



MAS SERIES LED DRIVER

DL-150I-MAS SPEC V1.1



Features

- Class I type for insulation
- Input voltage range: 200-277 V ~ 50/60 Hz
- Efficiency :91%(Typ.)
- Constant current output ,with power limitation for control mode
- Metal case, protection grade against water and dust: IP67
- Input Under-voltage and Input over-voltage protection
- Surge level:
 - differential mode :6kV,
 - common mode :15kV
- Available version :
 - A version: Output current is dimmed by external potentiometer
 - P version: Output current is dimmed by Isolated 3 in 1 dimmer
- Guaranteed Lifetime : 5 years



CB CE BIS

Applications

Street 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-150I-V38P-MAS DL-150I-V38A-MAS	200-277V 50/60Hz	150W	20-38Vdc	4.2A	≥91%	≤10%	≥0.95
DL-150I-V58P-MAS DL-150I-V58A-MAS	200-277V 50/60Hz	150W	32-58Vdc	3.3A	≥91%	≤10%	≥0.95
DL-150I-V214P-MAS DL-150I-V214A-MAS	200-277V 50/60Hz	150W	95-214Vdc	0.7A	≥91%	≤10%	≥0.95

Note :

1. Test conditions: Ta=25℃, under 230Vac input,after running for 30 minutes with full load .
2. When the input is less than 165+/-15Vac,the output power gradually decreases to a half.and it recovers full power of 150W when the input is above 180VAC again. Please refer to “THE OUTPUT POWER VS INPUT VOLTAGE” curve chart for details.
- 3.When the input is above 320+/-15VAC,the driver shut off immediately. It comes back to work when the input drops below 305VAC.
4. With the capability of withstanding 48 hours at least under 440VAC input.

Input characteristics

Parameter	Min	Typ.	Max	remark
Rated input voltage	200Vac	230Vac	277Vac	
Input voltage range	180Vac		305Vac	The driver shut off when the input is above 320±15VAC, and come back to work when it drops below 305VAC.
	-	-	440VAC	Withstanding 48 hours at least.
Rated frequency range	47Hz	50/60Hz	63Hz	
Power factor	-	0.95	-	@230Vac input ,with full load
Power factor	-	0.9	-	@200-277Vac input ,with 75%-100% load
T.H.D.	-	-	10%	@230Vac input ,with full load
T.H.D.	-	-	20%	@200-277Vac input ,with 75%-100% load
Input current	-	-	0.86A	@200Vac input ,with full load
Inrush current	-	-	120A	@230Vac, cold start (25℃)

Output characteristics

Parameter	Min	Typ.	Max	remark
Rated current				
DL-150I-V38P/A-MAS	-	3.95A	-	With loading 38VDC
DL-150I-V58P/A-MAS	-	2.59A	-	With loading 58VDC
DL-150I-V214P/A-MAS		0.7A		With loading 214VDC
Output current range				
DL-150I-V38P/A-MAS	2.8A	-	4.7A	
DL-150I-V58P/A-MAS	1.8A	-	3.6A	
DL-150I-V214P/A-MAS	0.5A		1.05A	
Output voltage range				
DL-150I-V38P/A-MAS	20V	-	38V	Constant power output range:32-38VDC
DL-150I-V58P/A-MAS	32V	-	58V	Constant power output range:42-58VDC
DL-150I-V214P/A-MAS	95V	-	214V	Constant power output range:143-214VDC
Available power(90-180Vac)	-	75W	150W	decrease to a half once input voltage being less than 165±15Vac
Rated power(200-277Vac)	-	150W	-	
No-load voltage				
DL-150I-V38P/A-MAS	-	-	55V	
DL-150I-V58P/A-MAS	-	-	75V	
DL-150I-V214P/A-MAS	-	-	260V	
Efficiency@200Vac				
DL-150I-V38P/A-MAS	89%	90%	-	full load@200Vac
DL-150I-V58P/A-MAS	89%	90%	-	
DL-150I-V214P/A-MAS	89%	90%	-	

Output characteristics

Parameter	Min	Typ.	Max	Note
Efficiency@230Vac				
DL-150I-V38P/A-MAS	90%	91%	-	@230Vac input ,with full load
DL-150I-V58P/A-MAS	90%	91%		
DL-150H-V214P/A-MAS	90%	91%		
Accuracy of output current	-5%	-	+5%	For constant-power range , with full load
Line regulation	-5%	-	+5%	full load
Load regulation	-5%	-	+5%	full load
Starting time	-	-	1000ms	Full load@230Vac

Note: 1.The output current is limited by the input and output voltage, please refer to "I-V WORKING AREA" for details;

Dimming characteristics

Dimming function		Min	Typ.	Max	Instructions
1-10V Dimming (Optional)	Safe operation voltage range	0V	-	12V	Beyond the range maybe lead to a failure of the driver.
	Rated operation voltage range	1V	-	10V	-
	Dimming output range	10%	-	100%	Negative logic dimming mode is also available by program
PWM Dimming (Optional)	PWM high level	9.5V	-	10.5V	-
	PWM low level	0V	-	0.5V	-
	Rated dimming frequency	300Hz	-	2000Hz	-
	PWM duty cycle	10%	-	99%	Negative logic dimming mode is also available by program
Resistor Dimming (Optional)	Rated external resistance value	10KΩ	-	100KΩ	Bigger resistor won't increase the output.
	Dimming output range	10%	-	100%	Negative logic dimming mode is also available by program
Multiple time-controlled dimming (Optional)	MCU control	set dimming function Segment by segment through program			three operation modes for selection.
	Timer control	The default is six segments, Can be customized. 24H a cycle.			With extra timer controller outside.

Note:

1. Output current of dimming port: 100uA (typical value)
2. The maximum voltage applied to the dimming port is suggested below 12V, but it also is protected against wrong voltage up to 230VAC or 300VDC. Please don't keep the wrong voltage apply to the port for a long time. Otherwise, it is possible to be damaged.
3. When over-temperature protection happens, the threshold of output power (or output current) for dim-off and turn-on will keep the same as that in normal condition. Since the output power has been decreased to a half of normal condition, the dimming signal from the port need to be doubled to meet the same threshold as a result. Only for P version.
4. User is suggested to use 1-10V for dimming. However, dim-off function is also available through the software or program if necessary, for some application that don't care the stand-by power. Please consult the technician for details if you have other requirements.
5. All these drivers will not work in the no-load mode.

