



### Product Features:

- Universal input voltage / Full range: 90~305Vac;
- Constant power design, output current programming adjustable;
- (M types) off-line programmable, (V types) output current adjustable by built-in potentiometer;
- 3-in-1 dimmable: 0~10Vdc, PWM, Positive and negative logic, Timer dimming, Dim-to-off;
- (M types) Constant lumen output ,daily log;
- Self adapting-midnight dimming;
- Output and Dimming Signal Isolating;
- Surge protection: 6KV line-line, 10KV line-earth;
- Protections: SCP, OVP, OTP;
- IP67 design for indoor and outdoor applications;
- Suitable for dry / damp / wet locations;
- 5 years warranty.

### Application:

- Suitable for LED roadway lighting, plant lighting, industrial lighting, landscape lighting, etc.

### DESCRIPTION

The X6-320W series is a 320W outdoor off-line programmable LED driver that operates in constant current with high PF value and universal input voltage range of 90~305Vac. Monitored off-line by dimming cable connected with an USB kit programming device, the fully programmed drivers offer all dimming, dim-to-off, constant lumen output options and a wide range of output current in a single driver, providing maximum flexibility with customized operating settings and intelligent control options for lighting manufacturers, as one driver can be programmed for many different luminaire designs. X6 provides built-in timer dimming schedules that further increase the energy savings and CO<sub>2</sub> reductions achieved with LED lighting. It also helps customers to improve logistics and inventory management. The compact metal case and high efficiency enables the driver to operate with high reliability and extend product life. Overall protection is provided against lightning surge, output over voltage, short circuit, and over temperature, to ensure low failure rate.

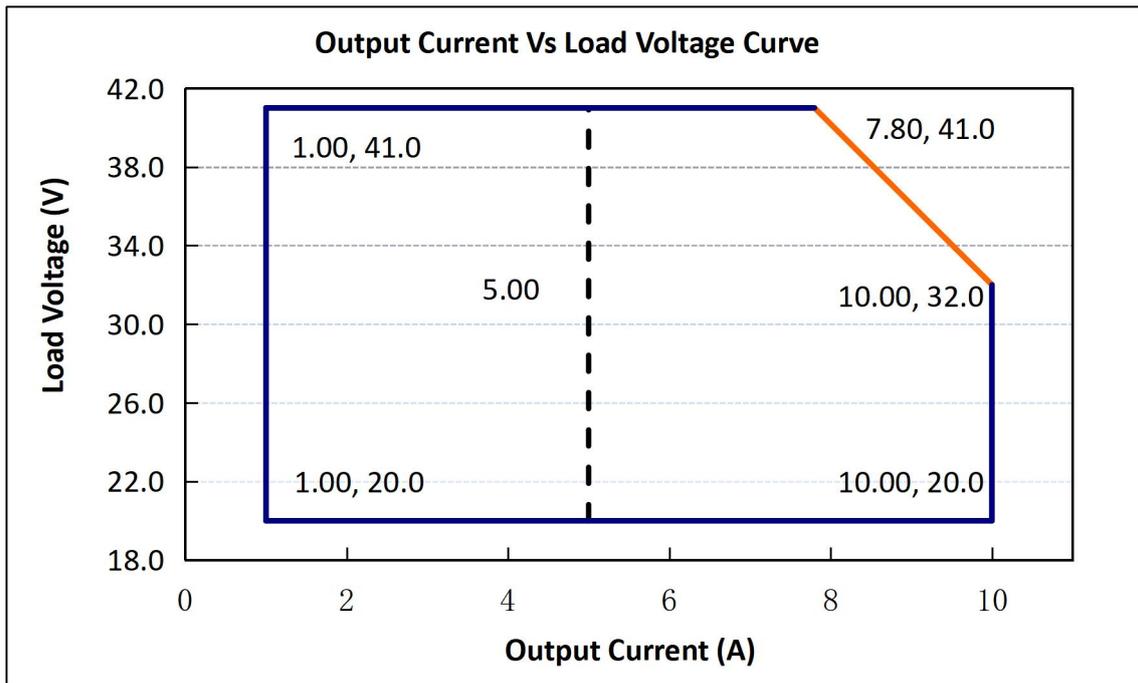
### MODELS

Model Number [1]	Max Output Power (W)	Output Voltage Range (Vdc)	Full Power Output Voltage Range (Vdc)	Full Power Current Adjustable Range (A) [2]	Default Output Current Setting(A)	Typical Efficiency [3]	PF
X6-320Y041A12P	320	20-41	32-41	7.80-10.00	8.90	92%	0.96

### Notes:

- [1]. Y can be M or V. Y=M means dimmable and off-line programmable, The adjustable lout range: 10%-100% I<sub>max</sub>; Y=V means non-dimmable and output current adjusted by built-in potentiometer.
- [2]. Output current adjustable range with constant power at max output power;
- [3]. All specifications are measured at 25°C ambient temperature, input voltage 230Vac, and the typical value tested by full load, if no specific note.

### OPERATING AREA



**Notes:** The drivers are not allowed to work in over-load condition, otherwise warranty will expire. Y=V is suitable for the right area of the dotted line; Y=M is suitable for the solid line contain area.

### INPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes			
Input Voltage	90Vac	100-277Vac	305Vac				
Input Frequency	47Hz	50/60	63Hz				
Leakage Current	-	-	0.70mA	277Vac/60Hz			
Input AC Current	-	-	4.2A	100-277Vac & full load			
Inrush Current ( $I^2t$ )	-	-	4.5 A <sup>2</sup> S	230Vac & full load			
Standby Power Consumption			2W	230Vac/50Hz			
Power Factor	0.97	0.99	-	120Vac, 50-60Hz, full load			
	0.95	0.97		230Vac, 50-60Hz, full load			
	0.93	0.95		277Vac, 50-60Hz, full load			
THD	-	5%	10%	100-240Vac, 50-60Hz, 100% load			
	-	-	15%	277Vac, 50-60Hz, 100% load			
Max. NO. of PSUs on CIRCUIT BREAKER	B10	1	B16	1	B25	2	230Vac
	C10	1	C16	2	C25	4	

### OUTPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%	-	5%	
Output Current Setting Range (A) X6-320Y041A12P	5.00	-	10.00	The 'M type' adjustable lout range: 10%-100% I <sub>max</sub> .
Output Current Setting Range with Constant Power X6-320Y041A12P	7.80	-	10.00	
Total Output Current Ripple(pk-pk)	-	5%	10%	20MHz BW, full load& LED load, the ripple would be tiny different under different LED load.
Startup Overshoot Current	-	-	10%	100~277Vac &100% Load, load is LED
No Load Output Voltage(V) X6-320Y041A12P	-	-	60	
Line Regulation	-1%	-	1%	25°C±10°C ambient temperature, input voltage changes from 100Vac to277Vac.
Load Regulation	-3%	-	3%	25°C±10°C ambient temperature, Input Voltage 230Vac, load changes from 60% to 100%.
Turn-on Delay Time	-	1S	3S	120Vac,100% load
	-	-	2S	230Vac,100% load
12V auxiliary output voltage	11.4V	12V	12.6V	X6-320M041A12P
12V auxiliary output source current	0mA	-	300mA	

### GENERAL SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Efficiency @120Vac X6-320Y041A12P I <sub>o</sub> =7.80A I <sub>o</sub> =10.00A	86.9% 86.6%	88.9% 88.6%		Measured at full load and 25 °C ambient temperature
Efficiency @230Vac X6-320Y041A12P I <sub>o</sub> =7.80A I <sub>o</sub> =10.00A	90.2% 90.0%	92.2% 92.0%		Measured at full load and 25 °C ambient temperature
Efficiency @277Vac X6-320Y041A12P I <sub>o</sub> =7.80A I <sub>o</sub> =10.00A	90.6% 90.5%	92.6% 92.5%		Measured at full load and 25 °C ambient temperature
Dielectric Strength	Input-Output	-	3750Vac	-
	Input-PE	-	1600Vac	-
	Output-PE	-	1600Vac	-
Grounding Resistance	-	-	0.1Ω	25A/60S, under 25°C±10°C ambient temperature
Insulation Resistance	10MΩ	-	-	Input-Output, Input-PE, Output-PE, 500Vdc/60S/25°C/70%RH
MTBF	-	200000Hrs	-	25°C±10°C ambient temperature, 230Vac,80% load (MIL-HDBK-217F)
Lifetime	-	50000Hrs	-	230Vac&100% load, 75°C case

				temperature, refer to lifetime curve for details
Ambient Temperature	-40℃		+60℃	Reference derating curve
Operating Case Temperature for Safety Tc_s	-40℃	-	+90℃	
Operating Case Temperature for Warranty Tc_s	-40℃	-	+75℃	5 years warranty case temperature Humidity: 10% to 95% RH
Storage Temperature	-40℃	-	+85℃	Humidity: 5% to 100% RH
Dimensions (L*W*H)mm	L231*W98*H42			
Net Weight	1700±100g/PCS			
Package	L615mmxW375mmxH166mm;10PCS/Ctn, Gross Weight: 19.6KG			

### DIMMING

Parameter		Min.	Typ.	Max.	Notes
0~10V Absolute Maximum Voltage on the Vdim (+) Pin		-	10V	-	
0~10V Source Current on Vdim(+)Pin		-	200uA	400uA	
Dimming Output Range	X6-320M041A12P	10%Imax	-	100%Imax	Imax=10.00A
	X6-320M041A12P	1.00A	-	10.00A	
Recommended Dimming Range for 0-10V		0V	-	10V	Default 0-10V/ PWM Dimming(0-10V,0-9V,0-5V,0-3.3V Positive and Reverse Logic can be customized as request)
PWM_in High Level		9.7V	-	10.3V	
PWM_in Low Level		0V	-	0.3V	
PWM_in Frequency Range		300Hz		2KHz	
PWM_in Duty Cycle		1%	-	99%	

### SAFETY STANDARDS

Safety Category	Country / Territory	Standards	Approved
CCC	China	GB19510.1, GB19510.14	√
CE	Europe	EN61347-1, EN61347-2-13	√
		EN62493	√
		EN62384	√
ENEC			
CB	CB Countries	IEC61347-1, IEC61347-2-13	√
BIS	India	IS 15885(PART 2/SEC 13)	√
UL	USA	UL 8750	√
CUL	Canada	CSA C22.2 No.250.13	√
KC	South Korea	K61347-1, K61347-2-13	
PSE	Japan	J61347-1, J61347-2-13	
SAA	Australia	AS/NZS IEC 61347.2.13	√
		AS/NZS 61347.1	√
EAC	Russia	ГОСТ Р МЭК 61347-1-2011 ГОСТ IEC 61347-2-13-2013 ГОСТ IEC 62493-2014	√

		CTБ EH 55015-2006 ГОСТ IEC 61547-2013 ГОСТ 30804.3.2-2013 (IEC 61000-3-2:2009) ГОСТ 30804.3.3-2013 (IEC 61000-3-3:2008)	
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### Insulation

Insulation	Input/Mains	Dimming	LED Output	Case
Input/Mains	/	Double	Double	Basic
Dimming	Double	/	Basic	Basic
LED Output	Double	Basic	/	Basic
Case	Basic	Basic	Basic	/

