MXL Series LED Drivers

DL-320Z-A/P-MXL Specification V1.0

GUANGDONG DONE POWER TECHNOLOGY CO.,LTD

Features

- Class I structure
- Input voltage: 100-277V ~ 50/60 Hz
- Efficiency: 94%(Typ.)
- Constant power driver and constant current output
- Function selection:

  Fixed current : Adjusted by external potentiometer (A version)

  Isolated 3-in-1 dimming: 0-10V/PWM/Resistor; Timer dimming (P version)
- Input surge protection: DM 6kV, CM 10kV
- All-Around protection: IUVP/SCP/OVP/OTP
- Ingress protection rating: IP67
- Warranty: 5 years

Applications

Road lighting

Industrial lighting

Stadium lighting

Landscape lighting

Horticulture lighting

E479166

Model list

Model NO.	Input voltage	Output power	Output voltage	Output current	Default current	Eff. (Typ.)	THD (Typ.)	PF (Typ.)
DL-320Z-56P-MXL DL-320Z-56A-MXL	100-277Vac 50/60Hz	320W	25-56Vdc	4.2-7.65A	6.0A	94%	7%	0.97

Note:

1. Test conditions for the above parameters: Ta = 25°C, 230 Vac input, 30 minutes full load.
2. The rated output power is 320W at an input voltage of 100-277Vac, please refer to the output power vs. input voltage curve.

Input characteristics

Parameter	Min	Typ.	Max	Note
Rated input voltage	100Vac	230Vac	277Vac	
Input voltage range	90Vac		305Vac	
Input frequency	47Hz	50/60Hz	63Hz	
Leakage current	-	-	0.70mA	IEC 60598-1; 240Vac/60Hz
	-	-	0.75MIU	UL 8750; 277Vac/60Hz
Power factor(PF)	0.95	0.97	-	At 100~240Vac and 70%~100% load
	0.92	0.95		At 277Vac and 70%~100% load
THD	-	7%	10%	At 100~277Vac and 70%~100% load
Input current	-	-	3.8A	At 120Vac and full load conditions
Inrush current	-	-	130A	At 230Vac and 25℃ cold start

Output characteristic

Parameter	Min	Typ.	Max	Note
Efficiency@100Vac	89.0%	90.0%	-	At full load conditions, Io=5.71A
Efficiency@230Vac	93.0%	94.0%	-	At full load conditions, Io=5.71A
Efficiency@277Vac	93.5%	94.5%	-	At full load conditions, Io=5.71A
Output voltage range	25Vdc	-	56Vdc	Constant power range: 42-56Vdc
Open circuit voltage	-	-	60Vdc	
Output current range	4.2A	-	7.65A	Default current is 6.0A
Output current tolerance	-5%	-	+5%	At full load conditions
Output Current Ripple(PK-AV)	-	5% Iomax	10% Iomax	At full load conditions，20 MHz BW
Start-up overshot current	-	-	10%	At full load conditions
Line regulation	-3%	-	+3%	Measured at 100% load,input voltage changes from 100Vac to 277Vac,.
Load regulation	-3%	-	+3%	At 230Vac input and load change from 70% to 100%
Turn-on delay time	-	-	1.0s	At 100~277Vac and full load

Note: The output current range is limited by the input and output voltage, please refer to I-V Work area curve

Dimming characteristic (P version)

Dimming	Parameter	Min	Typ.	Max	Note
0-10V Dimming (Optional)	Safe operating voltage	0V	-	10V	On the Dim+ pin, Dim+ source current 150uA
	Dimming range	10%	-	100%	
	Recommended dimming input range	0V	-	10V	
	Turn-on voltage	0.6V	-	0.9V	
	Turn-off voltage	0.4V	-	0.6V	
PWM Dimming (Optional)	PWM in high level	9.5V	-	10.5V	
	PWM in low level	0	-	0.3V	
	PWM in frequency scope	300Hz	-	2000Hz	-
	PWM in duty cycle	1%	-	99%	-
	Turn-on duty cycle	7%	8%	10%	
	Turn-off duty cycle	4%	6%	7%	
Resistor Dimming (Optional)	External resistor value	10KΩ	-	100KΩ	-
	Dimming range	10%	-	100%	Full power output at 99% duty cycle
Timer Dimming (Optional)	3 modes:Timing,Virtual Midnight,Self-adaptive				Default close, Set by the programmer
Output lumen compensation	Setting the output power with reference to the luminaire life				Default close, Set by the programmer

Note: 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.