Protection

Protection	description
Input under-voltage protection	When the input voltage is less than $165 \pm 15\text{Vac}$, the output power decreases to a half.
Input over-voltage protection	When the input voltage is above $320 \pm 15\text{Vac}$, the driver shut off.
Output over-voltage protection	hiccup mode, and recovers automatically when the fault condition is removed.
Output short circuit protection	Hiccup mode, and recovery automatically when the fault condition is removed.
Over temperature protection	when the temperature of the case is greater than $95 \pm 5^\circ\text{C}$, the output power decreases to a half.
Output over-power protection	The maximum output power is limited to about 1.1 time of the rating automatically. Only for P version

Note:

1. Unless otherwise specified, all parameters should be measured at the condition of 230Vac (50Hz) input, with rated load, and ambient temperature of 25°C ;

Environmental characteristics

Environmental categories	Parameter
Working temperature	$-40 \sim +55^\circ\text{C}$
Working humidity	20 ~ 95% RH
Tcase	$-40 \sim +90^\circ\text{C}$
Storage temperature, humidity	$-40 \sim +80^\circ\text{C}$, 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 ($T_a=25^\circ\text{C}$)
Lifetime	50000 hours @ $T_{\text{case}}=75^\circ\text{C}$, refer to "Tcase VS Lifetime" curve

Safety and EMC

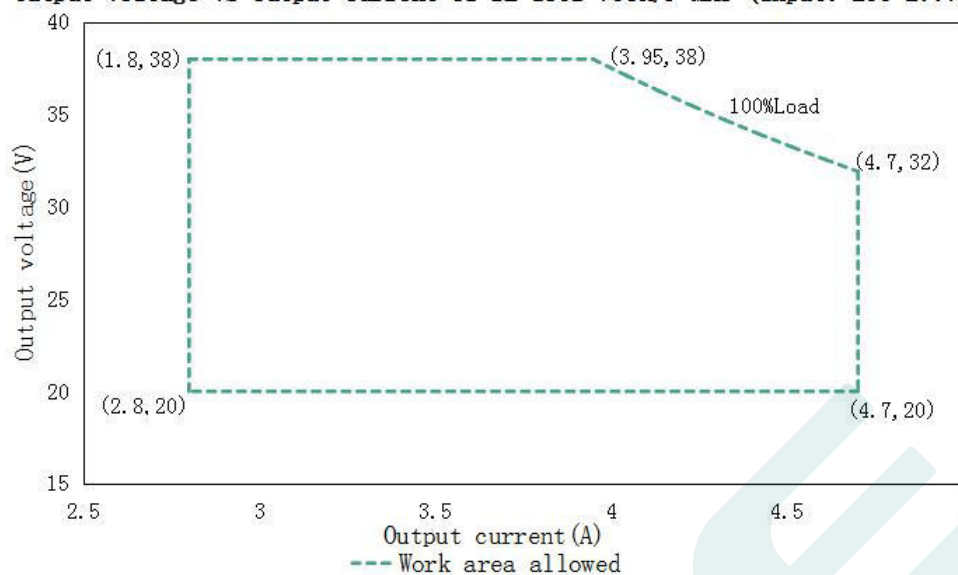
Safety categories	Standard
Safety	EN61347-1、EN61347-2-13、IEC61347-1、IEC61347-2-13、IS 15885 (Part 2/Sec 13)
EMC	EN 55015、EN 61547、EN 61000-3-2、EN 61000-3-3
Surge level	Differential mode L-N $\pm 6\text{KV}$ (2 ohm) ,common mode L, N-PE $\pm 15\text{KV}$ (12 ohm); Refer to IEC61000-4-5 2014 Criterion B
High-pot test	I/P-O/P:3.75KVac I/P-PE :1.5KVac O/P-PE : 0.5KVac I/P-DIM:3.75KVac O/P-DIM:1.5KVac
Insulation impedance	I/P-PE:100M Ω / 500VDC; I/P-O/P:100M Ω / 500VDC / 25 $^{\circ}\text{C}$ / 70% RH
Leakage current	<0.7mA@277Vac

Note:

- 1.Attention! As a component of the whole, the EMC performance of the final product is not only decided by the driver, even if the driver is well-designed and fulfil all the required compliance. The final equipment manufacturers must re-qualify EMC Directive on the complete product.

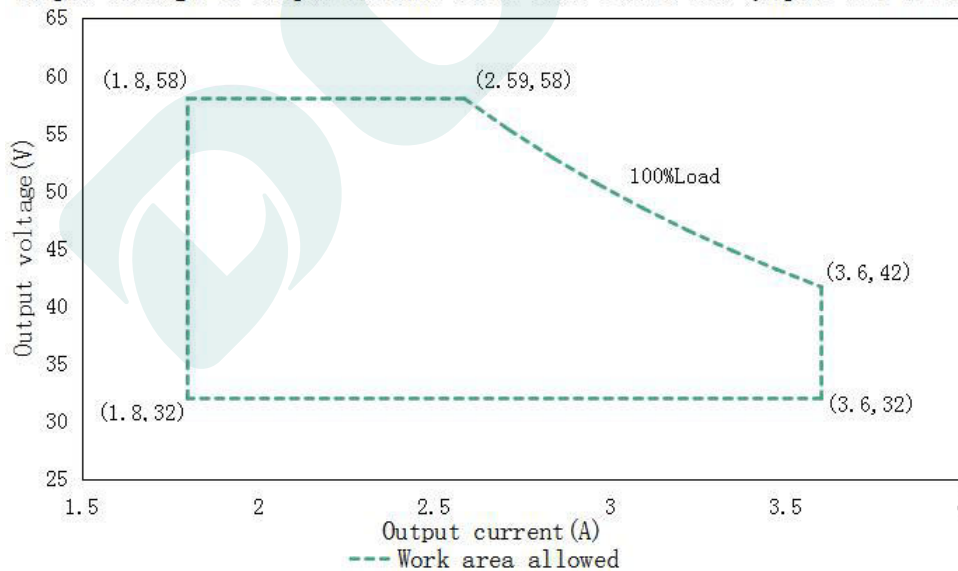
I-V Working area

Output voltage VS output current of DL-150I-V38A/P-MAS (input: 200-277Vac)