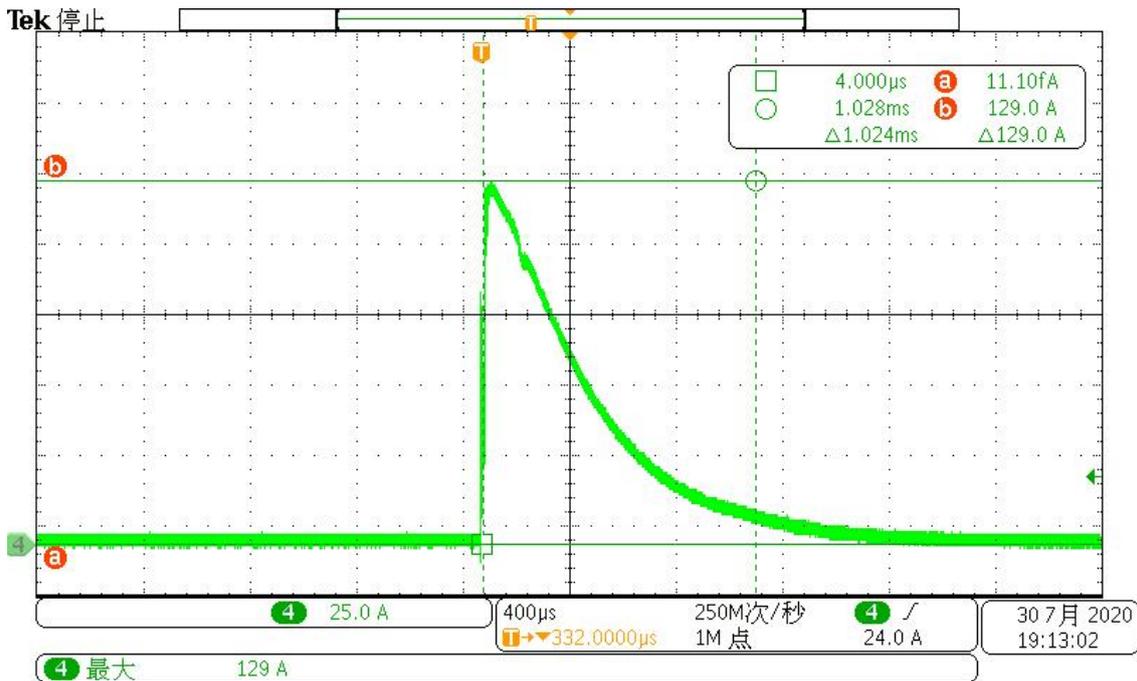
### EMC COMPLIANCE

EMC Category	Country / Territory	Standards	Approved
CCC	China	GB/T 17743, GB 17625.1	√
CE	Europe	EN 55015	√
		EN 61000-3-2, EN 61000-3-3	√
		EN61000-4-2,3,4,5,6,11	√
		EN 61547	√
KC	South Korea	K61547	
		K00015	
PSE	Japan	J55015	
FCC	USA	FCC part 15	√

### NOTE:

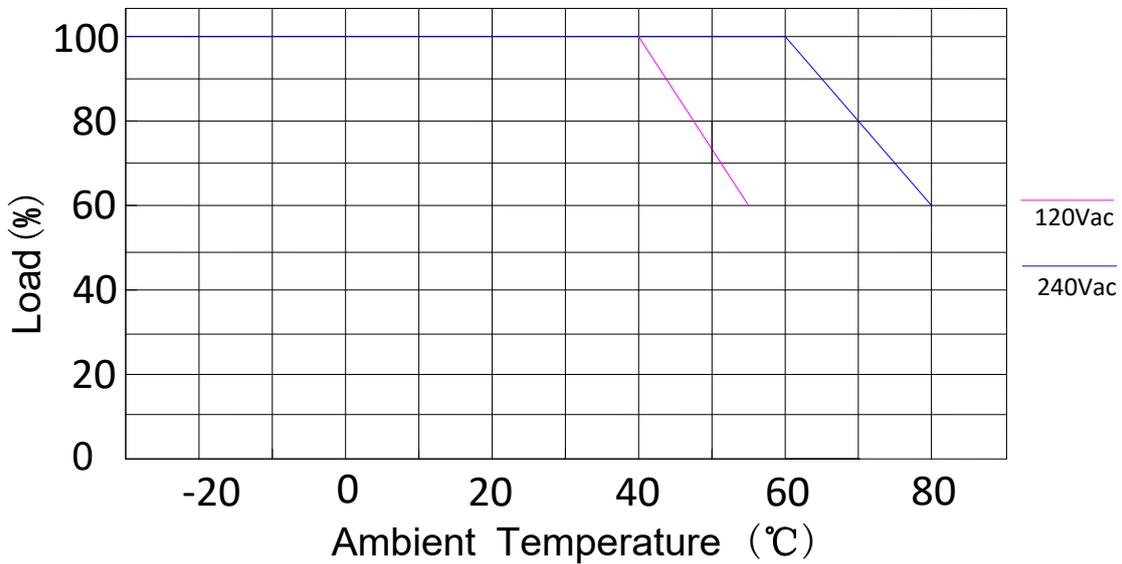
This LED driver meets the EMI specifications above, but as a component of a luminaire, the end customer need to identify the EMI performance of a luminaire including the LED driver, other devices connected to the driver, and on the luminaire itself.