Protection

Parameter	Description
Input under voltage protection	Self-recovery type,When the input is below 70Vac, the output is automatically turned Off，and the driver will restart when the input voltage exceeds 90Vac.
Output overload protection	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 casing temperature is greater than 90℃, the output power decreases gradually.
Output over-voltage protection	Self-recovery type, automatically recovered after abnormal conditions are removed

Note: All parameters should be measured at a 230Vac/50Hz input voltage, with a rated load and an ambient temperature of 25°C, unless otherwise specified.

Environmental

Categories	Parameter
Operating temperature Ta	-40℃ ~ +45℃@100-199Vac, -40℃ ~ +55℃@200-277Vac
Operating case temperature for Safety Tc_s	-40℃ ~ +90℃
Operating case temperature for Warranty Tc_w	-40℃ ~ +75℃, 10% ~ 95% RH
Storage temperature,humidity	-40℃ ~ +80℃, 10% ~ 95% RH
Resistant to vibration	10Hz ~ 500Hz, 5G 12 min/cycle, X, Y, Z axis 72 min each
MTBF	200,000 hours (MIL-HDBK-217F),Ta=25℃,230Vac, 80% load
Lifetime	50,000 hours @Tc≤75℃,230Vac, 100% Load

Safety

Safety Categories	Area	Standards	Approved
CCC	China	GB 19510.1, GB 19510.14	√
CE	Europe	EN 61347-1, EN 61347-2-13	√
ENEC		EN 62384	√
CB	CB member state	IEC 61347-1, IEC 61347-2-13	√
SAA	Australia	AS/NZS 61347.1, AS/NZS 61347.2.13	√
UL	USA	UL 8750	√
CUL	Canada	CSA C22.2 No.250.13	√
EAC	Russia	ГОСТ 61347-1-2019;-2-13-2013 ГОСТ IEC 61547-2013 ГОСТ 6800-3-2-2017 ГОСТ CISPR 15-2014 ГОСТ IEC 61000-3-3-2015	√
BIS	India	IS 15885(PART 2/SEC 13)	

EMC

EMI/EMS Categories	Area	Standards	Approved
CCC	China	GB/T 17743, GB 17625.1	√
CE	Europe	EN IEC 55015 EN 61547 EN IEC 61000-3-2;3-3;4-5	√
FCC	USA	FCC Part 15 Subpart B	√

RoHS

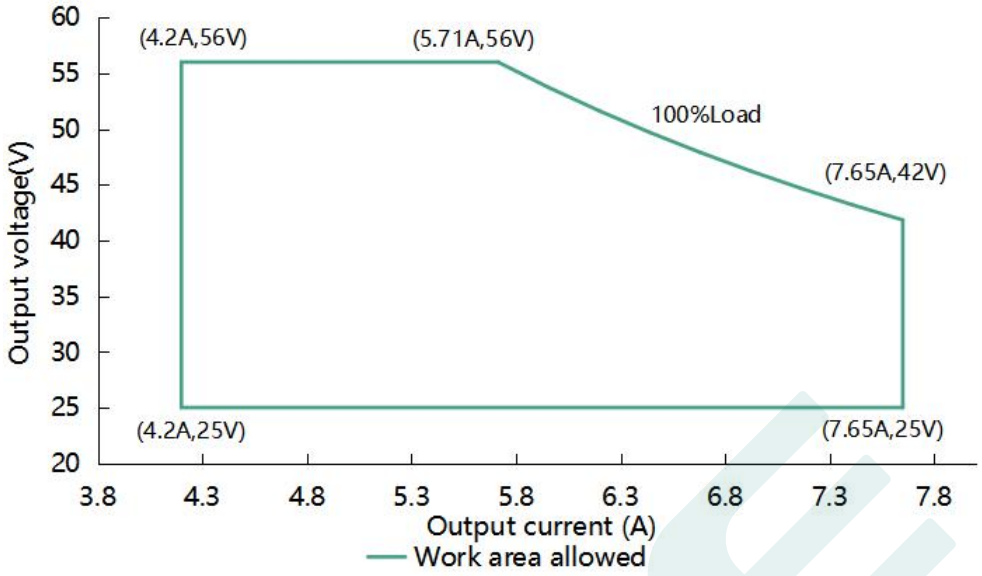
Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.