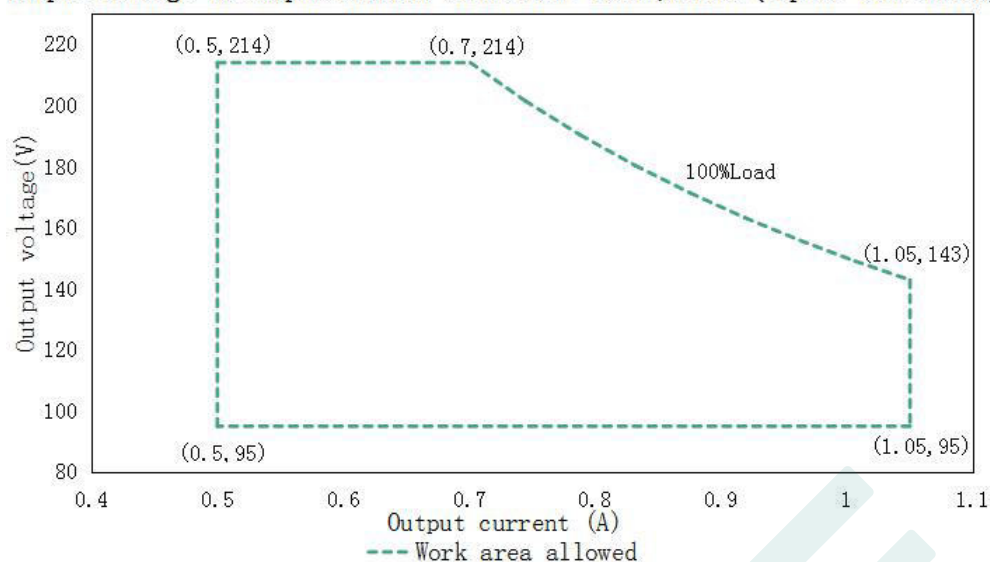
Load	Output								
Load working Voltage	20V	22V	24V	26V	29V	32V	34V	36V	38V
Io_MAX	4.7A	4.7A	4.7A	4.7A	4.7A	4.69A	4.41A	4.17A	3.95A
Po_MAX	94W	103W	113W	122W	136W	150W	150W	150W	150W

Output voltage VS output current of DL-150I-V58A/P-MAS (input: 200-277Vac)



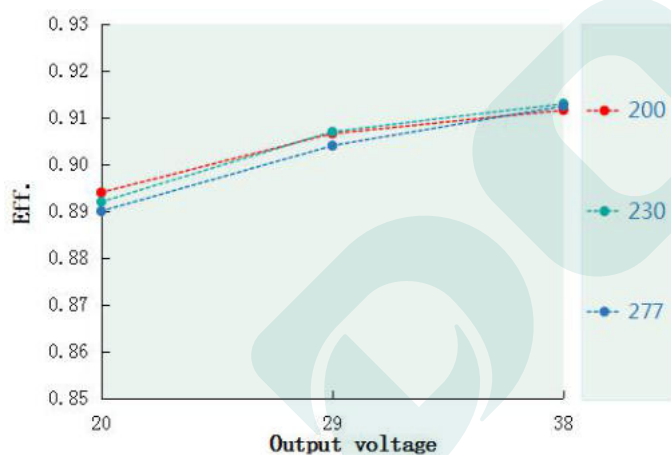
Load	Output								
Load working Voltage	32V	36V	39V	42V	46V	49V	52V	55V	58V
Io_MAX	3.6A	3.6A	3.6A	3.6A	3.26A	3.06A	2.88A	2.72A	2.59A
Po_MAX	115W	129W	140W	150W	150W	150W	150W	150W	150W

Output voltage VS output current of DL-150I-V214P/A-MAS (input: 200-277Vac)

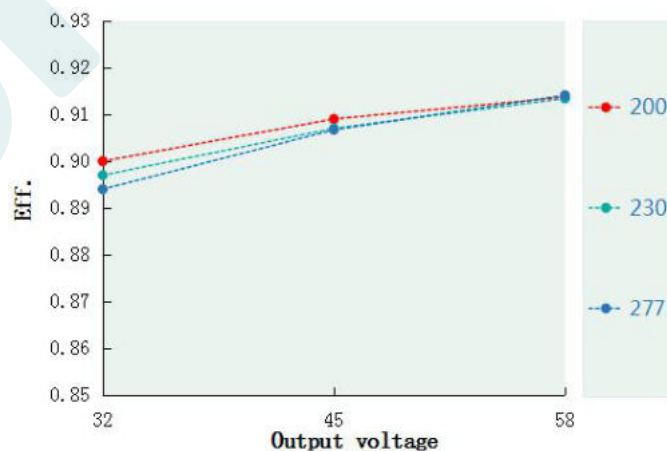


Load	Output								
Load working Voltage	95V	120V	135V	143V	165V	180V	190V	200V	214V
Io_MAX	1.05A	1.05A	1.05A	1.05A	1.03A	0.83A	0.79A	0.75A	0.7A
Po_MAX	99.75W	126W	141.75W	150.15W	150W	150W	150W	150W	150W

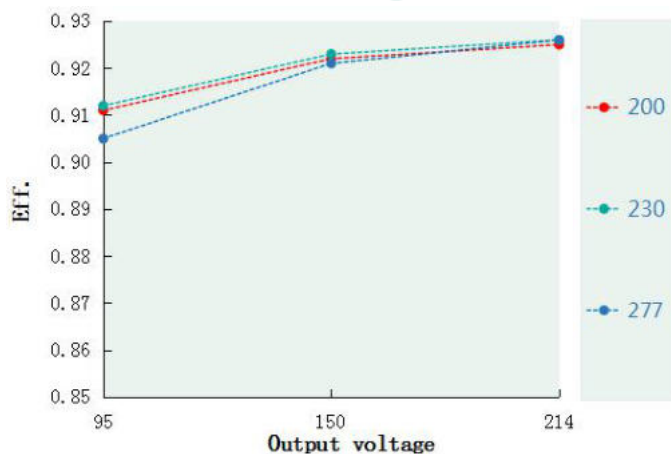
Eff. VS Output voltage(DL-150I-V38P/A-MAS)



