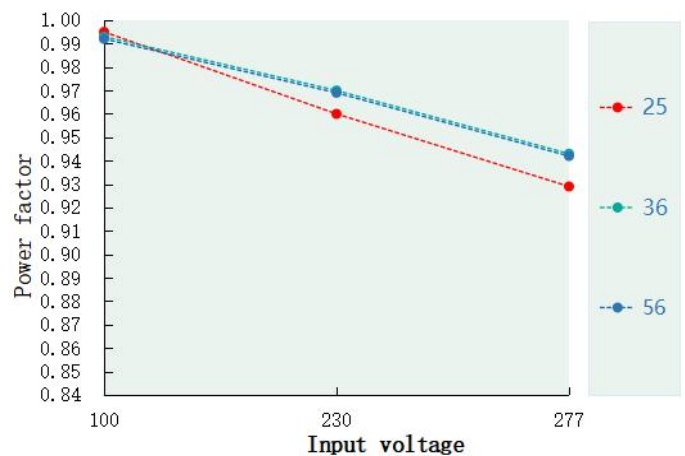


Load	Output								
Load working Voltage	25V	28V	32V	36V	40V	43V	48V	52V	56V
Io_MAX	1.34A	1.34A	1.25A	1.11A	1.00A	0.93A	0.83A	0.77A	0.715A
Po_MAX	33.5W	37.52W	40W	40W	40W	40W	40W	40W	40W

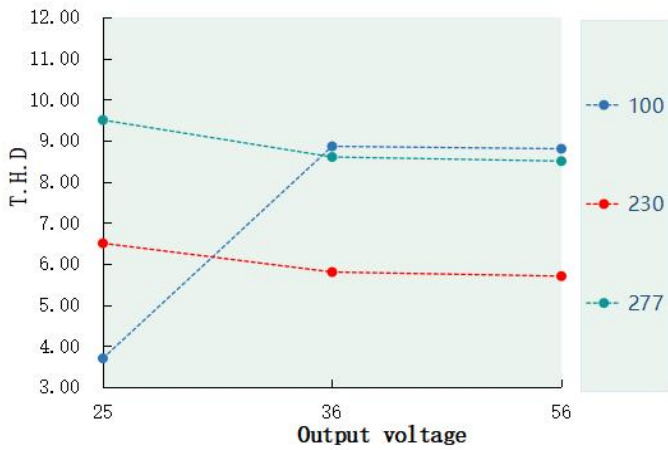
**Eff. VS Output voltage DL-40Z-56A/P-MXL**



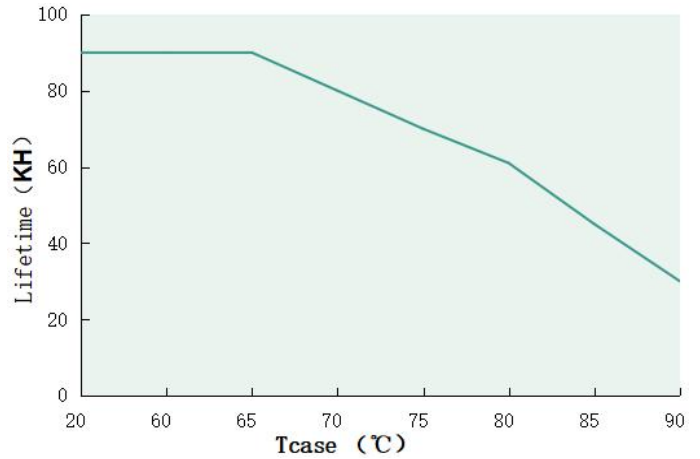
**Power factor VS Input voltage DL-40Z-56A/P-MXL**



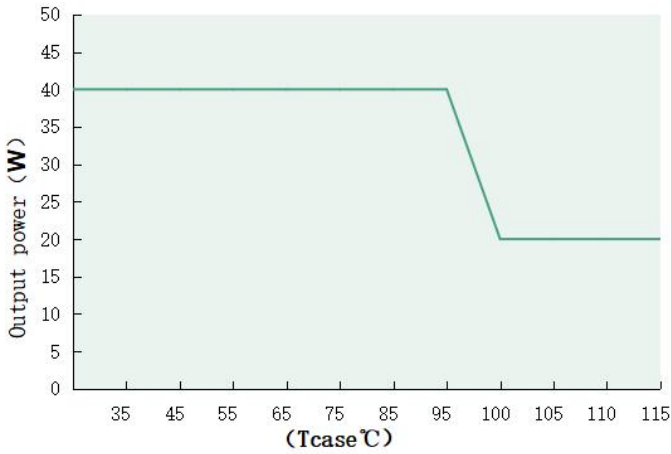
**T.H.D. VS Output voltage DL-40Z-56A/P-MXL**



