

MXS Series LED Drivers

DL-600H-X/J/JS-MXS SPEC E1.1



Features

- Isolated Class I driver
- Input voltage range: 180-305Vac ~ 50/60 Hz
- High efficiency up to 95.0%
- Constant power driver and constant current output
- Adjustable output current with programmer
- Isolated 3-in-1 dimming: 0-10V/PWM/Resistor; Timer dimming
- Dim-to-off, standby power<0.5W(optional)
- Auxiliary source: 12V/250mA
- Low Inrush Current
- Input surge protection: DM 6kV, CM 10kV
- IP67 design and Dry/Damp/Wet Location
- All-Around Protection: IUV, OVP, SCP, OTP
- Warranty: 5 years



Applications

Road lighting
 Industrial lighting
 Stadium lighting
 Horticulture lighting



Model list

Model NO.	Input voltage	Output power	Output voltage	Output current	Default current	Eff.	THD.	Power factor
DL-600H-56X-MXS DL-600H-56J-MXS DL-600H-56JS-MXS	200-277V 50/60Hz	600W	36-56Vdc	6.5-13.0A	10.8A	95%	10%	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 600W at an input voltage of 200-277Vac, please refer to the output power vs. input voltage curve
3. X Version: Programmable 0-10V/PWM/Resistor+Timer+12V Aux output
 J Version: Knob dimming+RJ12
 JS Version: Knob dimming+RJ12+Socket

Input characteristics

Parameter	Min	Typ.	Max	Remark
Rated input voltage	200Vac	230Vac	277Vac	
Input voltage range	180Vac	-	305Vac	
Rated frequency range	47Hz	50/60Hz	63Hz	
Leakage Current	-	-	0.70mA	IEC 60598-1; 415Vac/60Hz
Leakage Current	-	-	0.75MIU	UL 8750; 480Vac/60Hz
Power factor(PF)	0.92	0.97	-	At 200~240Vac and 70%~100% load
	0.90	0.92	-	At 277Vac and 70%~100% load
THD	-	5%	10%	At 200-277Vac and 70%~100% load
Standby consumption	-	-	0.5W	optional
Input current	-	-	3.2A	At 200Vac and full load conditions
Inrush current	-	-	50A	230Vac, cold start (25°C)

Output characteristics

Parameter	Min	Typ.	Max	remark
Efficiency@200Vac	93.0%	94.0%	-	At full load conditions, Io=10.8A
Efficiency@230Vac	94.0%	95.0%	-	At full load conditions, Io=10.8A
Efficiency@277Vac	94.5%	95.5%	-	At full load conditions, Io=10.8A
Output voltage range	36Vdc	-	56Vdc	Constant power range: 46-56Vdc
Open circuit voltage	-	-	60Vdc	
Output current range	6.5A	-	13.0A	Adj. Output current via programmer
Output Current Accuracy	-3%	-	-3%	At full load conditions
Output current ripple	-	5%	10%	At full load conditions , 20 MHz BW
Start-up Current Overshoot	-	-	10%	At full load conditions
Line regulation	-3%	-	+3%	Measured at full load, input voltage changes from 200Vac to 277Vac,.
Load regulation	-3%	-	+3%	At 220Vac input and load change from 70% to 100%
Starting time	-	-	1.0s	At 200~277Vac and full load
Auxiliary output voltage	10.8V	12V	13.5V	
Auxiliary output source current	0mA	-	250mA	The reference is "12-"

Note: The output current range is limited by the input and output voltages, see the I-V working area for details.

Dimming characteristics

Dimming function		Min	Typ.	Max	Instructions
0-10V Dimming (Optional)	Safe operation voltage range	0V	-	12V	Floating Voltage>15V, dim to off optional, set by programmer
	Dimming output range	10%	-	100%	Current Accuracy : $\pm 15\%$ @<30%
	Rated operation voltage	0V	-	10V	
	Turn-off voltage	0.7V	0.8V	0.9V	
	Turn-on voltage	0.9V	1.0V	1.2V	
PWM Dimming (Optional)	PWM high level	9.5V	-	10.5V	-
	PWM low level	0V	-	0.3V	-
	Rated dimming frequency	300Hz	-	3000Hz	-
	PWM duty cycle	10%	-	99%	Full power output at 99% duty cycle
Resistor Dimming (Optional)	Rated external resistance value	10K Ω	-	100K Ω	-
	Dimming output range	10%	-	100%	-

Note:

1. Dimming port output current: 120uA(typical value).
2. Dimming floating voltage greater than 15V shutdown function requires ambient temperature greater than -25°C.