Safety Test Items:

Safety Test Item	UL	CE/CB/ENEC	CCC	Insulation Requirements
Input-output	1600Vac	3200Vac	3900Vac	Reinforced insulation, 1min< 5mA
Input-Case/Ground	1600Vac	1600Vac	1600Vac	Basic insulation, 1min< 5mA
Input-Dim	1600Vac	3200Vac	3200Vac	Reinforced insulation, 1min< 5mA
Output-Case/Ground	1120Vac	1120Vac	1120Vac	Basic insulation, 1min< 5mA
Output-Dim	1120Vac	1120Vac	1120Vac	Additional insulation, 1min< 5mA
Dim-Case	500Vac	500Vac	500Vac	
Insulation Resistance	≥10MΩ			Input-Dim,Test voltage:500Vdc
Ground Resistance	≤0.1Ω			25A/1min;Ta=25℃±10℃

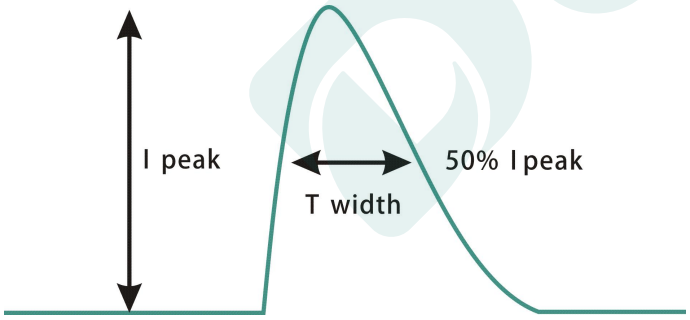
Note: The driver is considered as a component that will be operated in combination with the final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.

I-V Working area



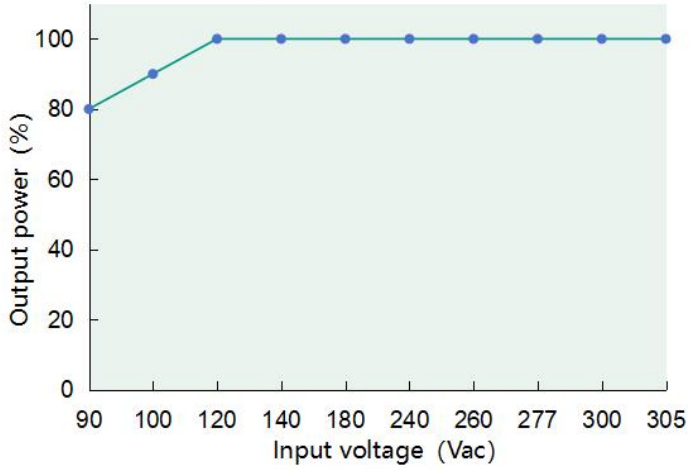
Load	Output parameter								
Output Voltage	25V	29V	33V	38V	42V	45V	48V	52V	56V
Output Current	7.65A	7.65A	7.65A	7.65A	7.65A	7.11A	6.66A	6.15A	5.71A
Output Power	191.2W	221.8W	252.5W	290.7W	320.0W	320.0W	320.0W	320.0W	320.0W

Inrush current

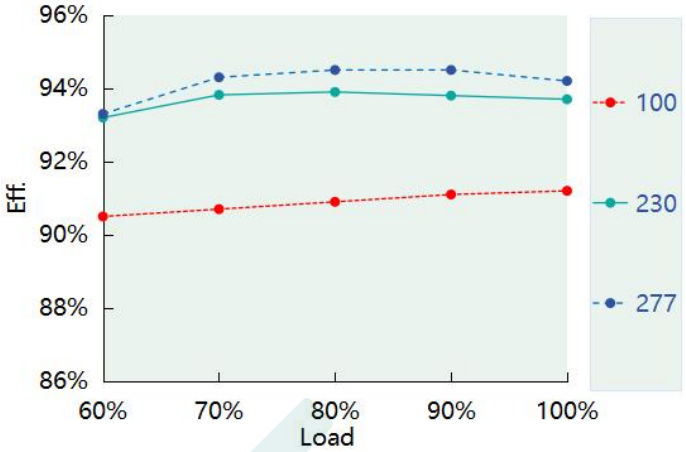


Input voltage	Peak current	T(@50% Peak current)
100Vac	80.0A	156us
230Vac	125.3A	170us
277Vac	140.0A	178us