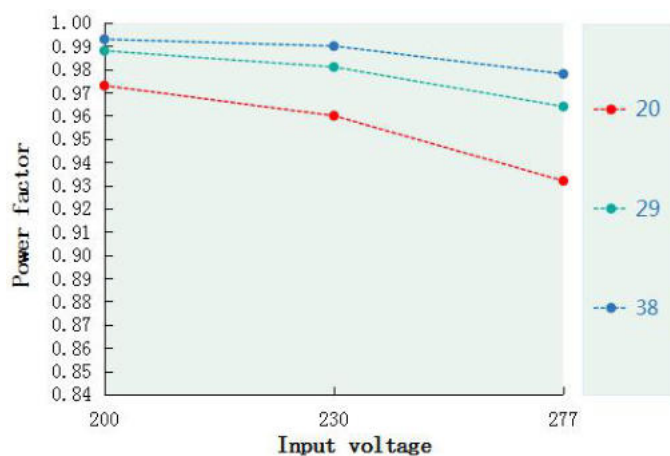
Eff. VS Output voltage(DL-150I-V58P/A-MAS)



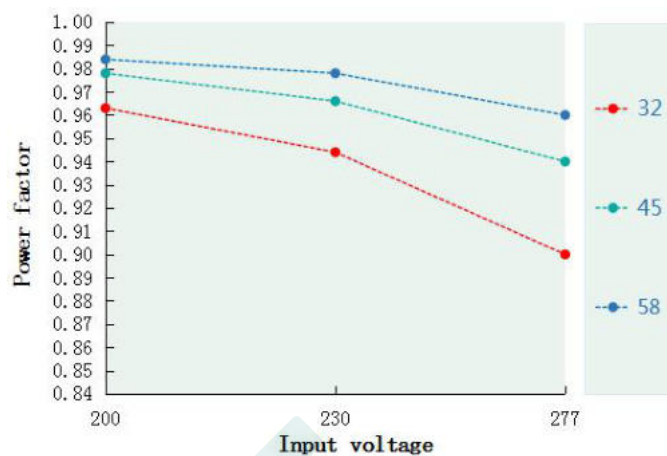
Eff. VS Output voltage(DL-150I-V214P/A-MAS)



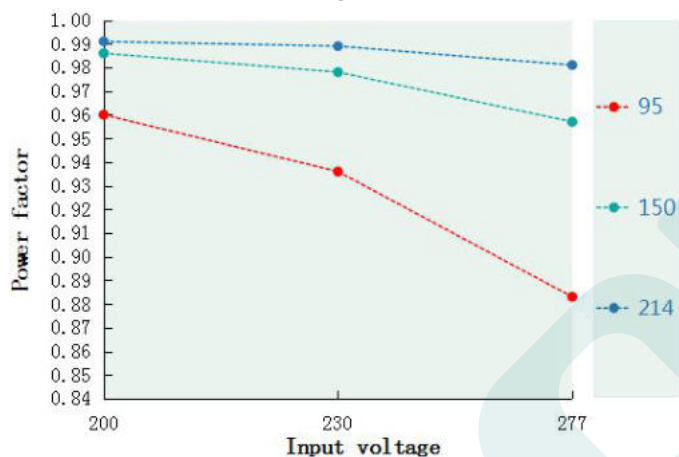
Power factor VS Input voltage(DL-150I-V38P/A-MAS)



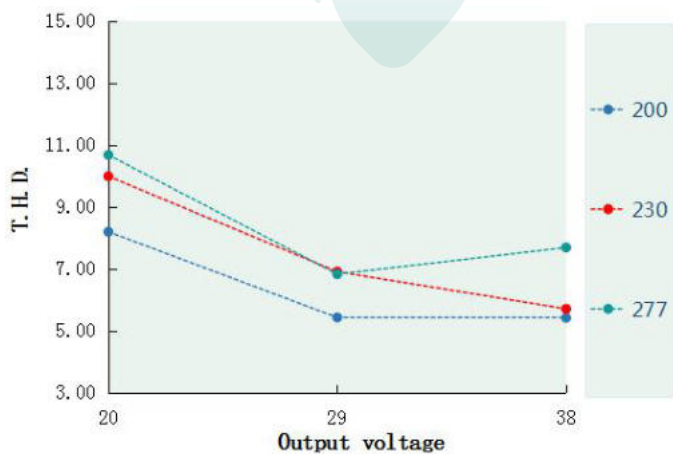
Power factor VS Input voltage(DL-150I-V58P/A-MAS)



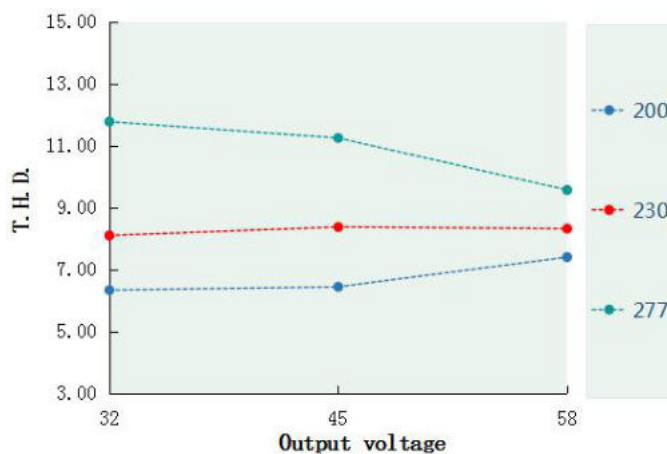
Power factor VS Input voltage(DL-150I-V214P/A-MAS)



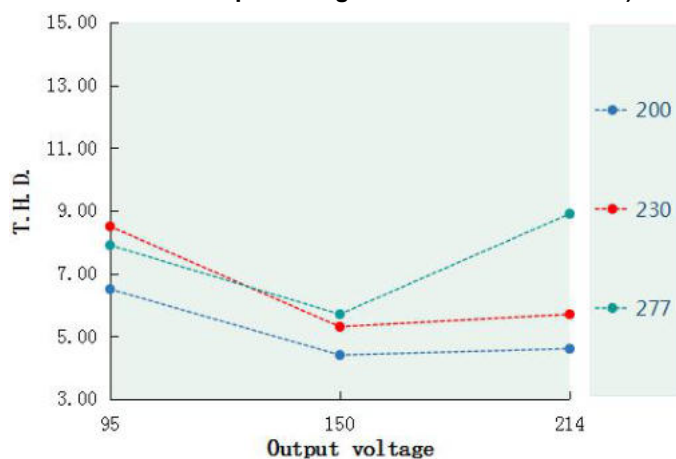
T.H.D. VS Output voltageDL-150I-V38P/A-MAS)