Protection

Protection	description
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°C, 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

Environmental categories	Parameter
Operating temperature Ta	-40°C ~ +50°C@ 200-277Vac
Operating case temperature for Safety Tc_s	-40°C ~ +90°C
Operating case temperature and humidity for Warranty Tc_w	-40°C ~ +75°C, 10% ~ 95% RH
Storage temperature, humidity	-40°C ~ +80°C, 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°C,230Vac, 100% load
Lifetime	50,000 hours @Tc≤75°C,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 IEC 61347-1-2019 ГОСТ IEC 61347-2-13-2013	
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	√
EAC	Russia	ГОСТ IEC 61547-2013 ГОСТ CISPR 15-2014 ГОСТ IEC 6100-3-2-2017 ГОСТ IEC 6100-3-3-2015	
FCC	USA	FCC Part 15 Subpart B	√

RoHS

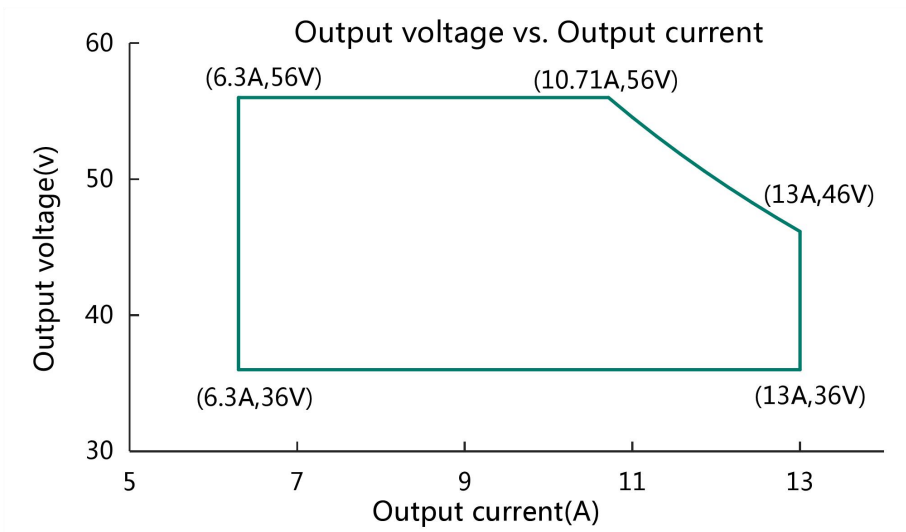
Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.

Safety Test Items:

Safety Test Item	UL	CE/CB/ENEC	CCC	Insulation Requirements
Input-output	1600Vac	3200Vac	3750Vac	Reinforced insulation, 1min< 5mA
Input-Case/Ground	1600Vac	1600Vac	1875Vac	Basic insulation, 1min< 5mA
Input-Dim	1600Vac	3200Vac	3750Vac	Reinforced insulation, 1min< 5mA
Output-Case/Ground	1120Vac	500Vac	1120Vac	Basic insulation, 1min< 5mA
Output-Dim	1120Vac	1120Vac	1870Vac	additional insulation, 1min< 5mA
Dim-Case	500Vac	500Vac	500Vac	
Insulation Resistance	$\geq 10M\Omega$			Input-Dim, Test voltage: 500Vdc
Ground Resistance	$\leq 0.1\Omega$			25A/1min; Ta=25°C±10°C