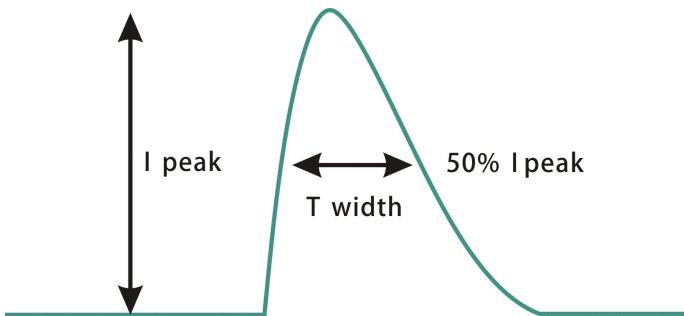
**Tcase VS Lifetime(DL-40Z-MXL)**



**Output power VS Tcase(DL-40Z-MXL)**



**Inrush Current (DL-40Z-MXL)**



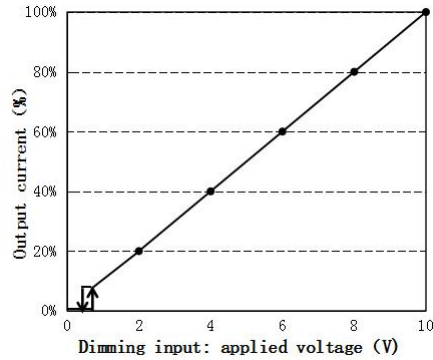
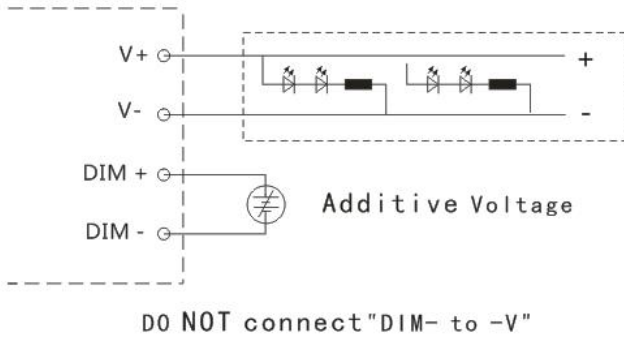
Input voltage	Peak current	T(@50% Peak current)
200Vac	40.5A	188us
230Vac	47.7A	188us
277Vac	61A	206us

## Dimming operation

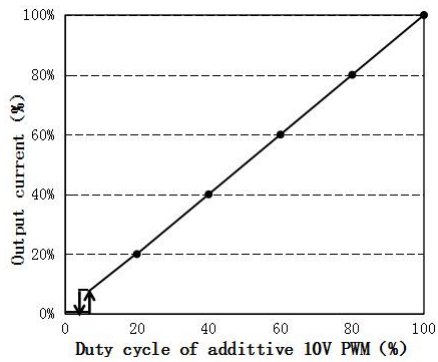
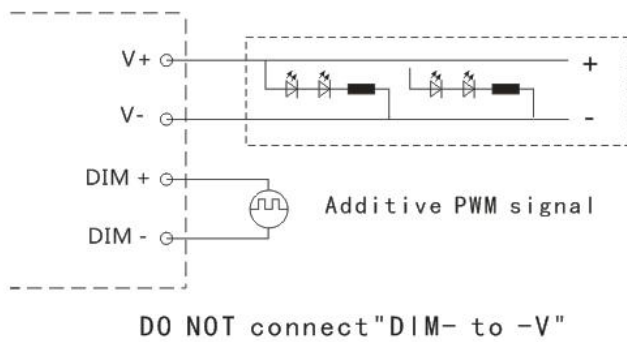
### ※ Three-in-one dimming function (P version only)

- A. Connect a resistor 10-100K or 1-10V DC voltage or 10V PWM signal between DIM+ and DIM- to adjust the output current.
- B. Output current of dimming port: 100uA (typical value).