### INRUSH CURRENT

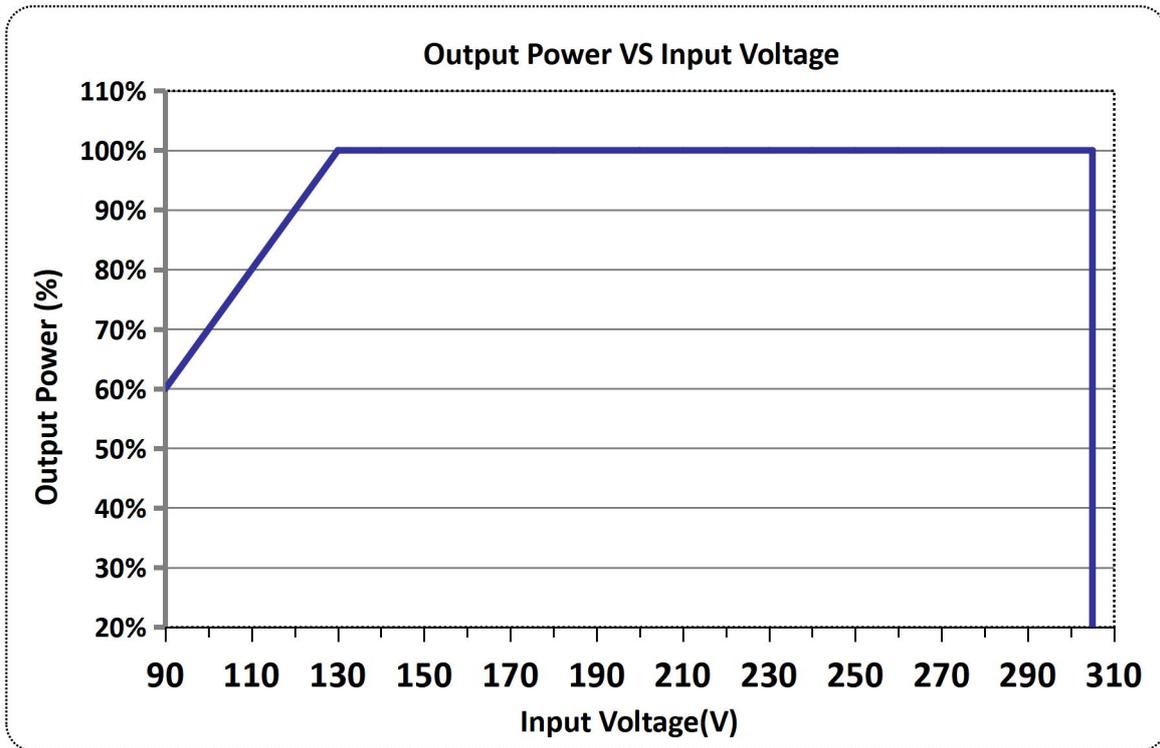


### DERATING CURVE

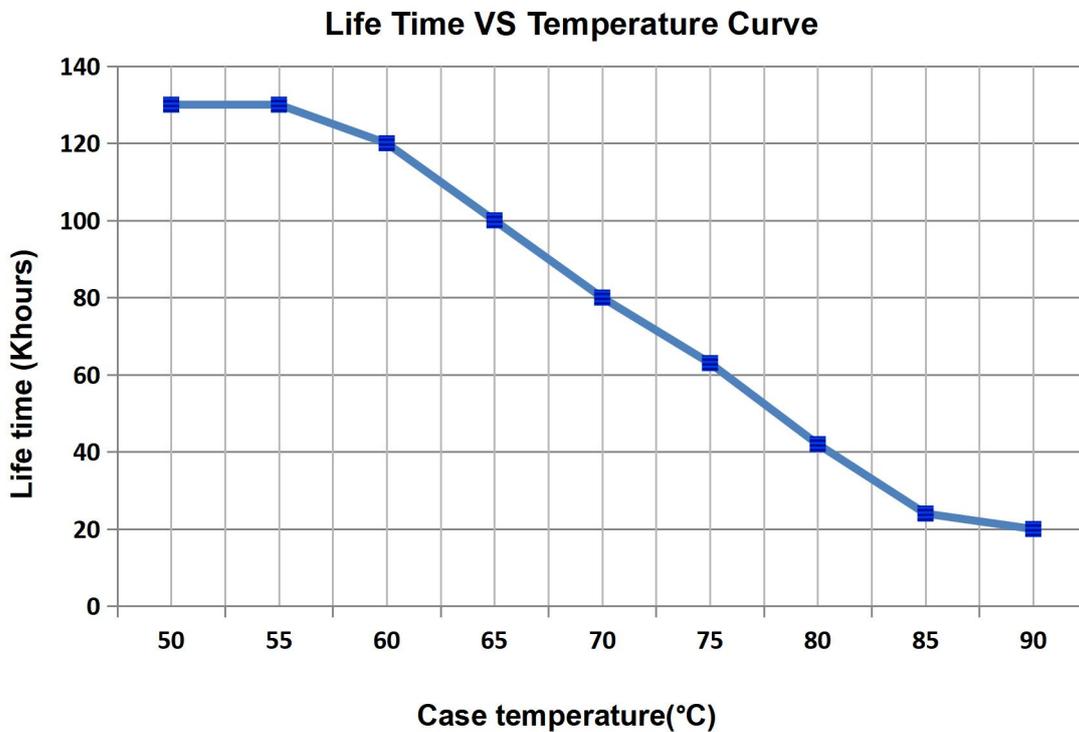
Derating Curve



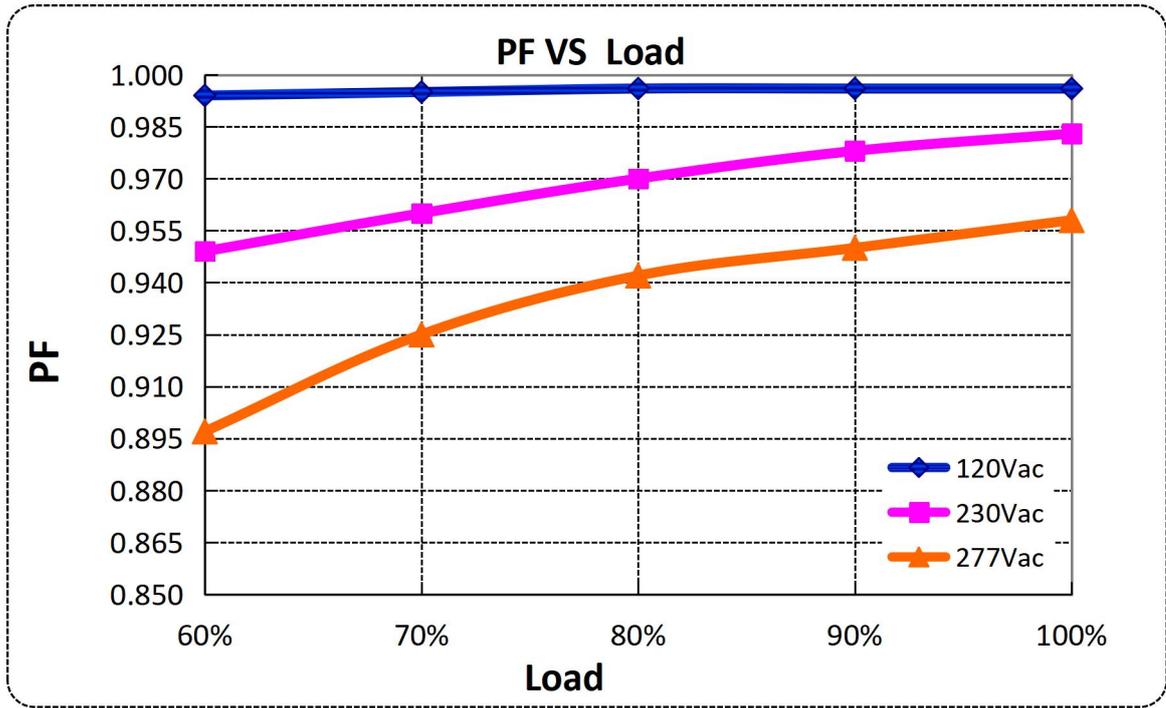
### OUTPUT POWER VS INPUT VOLTAGE



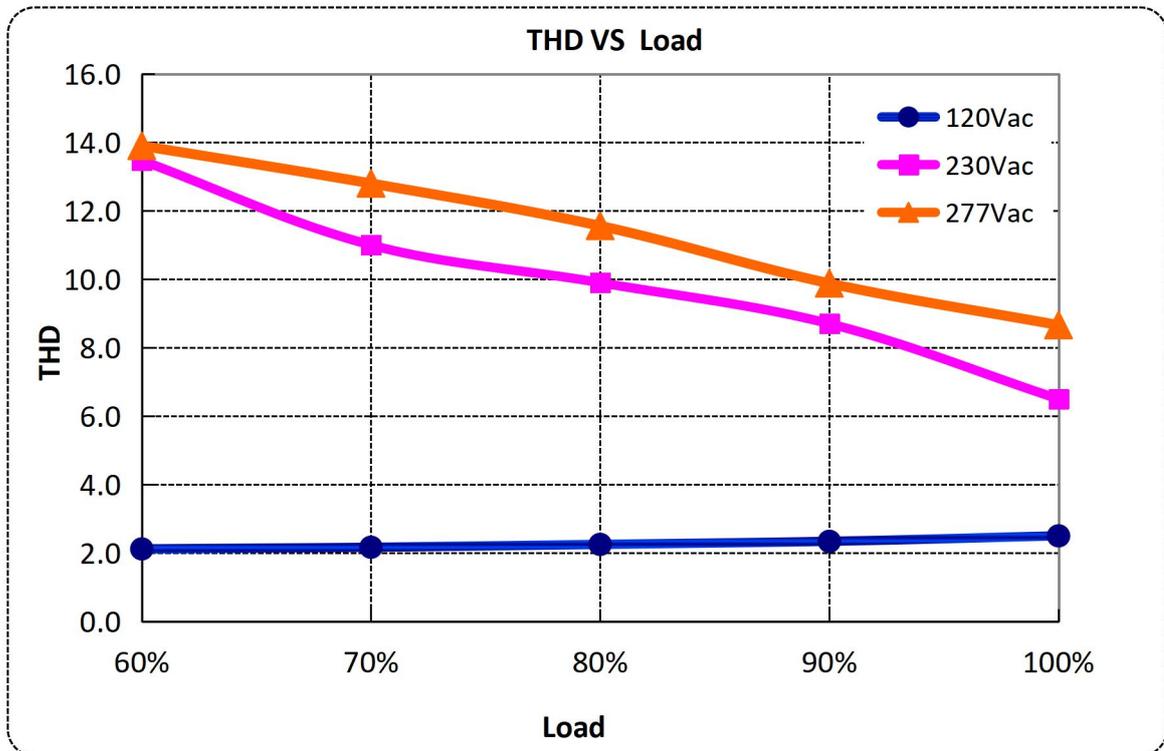
### LIFETIME VS CASE TEMPERATURE



### POWER FACTOR VS LOAD

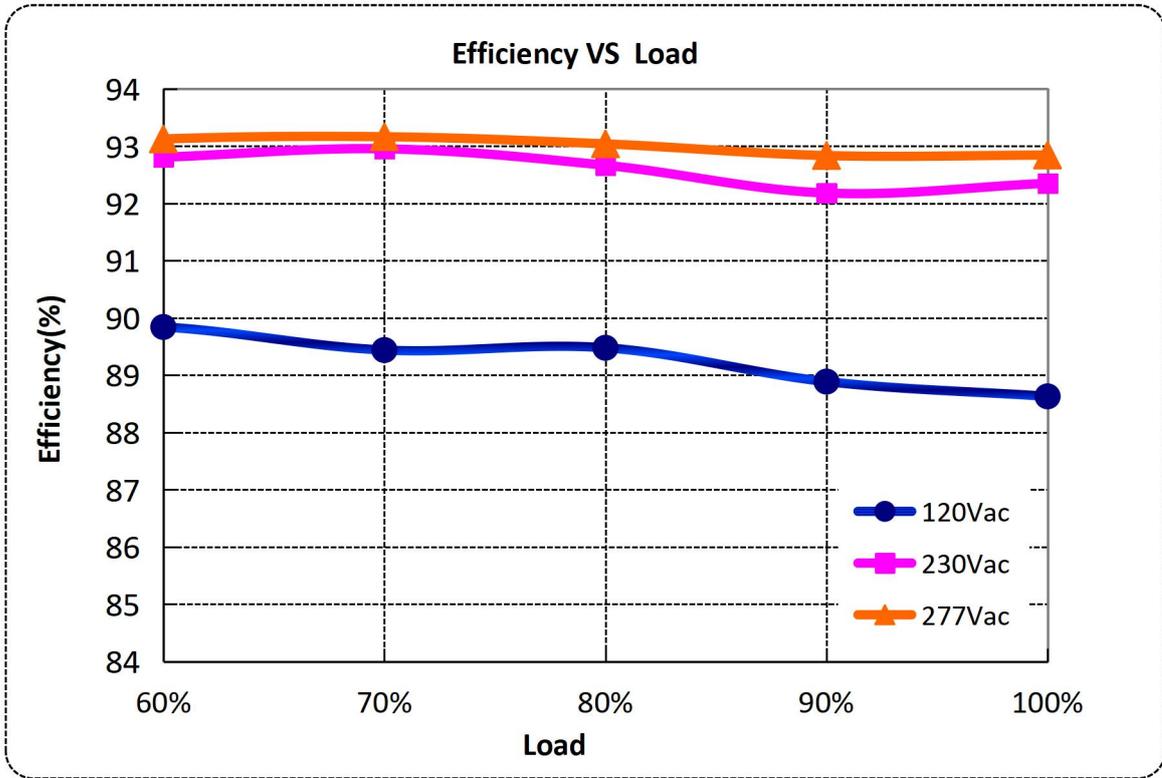