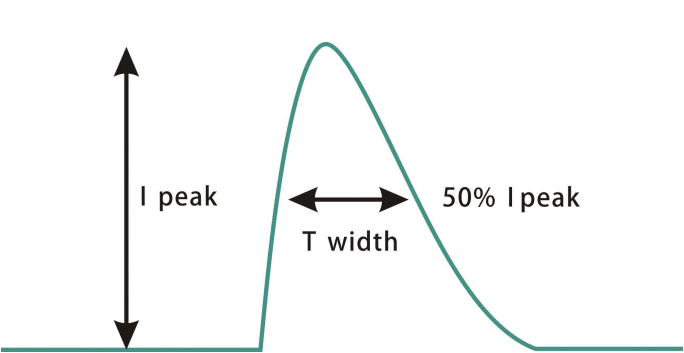
Note: The driver is considered as a component that will be operated in combination with the final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.

I-V Working area



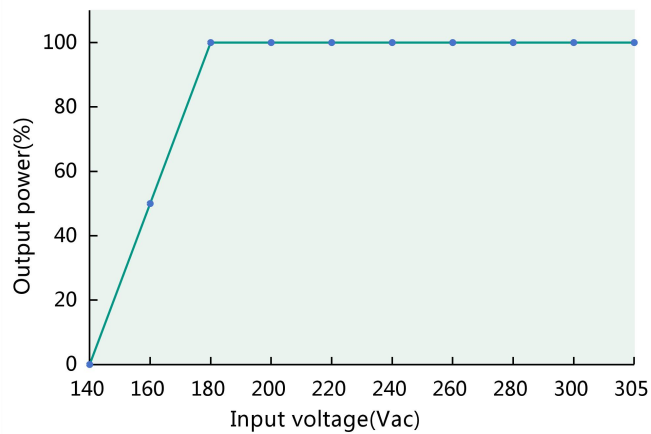
Load	Output parameter							
Output Voltage	36V	39V	42V	46V	48V	51V	53V	56V
Output Current	13A	13A	13A	13A	12.5A	11.76A	11.32A	10.71A
Output Power	468W	507W	546W	600W	600W	600W	600W	600W

Input surge current

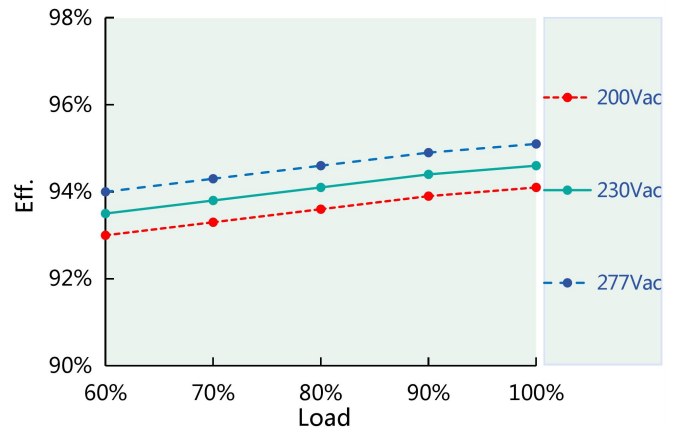


Input voltage	Peak current	T(@50% Peak current)
200Vac	45A	2000us
230Vac	60A	1600us
277Vac	75A	5000us