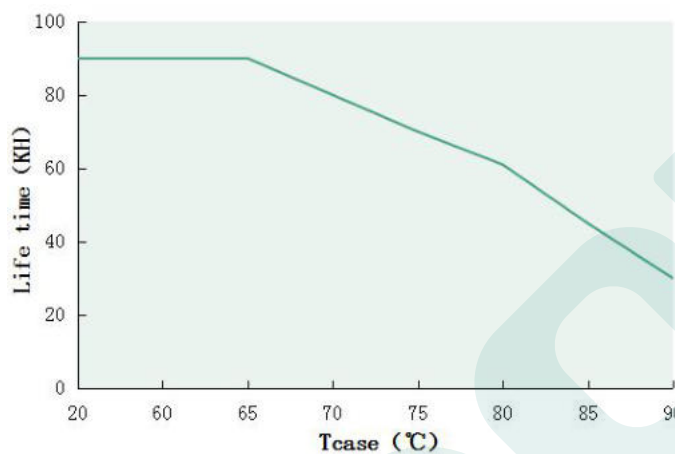
T.H.D. VS Output voltage(DL-150I-V58P/A-MAS)



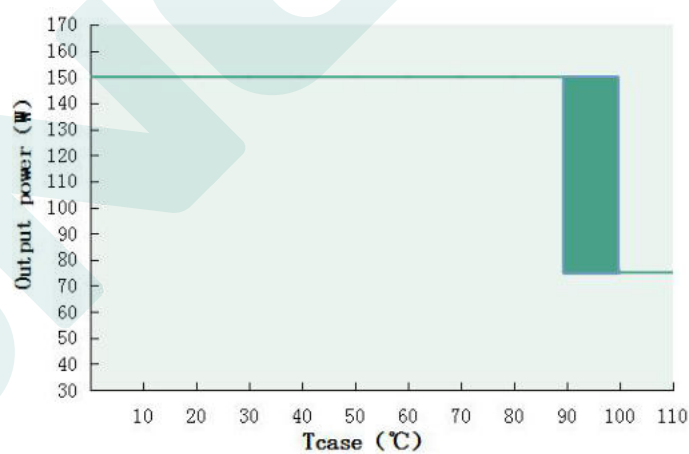
T.H.D. VS Output voltage(DL-150H-V214P/A-MAS)



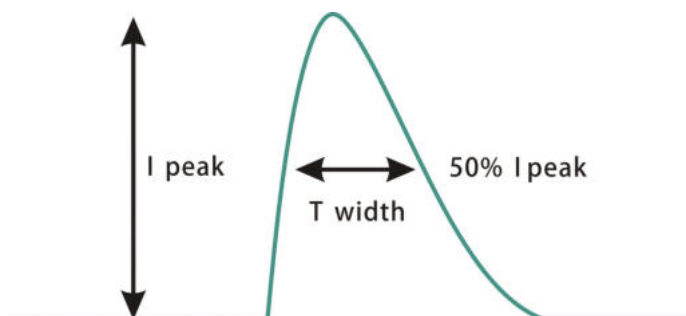
Tcase VS Lifetime(DL-150I-A/P-MAS)



Output power VS Tcase (DL-150I-A/P-MAS)

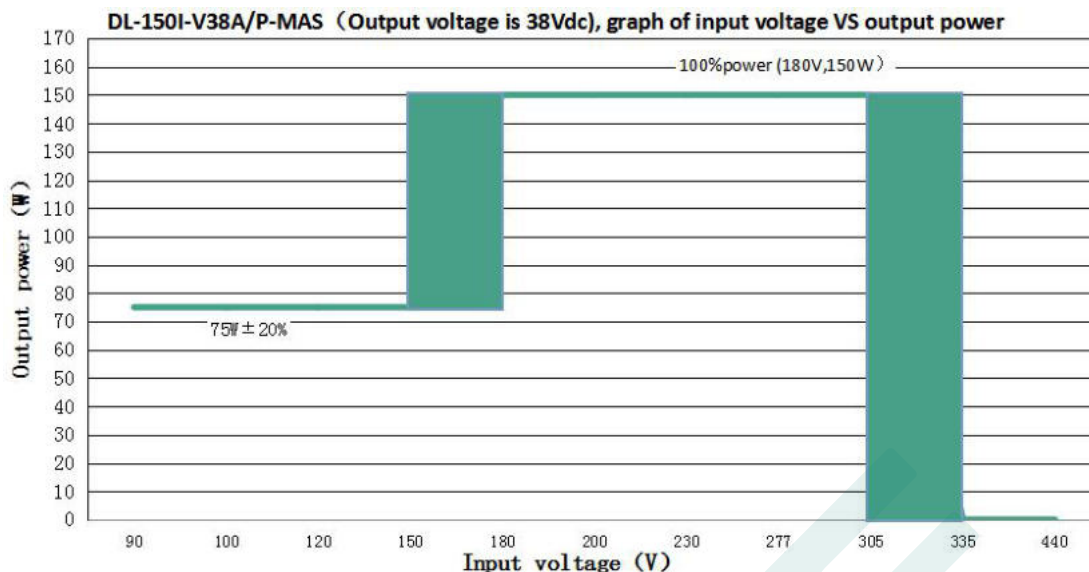


Inrush Current(DL-150I-A/P-MAS)



Input voltage	Peak current	T(@50% Peak current)
200Vac	92.7A	1.185us
230Vac	94A	1.170us
277Vac	98.3A	1.200us