### TOTAL HARMONIC DISTORTION

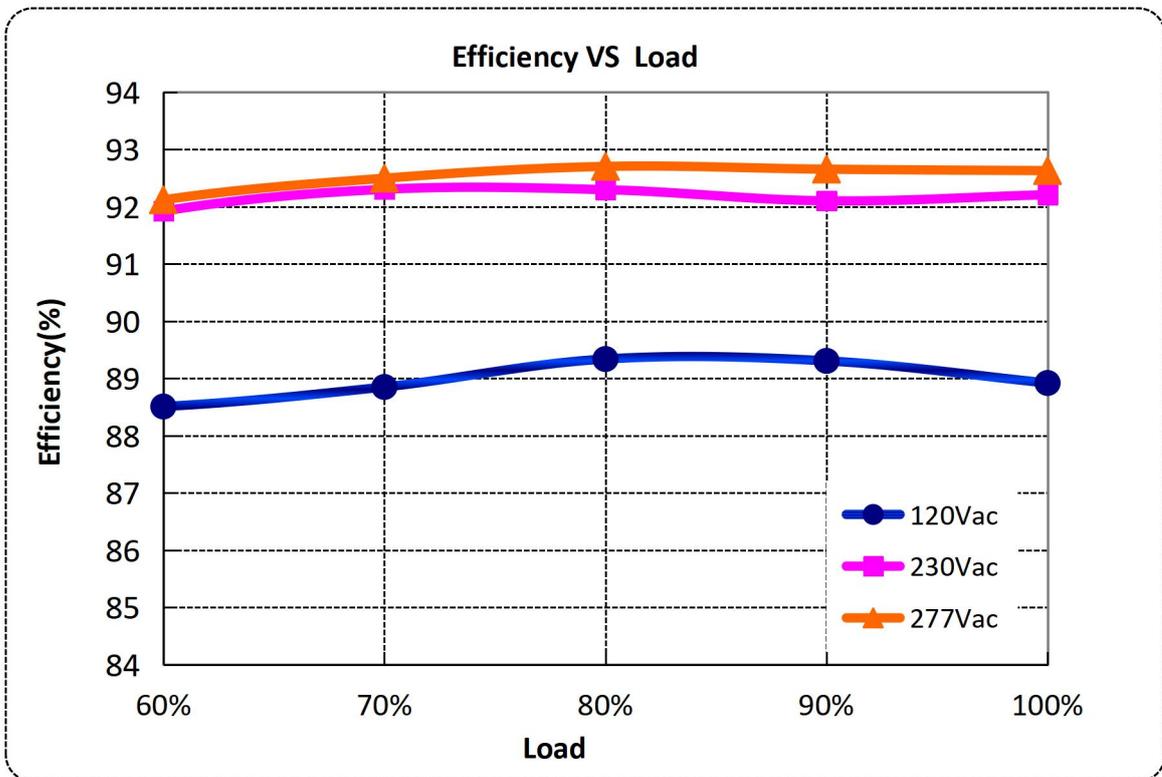


### EFFICIENCY VS LOAD

$I_o=10.00A$



$I_o=7.80A$

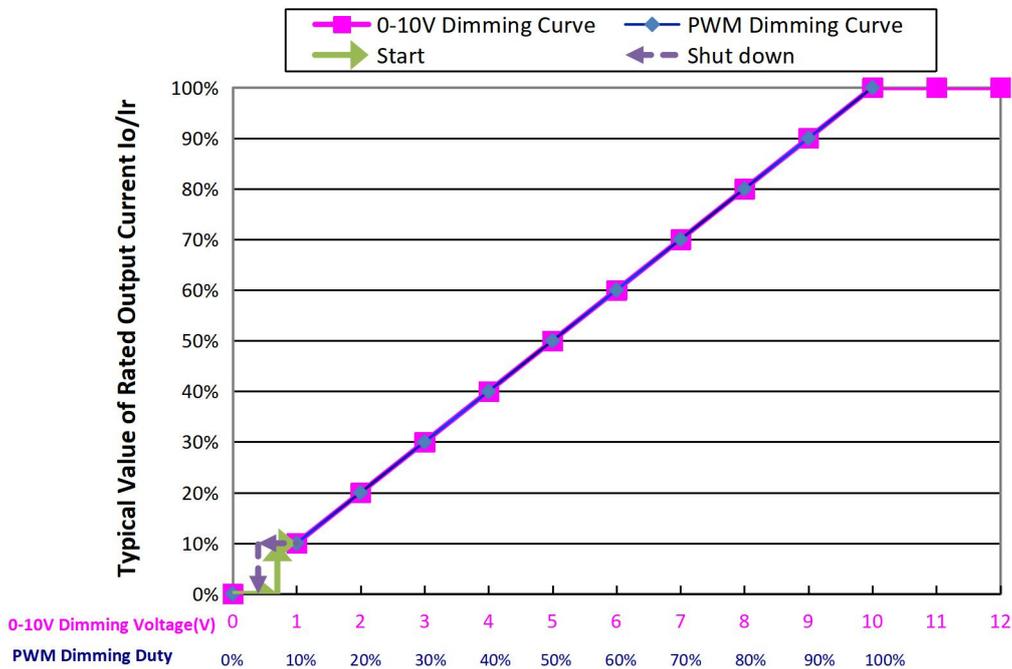


### PROTECTIONS

Parameter	Notes
Over Temperature Protection	Decreases output current, returning to normal after over temperature is removed.
Short Circuit Protection	When the short circuit occurs, the input power is reduced and the product enters the constant current output mode or locked mode. When the short circuit is released, restart the input to recover.
Over Voltage Protection	Run into protection mode when output voltage exceeds limit, and return to normal when the fault is eliminated and restart the power supply.