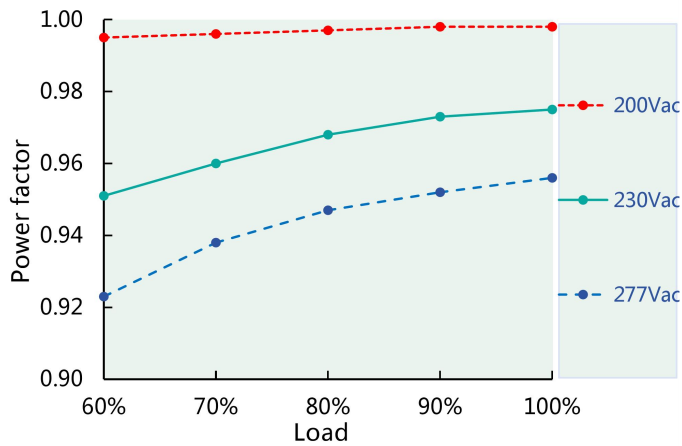
Output power vs. Input voltage



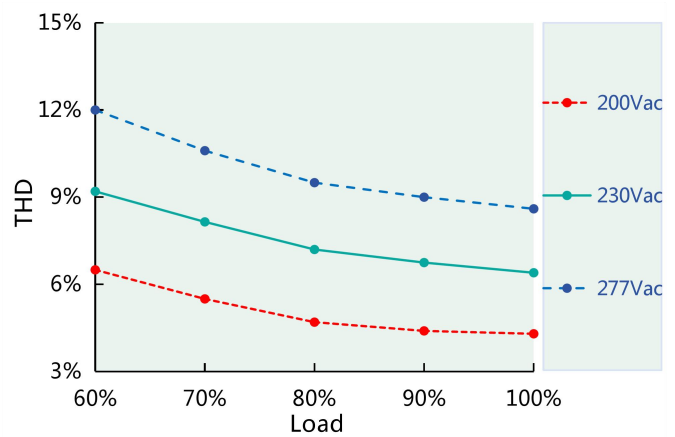
Eff. vs. Load



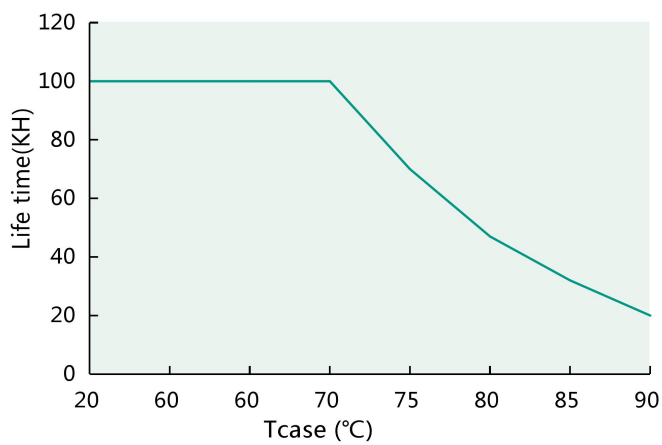
Power factor vs. load



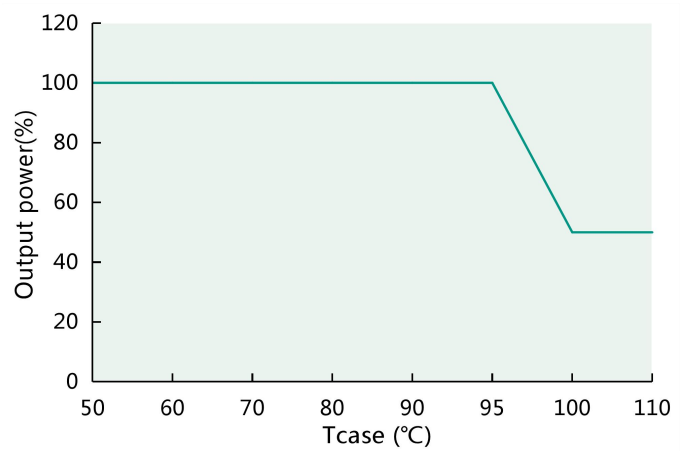
THD vs. Load



Tcase vs. Lifetime



Output power vs. Tcase

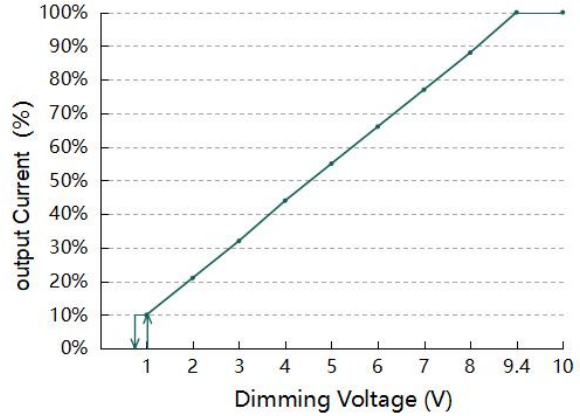
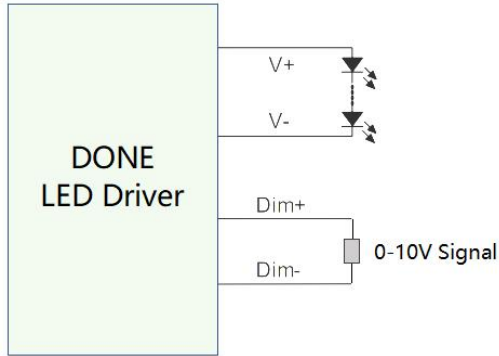