Output power VS Input voltage

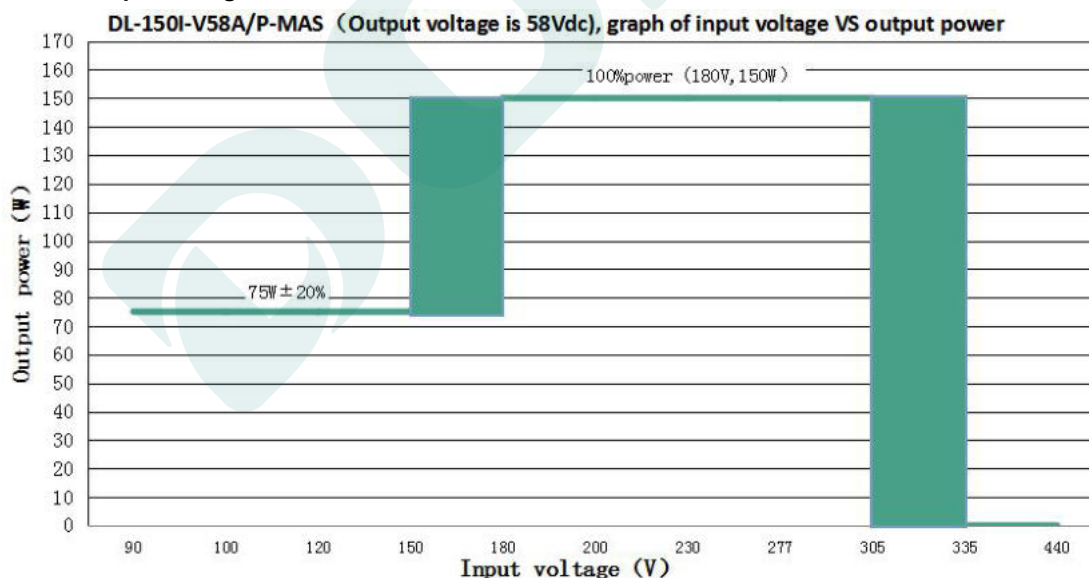


DL-150I-V38P/A-MAS (For output 38Vdc, the rated output current & power under different input voltage)

Input Voltage	100Vac	120Vac	150Vac	180Vac	200Vac	230Vac	277Vac	305Vac
Iout	1.97A	1.97A	1.97A	3.95A	3.95A	3.95A	3.95A	3.95A
Pout	75W	75W	75W	150W	150W	150W	150W	150W

Note: 1. When the input voltage is below 165±15Vac, the output power decreases to 75W±20%.

Output power versus Input voltage

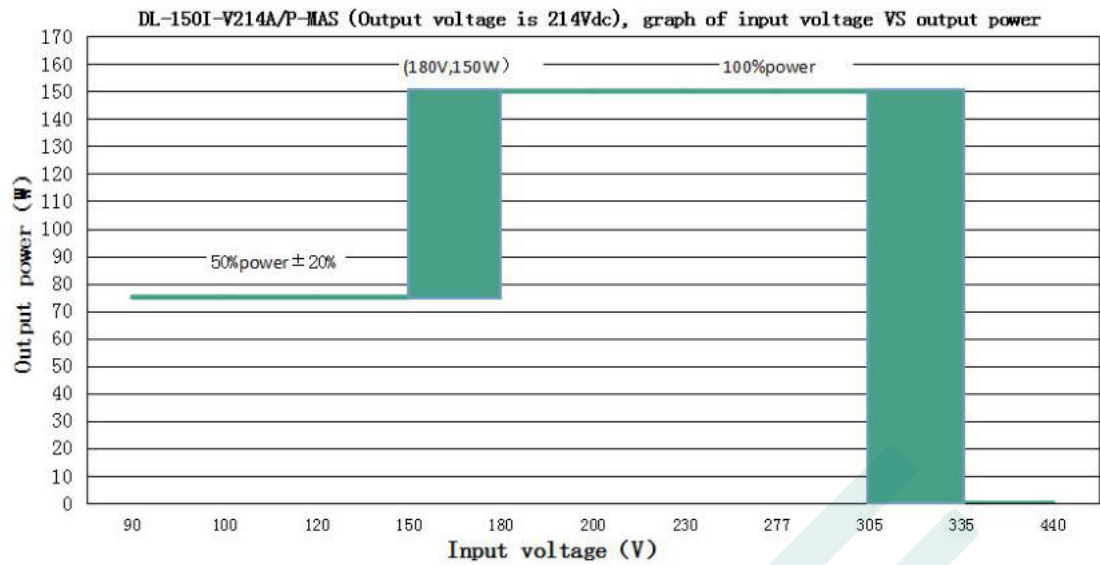


DL-150I-V58P/A-MAS (For output 58Vdc, the rated output current & power under different input voltage)

Input Voltage	100Vac	120Vac	150Vac	180Vac	200Vac	230Vac	277Vac	305Vac
Iout	1.30A	1.30A	1.30A	2.59A	2.59A	2.59A	2.59A	2.59A
Pout	75W	75W	75W	150W	150W	150W	150W	150W

Note: 1. When the input voltage is below 165±15Vac, the output power decreases to 75W±20%.

Output power versus Input voltage



DL-150I-V214A/P-MAS (For output 214Vdc, the rated output current & power under different input voltage)

Input Voltage	100Vac	120Vac	150Vac	180Vac	200Vac	230Vac	277Vac	305Vac
Iout	0.35A	0.35A	0.35A	0.7A	0.7A	0.7A	0.7A	0.7A
Pout	75W	75W	75W	150W	150W	150W	150W	150W

Note: 1.When the input voltage is below 165±15Vac,the output power decreases to 75W±20%.

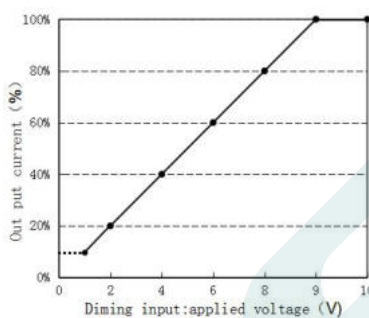
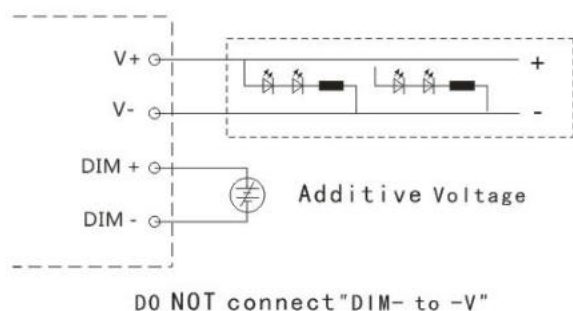
Dimming function

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

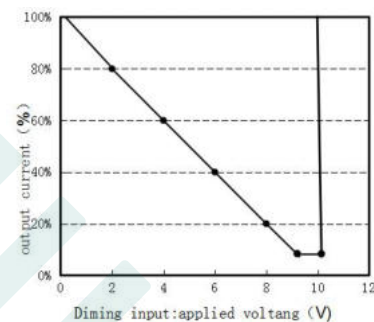
A. To adjust the output current, applying one of the three methods between DIM+ and DIM- : a resistor of 0-100K, or any voltage of 0-10V , or a PWM signal with amplitude of 10V. .