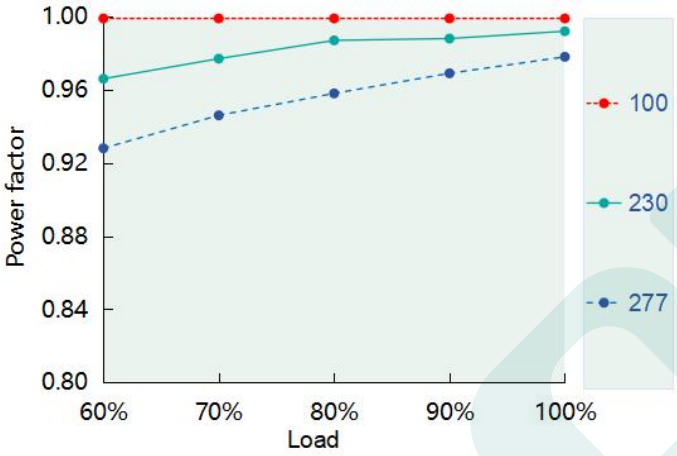
Output power vs. Input voltage



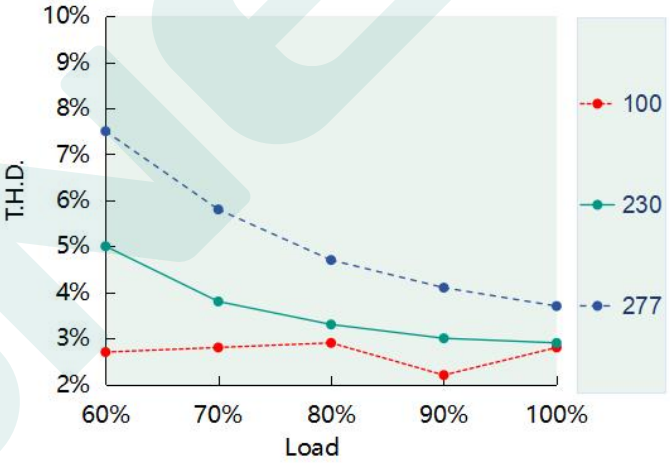
Eff. vs. Load



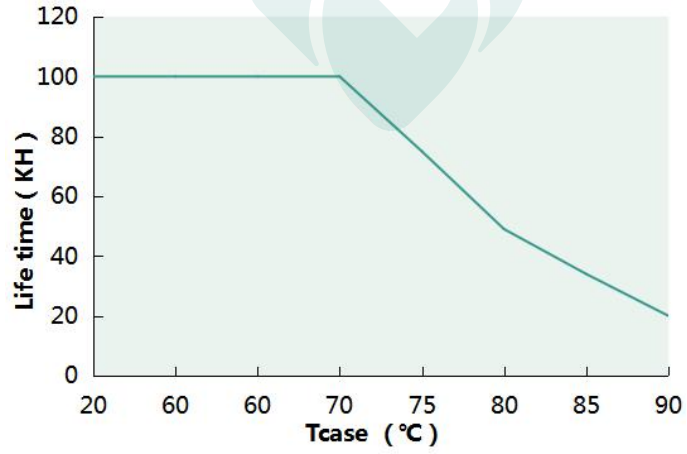
PF vs. Load



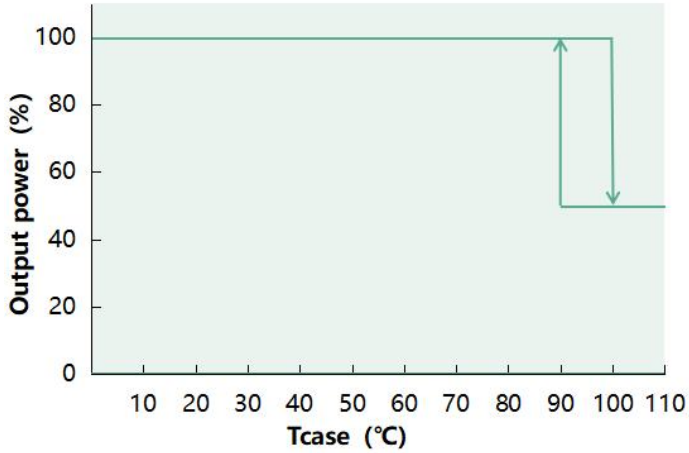
THD vs. Load



Tcase vs. Lifetime



Output power vs. Tcase

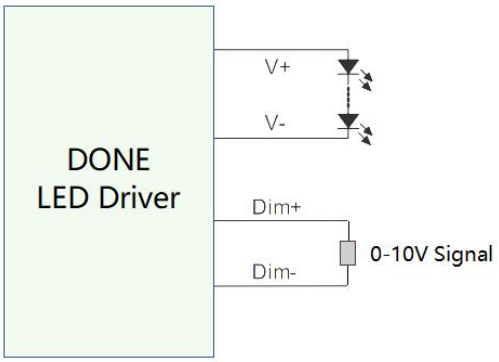


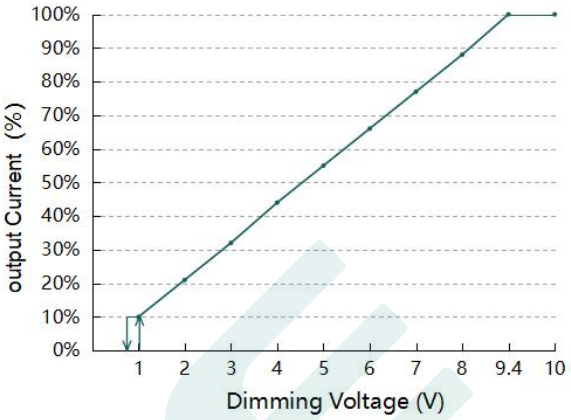
Dimming operation

3-in-1 dimming function (P version only)

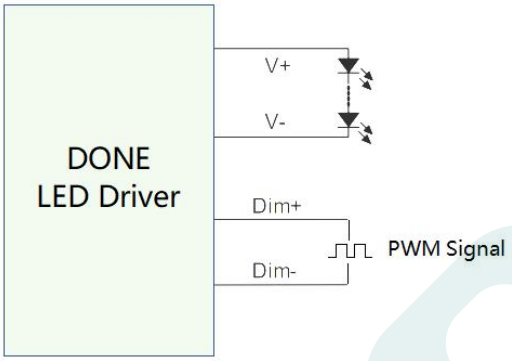