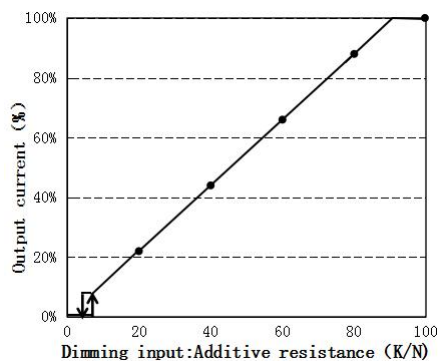
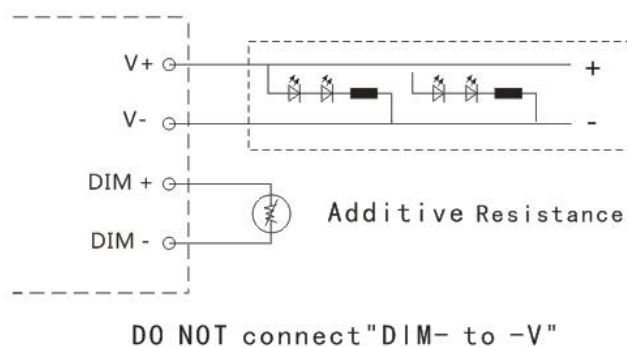
#### ◎ With an applied voltage of 1-10V:



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



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



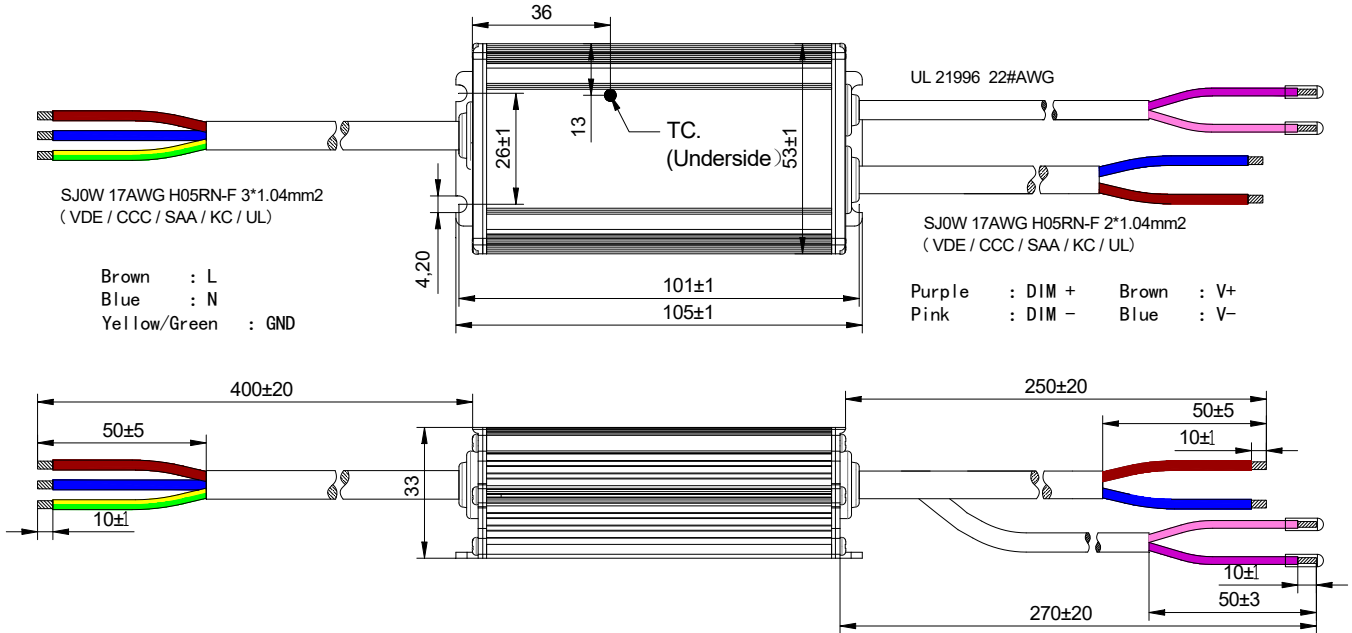
### Note:

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

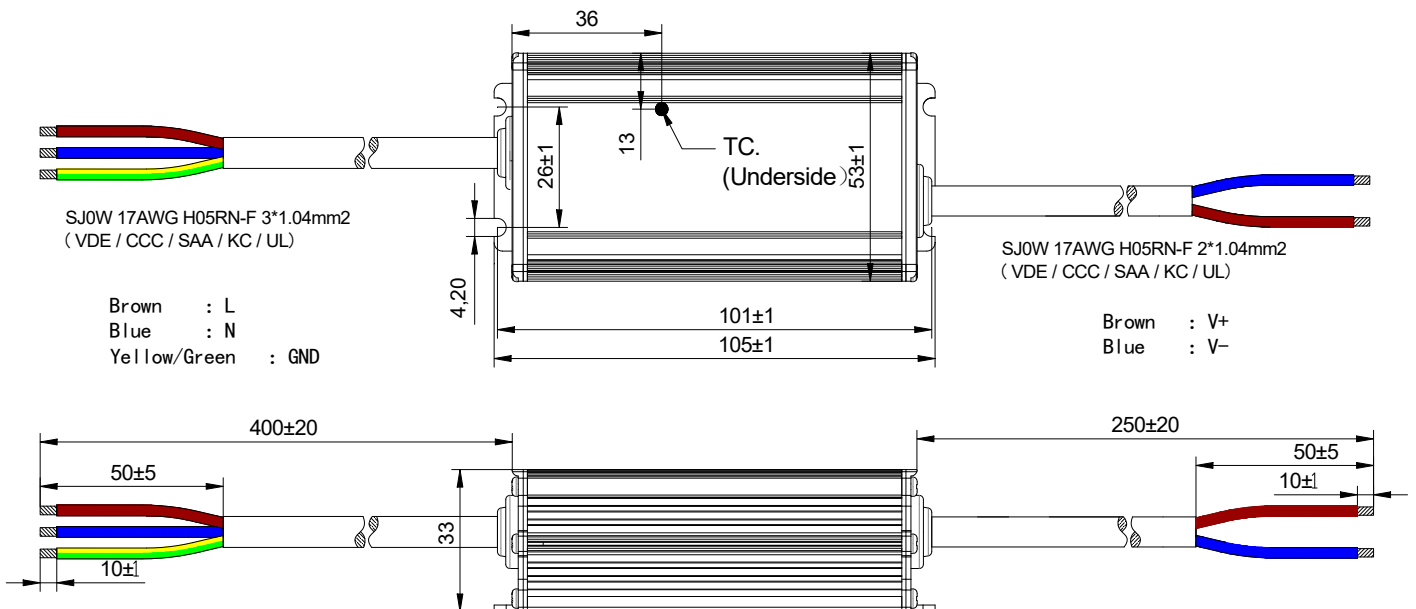
## Mechanical specification

Size (mm) L105\*W63\*H33

### DL-40Z-56P-MXL



### DL-40Z-56A-MXL



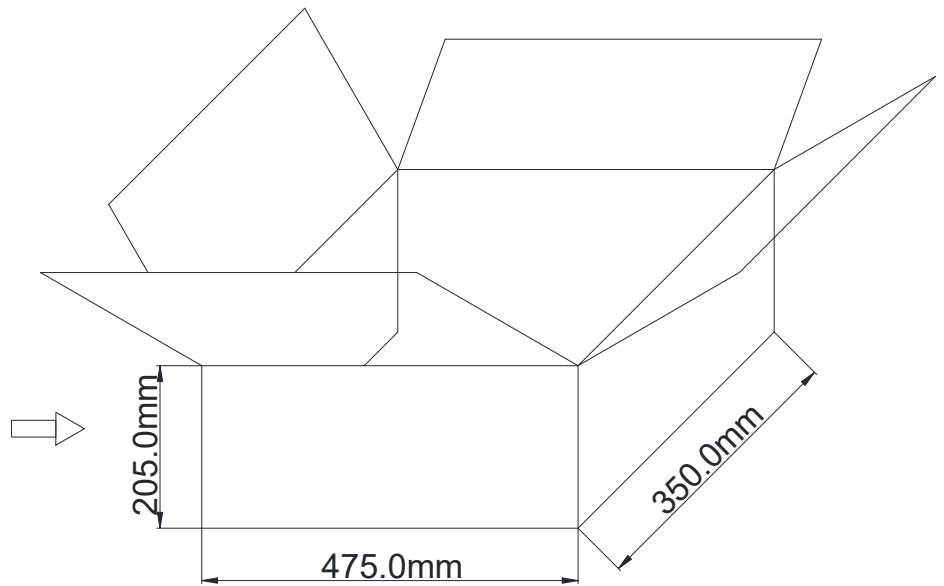
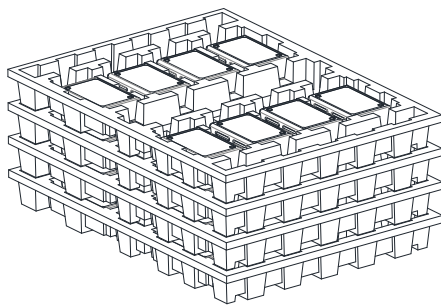
## Weight

Weight 405g

## 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
2024.4.29	Initial version.	E2.0	

**MANUFACTURER**

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