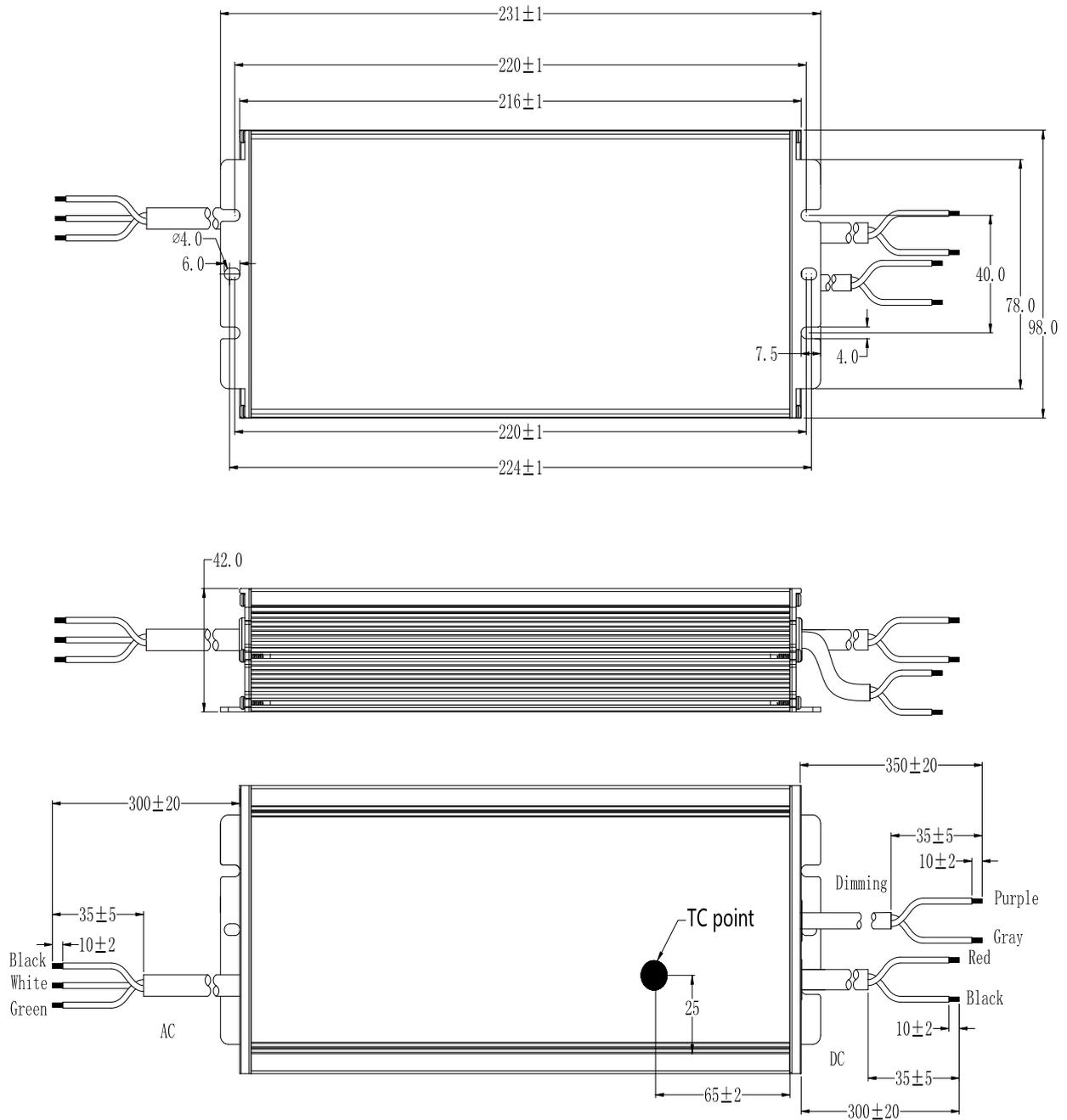
### 0-10V/PWM DIMMING

0-10V/PWM Dimming Curve

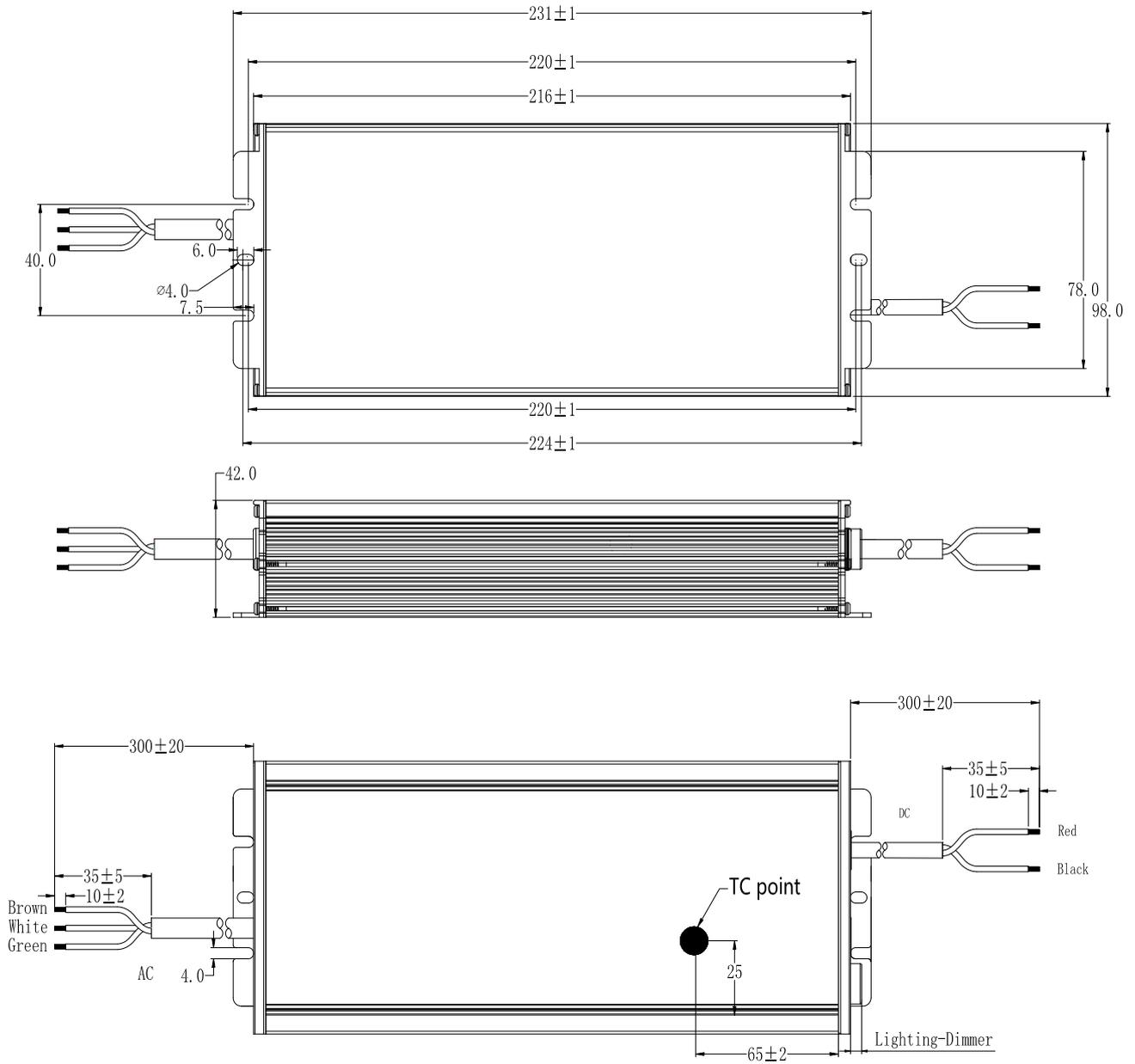


### Mechanical Outline

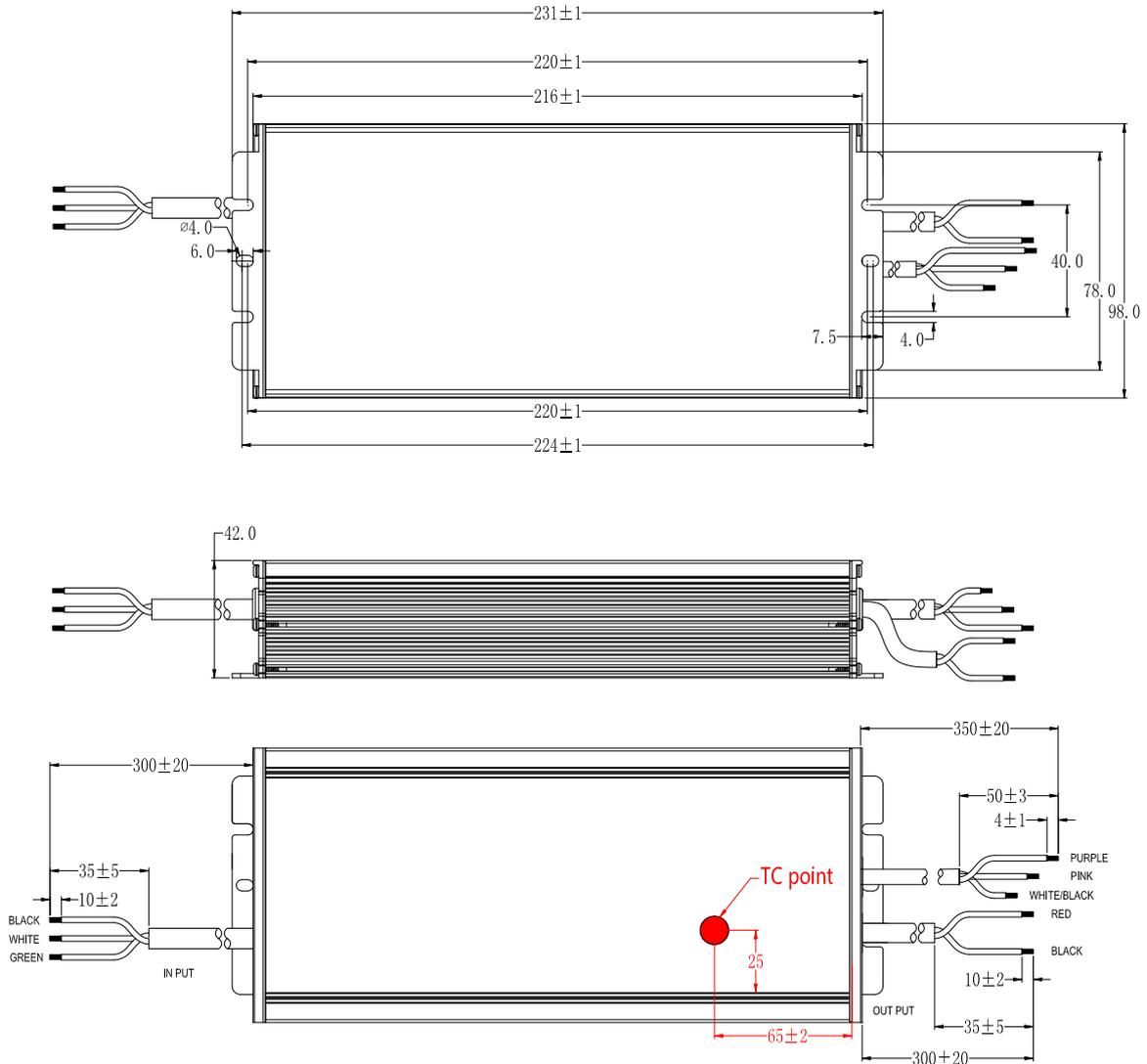
X6-320M041P types



X6-320V041P types



X6-320M041A12P types



Wire	Specification	Note
Input	UL SJOW 18AWG*3C external diameter: 8.0mm L=300±20mm; peel length 35mm, Tin-dip length 10mm	UL
Output	UL SJOW 16AWG*2C external diameter: 7.95mm L=300±20mm; peel length 35mm, Tin-dip length 10mm	UL
Dimming	UL2733 22AWG*2C external diameter: 5.45mm L=350±20mm; peel length 35mm, Tin-dip length 10mm	
	UL21996 22AWG*3C external diameter: 5.0mm L=350±20mm; peel length 30/40/50mm, Tin-dip length 4mm	A12

### LABEL

203.00 mm

**INPUT**

L BLACK

G GREEN

N WHITE

### MOSO<sup>®</sup> X6-320M041P

LED DRIVER

INPUT	100-240V~ 50/60Hz, 4.2A Max.380W Max. 277V~ 50/60Hz, 1.6A Max (277V~ for North America only)
OUTPUT	20-41V--- 1.00-10.00A Max: 60V --- Max.Power:320W
t <sub>c</sub> : 90°C	t <sub>a</sub> : 50°C Input:100-200V~ t <sub>a</sub> : 60°C Input:200-240V~,277V~

MADE IN CHINA  
For LED module only

Suitable for Dry, Damp and Wet locations  
SHENZHEN MOSO ELECTRONICS TECHNOLOGY CO., LTD  
No.1061, Songbai Road, Xili Town, Nanshan District,  
Shenzhen, CHINA

**OUTPUT**

PURPLE DIM +

GRAY DIM -

RED Vo +

BLACK Vo -

Output type:Isolated