Connect a 0-10V Dimmer or 10V PWM signal or resistor between DIM+ and DIM-

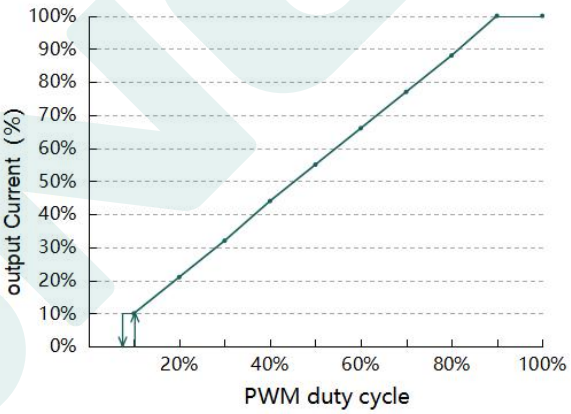
◎ **0-10V dimming:**



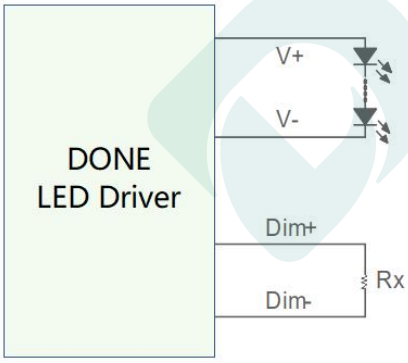


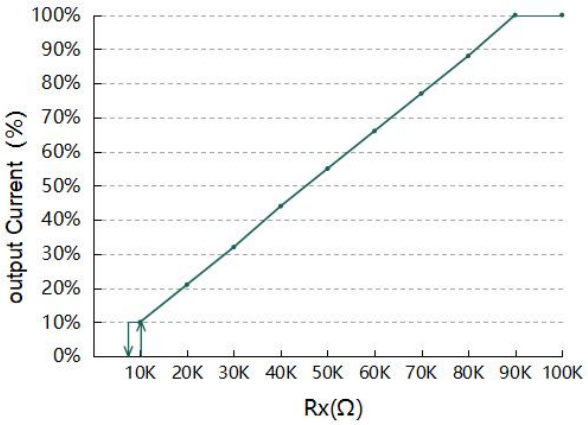
◎**PWM dimming:**





◎ **Resistor Dimming:**





Remark:

1. Positive and negative logic dimming can be programmed.
2. Dimming-off only applies to positive logic.

Programmable Connections

Suitable for MXG, MXL,MXC,MXS,MAS,PXS Series.