Dimming operation

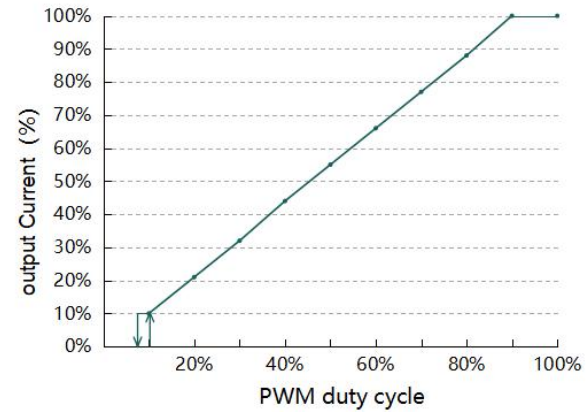
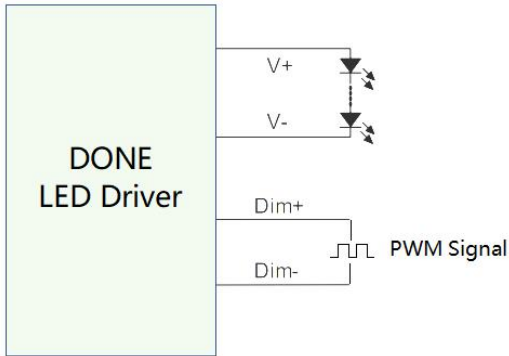
3-in-1 dimming function (X version only)

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

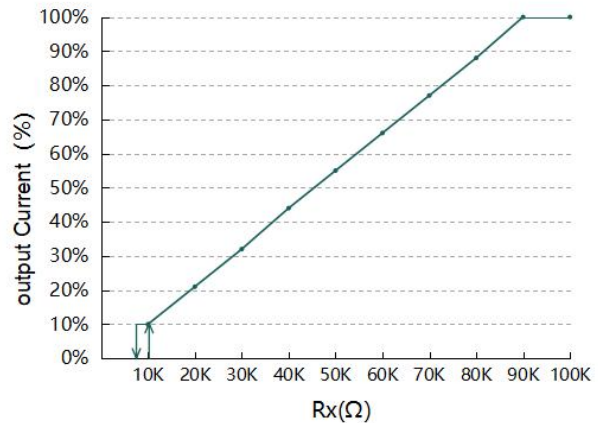
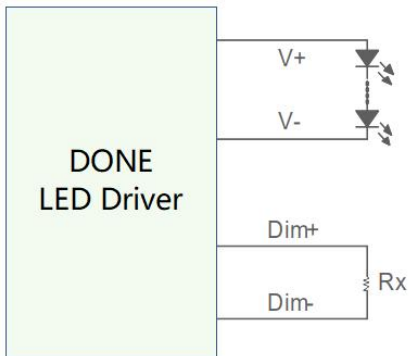
0-10V dimming:



PWM dimming :



Resistor Dimming:



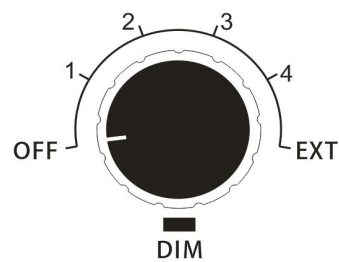
Remark:

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

Knob dimming+RJ12 (J version and JS version)

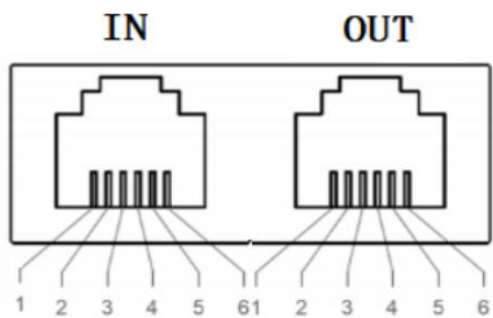
Knob dimming

The output current can be set to 0, 25%, 50%, 75%, 100% by knob switch.
When rotated to the EXT position, dimming can be performed through the RJ12 connector. default factory mode is in EXT



RJ12 connector

Function of each PIN pin

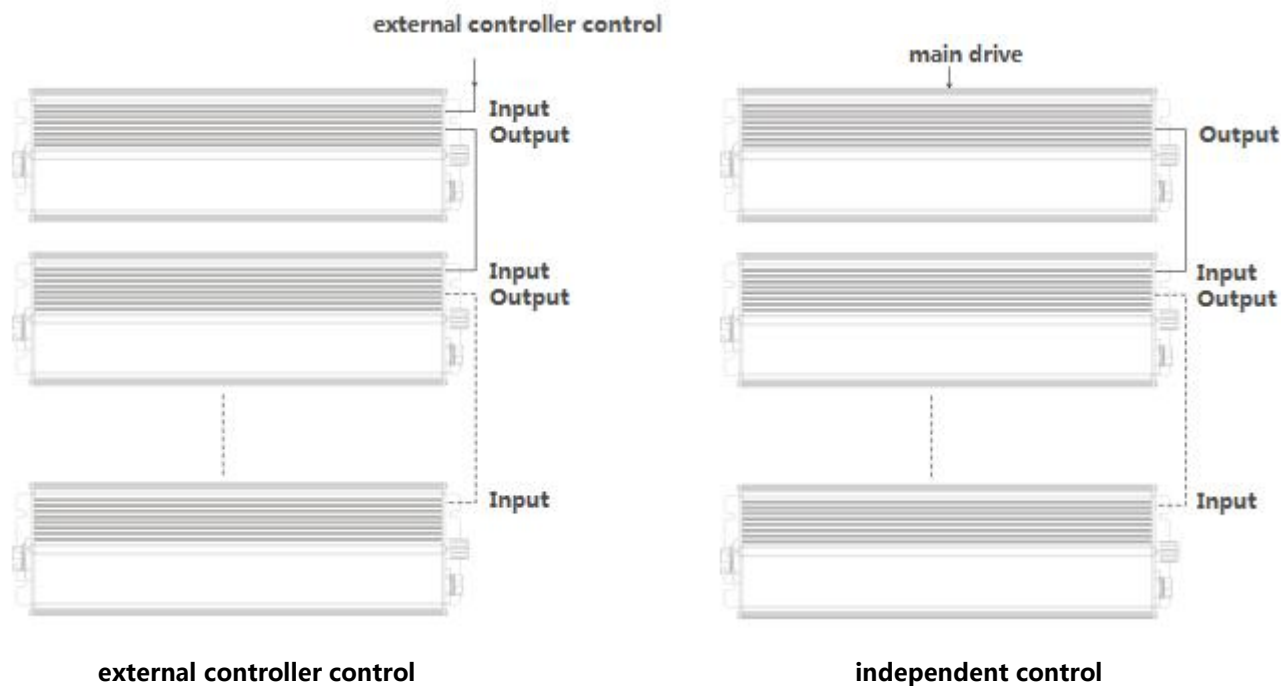


RJ12 Pin	function
1 , 6	Vaux+(12V,250mA)
2 , 5	DIM +
3 , 4	DIM -/Vaux-

RJ12/RJ25 Cascade

When rotated to the EXT position, dimming is performed by connecting 0-10V/PWM control signal through RJ12 connector. Master-slave cascade, support up to 100 units of driver dimming. And supports two kinds of cascade solutions, external controller control or independent control, the connection mode is as follows table.