B. output current of dimming port: 100uA (typical value).

◎ With 1-10V dimming voltage(for both logic,negative and positive):

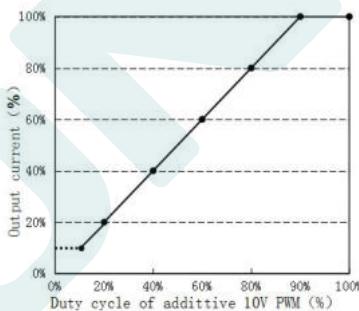
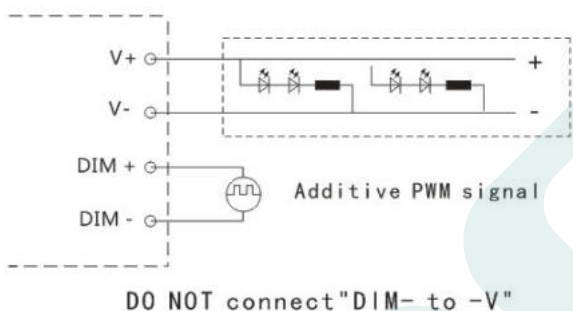


Positive logic dimming curve

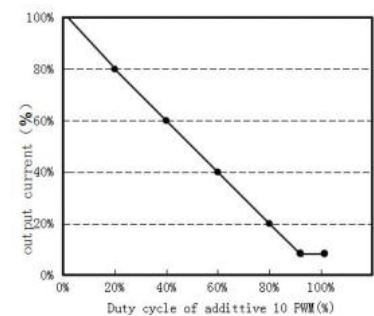


Negative logic dimming curve

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

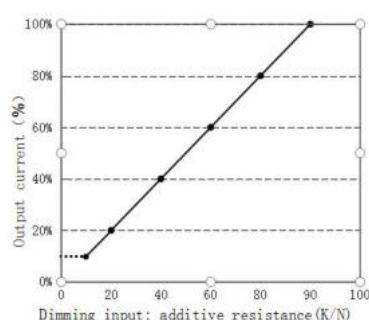
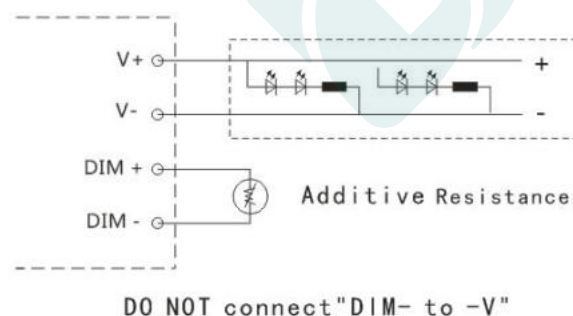


Positive logic dimming curve

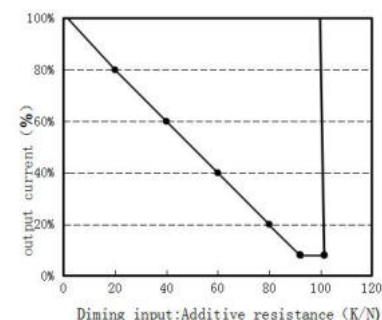


Negative logic dimming curve

◎ With an additional 0-100K resistor:



Positive logic dimming curve



Negative logic dimming curve

Remark:

1. Both operation way, of positive logic or negative logic, can be selected by program.
2. Dim -off is only available for positive logic dimming .Other requirements need to contact with the technician for help.