Mode 1

Visual Programming

1. Set the output parameters through the control signal line, set the output current and 0-5V/0-10V/3-in-1/PWM optional.
2. Timer dimming,Traditional/Self-adaptive midnight/Self-adaptive percentage optional, support up to 6 segments;
3. Set output output lumen compensation(OLC);
4. Set the lifetime warning
5. Set the OTP parameter
6. After setting is completed, then click the Save button, download it to the offline programmer and the driver setup is complete.

Mode 2

Off-line programmable :

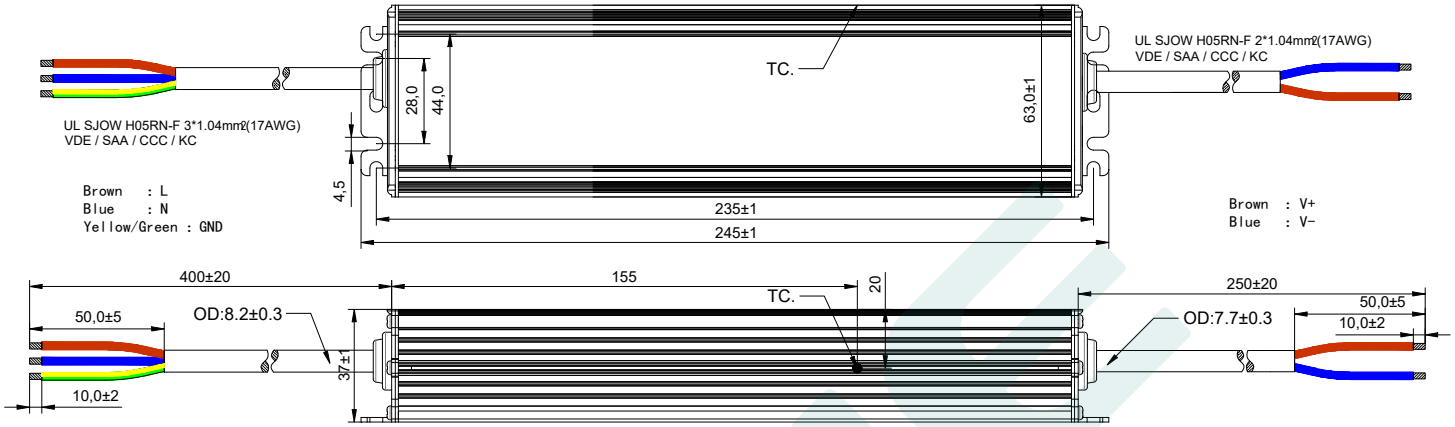
1. Download the program to the programmer;
2. Connect the dimming wire with the programmer, press the programmer button , the programmer will give you a Beep and indicator light turns green to tell you the installation completed.

For more details,Please see the "**DONE POWER OFFLINE PROGRAMMING TOOL V2.0 " file.**