Note: Ensure that IN and OUT are connected correctly to avoid incorrect connections that may cause the system to fail to work properly



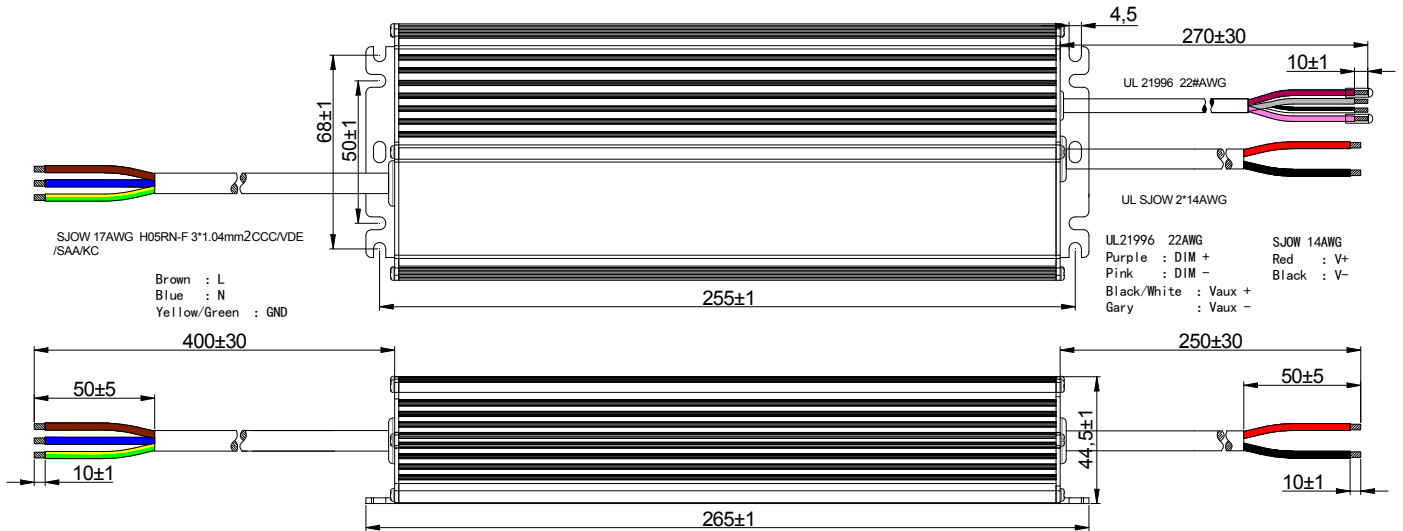
The output current is regulated by an external controller and all power supply knobs must be set to EXT

No external controller is required. Set the master power supply knob switch to the required current level and set the other slave power supplies to EXT