Mechanical specification

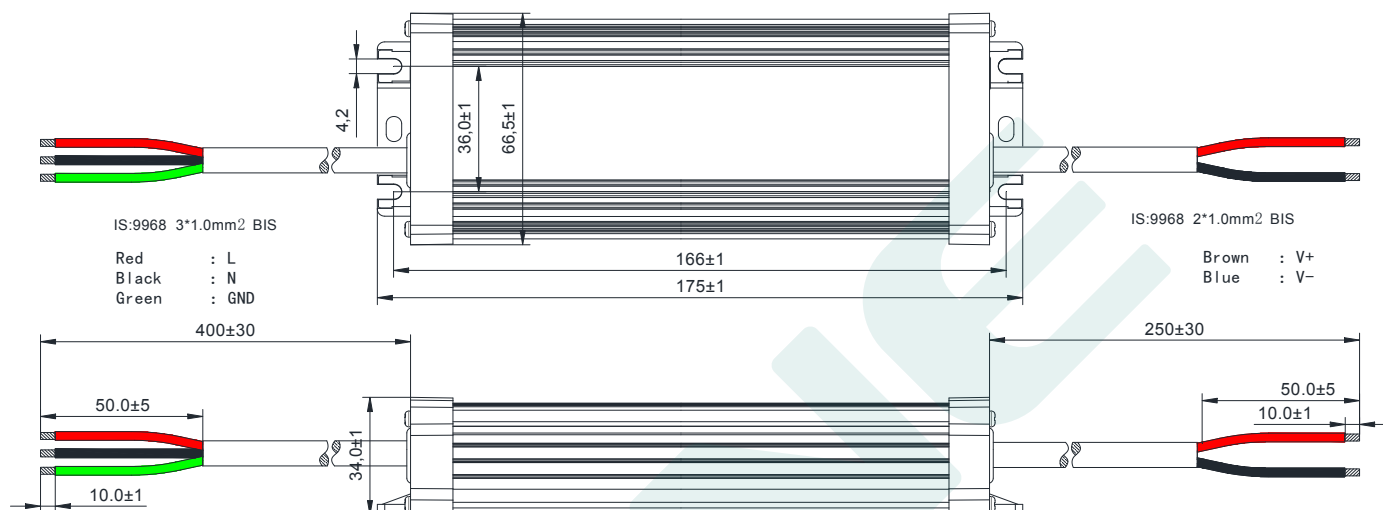
Size (mm) L175mm*W66.5mm*H34mm

Dimension drawing

DL-150I-V38A-MAS

DL-150I-V58A-MAS

DL-150I-V214A-MAS

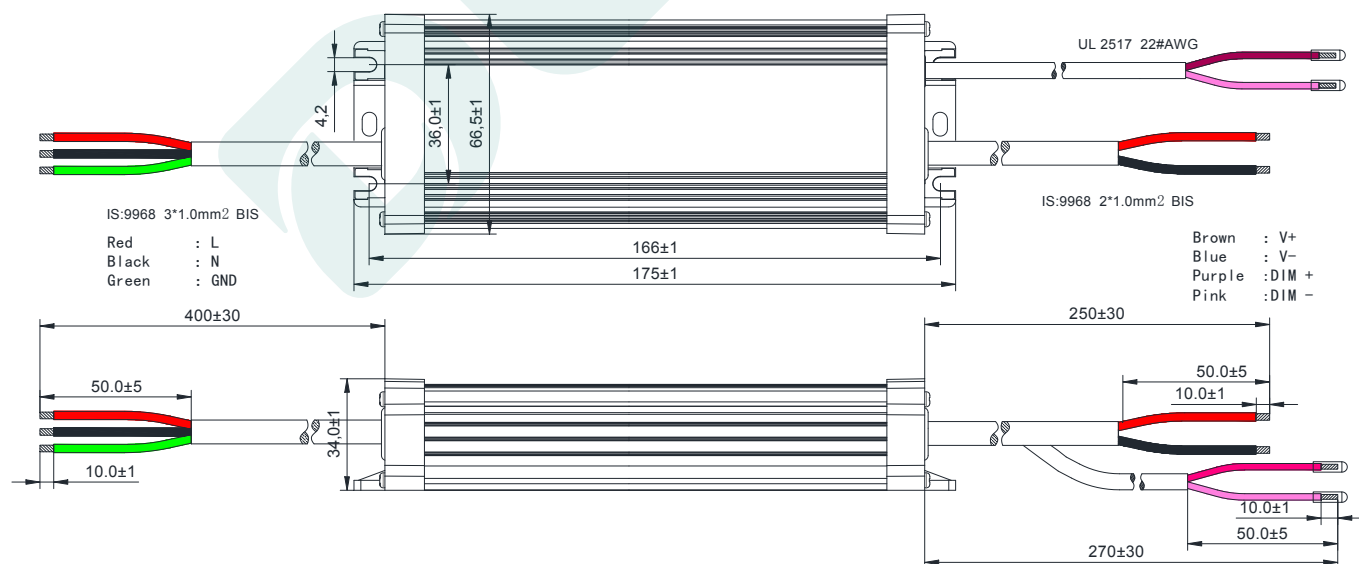


Dimension drawing

DL-150I-V38P-MAS

DL-150I-V58P-MAS

DL-150I-V214P-MAS

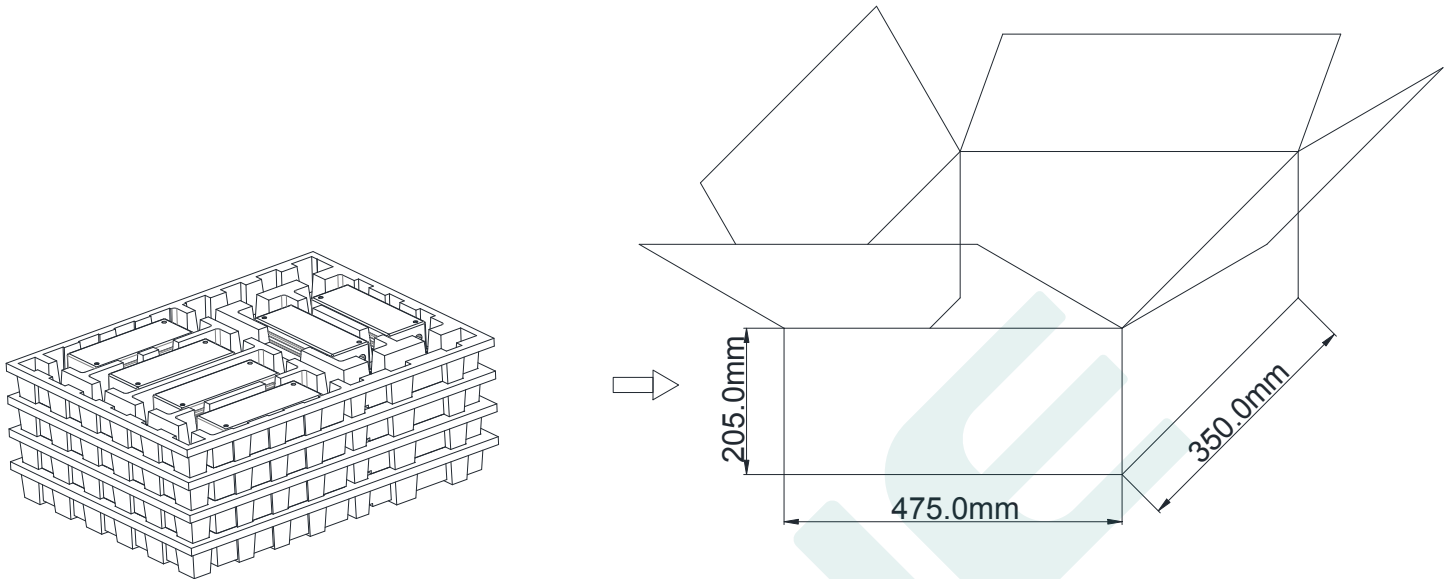


Weight

Weight 630 g

Packaging

Packaging (mm) L475*W350*H205



Note: One Carton 4 layers and 6 pcs each layer, total 24pcs/carton.

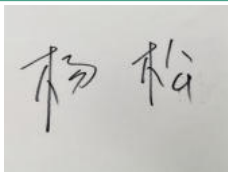
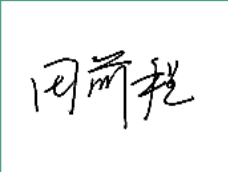
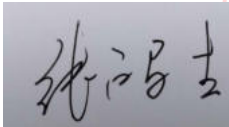
Note:

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
2022.5.3	Initial version.	V1.0	
2023.05.08	Port protection is added by adjusting rays. (Withstand short-term overvoltage up to 230VAC or 300VDC)	V1.1	 2023.05.19 16:06:07 +08'00'

MANUFACTRUER

EDIT			CHECK			APPROVE		
	YS	2023.05.12 16:45:02 +08'00'		TQC	2023.05.17 10:23:03 +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：2023.05.24 08:47:14 +08'00'	