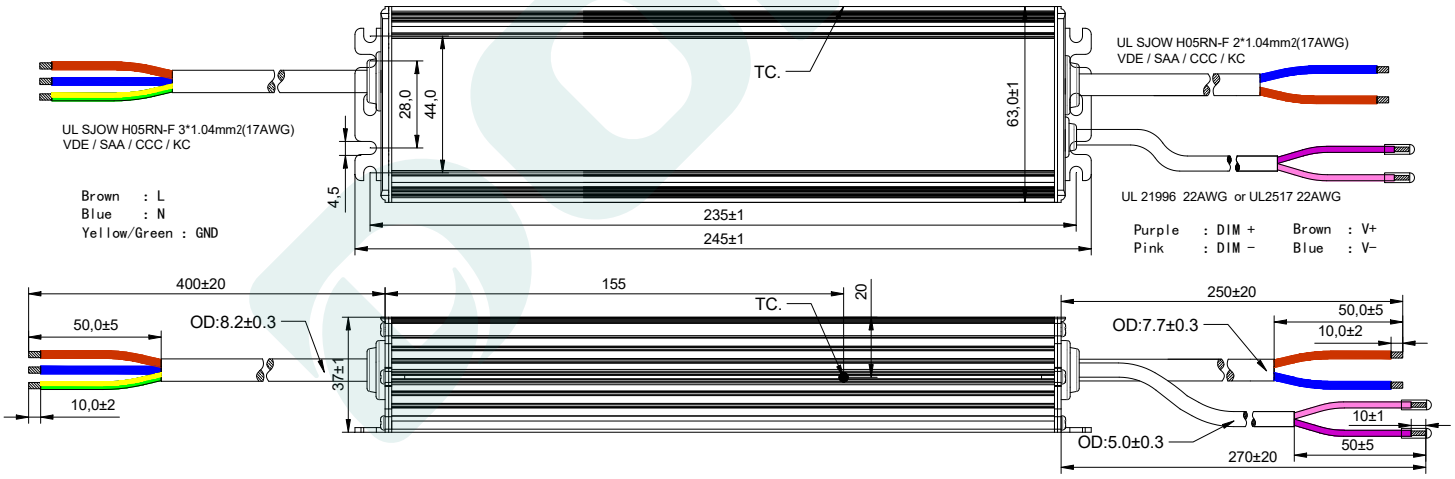
Mechanical specification

Size (mm)	L245*W63*H37

DL-320Z-56A-MXL



DL-320Z-56P-MXL

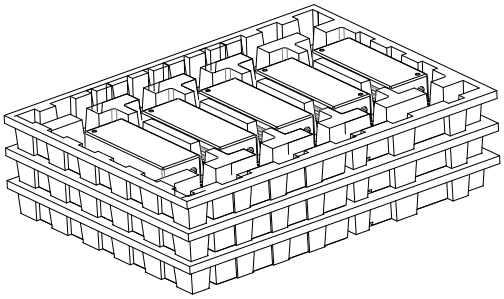


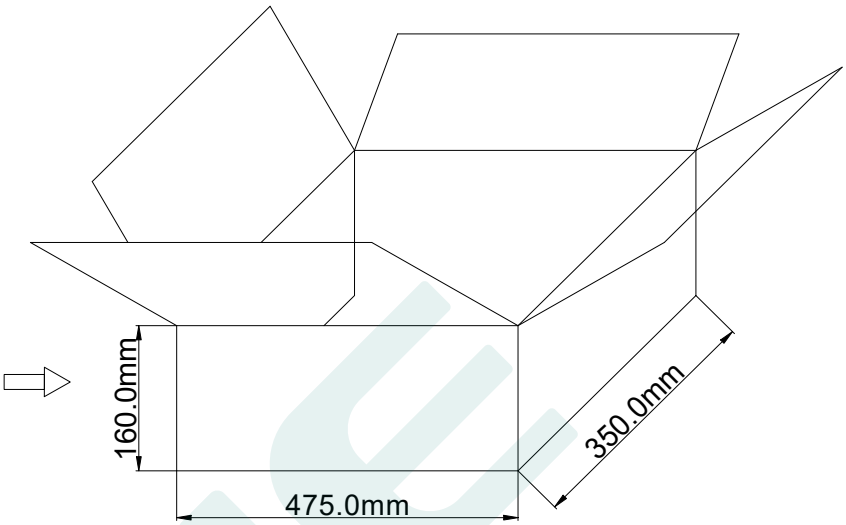
Weight

Weight	1050g

Packaging

Packaging (mm)	L475*W350*H160





Note: One Carton 3 layers and 5pcs each layer, total 15pcs/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
2025.4.23	Initial version.	V1.0	JH 2025.04.23 15:26:22 +08'00' DYX 2025.04.23 16:42:25 +08'00'

MANUFACTRUER		
EDIT	CHECK	APPROVE
ZMH 2025.04.23 10:20:45 +08'00' ZCY 2025.04.23 10:49:35 +08'00'	GZK 2025.04.23 13:43:25 +08'00'	数字签名者：张鸿生 DN：cn=张鸿生, o, ou, email=978425630@qq.com, c=<无 日期：2025.04.24 14:39:29 +08'00'