Mechanical specification

Size (mm) L265*W90*H44.5

DL-600H-56X-MXS

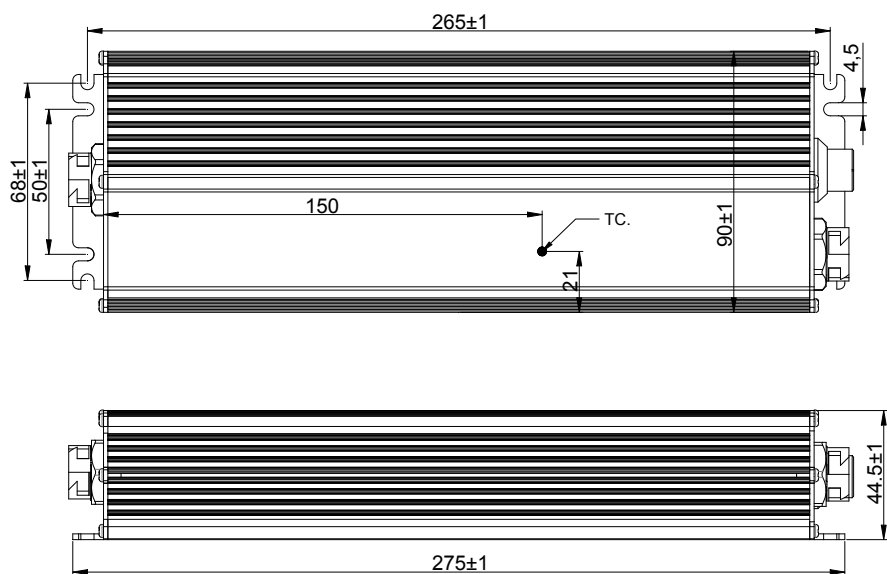


Size (mm) L275*W90*H44.5

DL-600H-56J-MXS



DL-600H-56JS-MXS

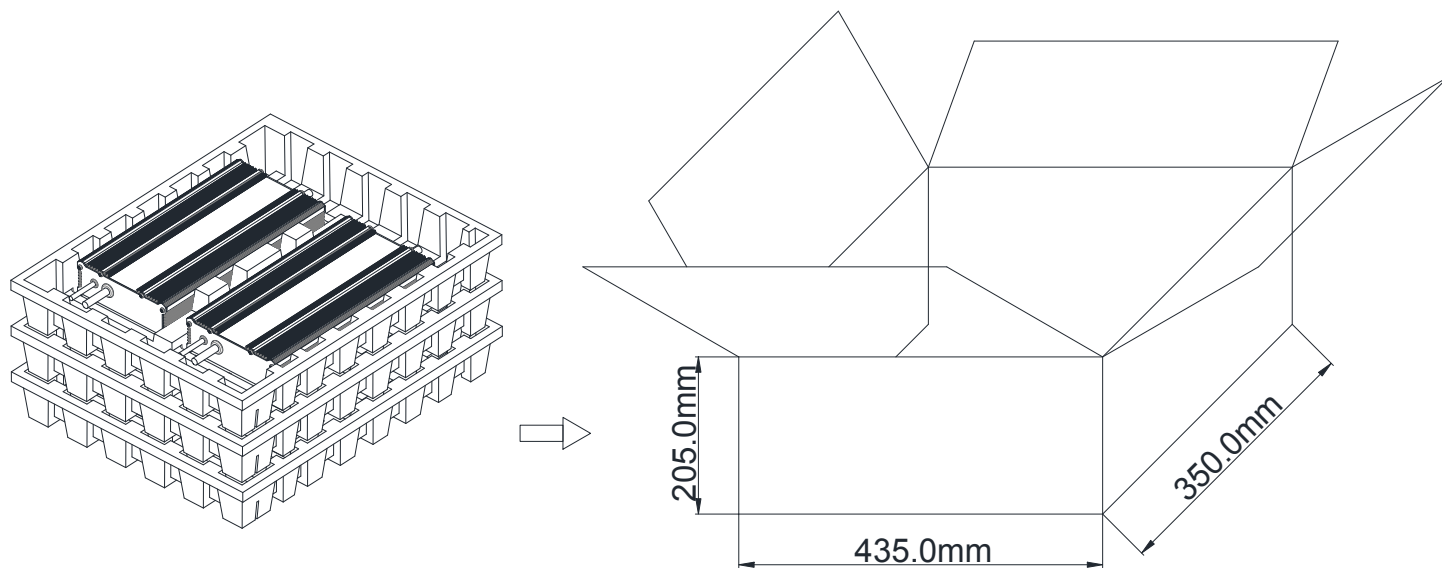


Weight

Weight 2580g

Packaging

Packaging (mm) 435*350*205



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

Note:

1. According to the qualified certificate of the LED DRIVER, that with English label is for sale in Europe, America and India.
2. That with Chinese label are used for Chinese market.

Version

DATE	DESCRIPTION	REV.	CHECK
2024.11.13	Initial version.	E1.0	
2025.4.21	Adjusting Specification Template, Revising J-Version Structure Diagram, and adding JS Version,	E1.1	

MANUFACTRUER			
EDIT	COUNTERSIGN	CHECK	APPROVE