Class p

IP67

203.00 mm

**INPUT**

L BLACK

G GREEN

N WHITE

### MOSO<sup>®</sup> X6-320V041P

LED DRIVER

INPUT	100-240V~ 50/60Hz, 4.2A Max.380W Max. 277V~ 50/60Hz, 1.6A Max (277V~ for North America only)
OUTPUT	20-41V--- 5.0-10.00A Max: 60V --- Max.Power:320W
t <sub>c</sub> : 90°C	t <sub>a</sub> : 50°C Input:100-200V~ t <sub>a</sub> : 60°C Input:200-240V~,277V~

MADE IN CHINA  
For LED module only

Suitable for Dry, Damp and Wet locations  
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No.1061, Songbai Road, Xili Town, Nanshan District,  
Shenzhen, CHINA

**OUTPUT**

RED Vo +

BLACK Vo -

I<sub>o</sub> ADJ (+)

Output type:Isolated

Class p

IP67

203.00 mm

**INPUT**

L BLACK

G GREEN

N WHITE

### MOSO<sup>®</sup> X6-320M041A12P

LED DRIVER

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t <sub>c</sub> : 90°C	t <sub>a</sub> : 50°C Input:100-200V~ t <sub>a</sub> : 60°C Input:200-240V~,277V~

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No.1061, Songbai Road, Xili Town, Nanshan District,  
Shenzhen, CHINA  
CLASS P: \*For Connections Use Wire Rated for at Least 90°C  
(\*194°F) or equivalent

**OUTPUT**

PURPLE DIM +

PINK DIM -

White } 12V+

Black } 12V+

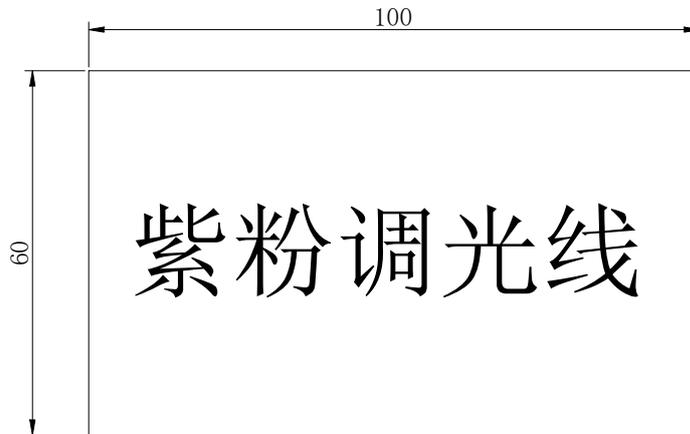
RED Vo +

BLACK Vo -

Output type:Isolated

Class P

IP67

**CARTON LABEL**

注：颜色黑色，字体为 72 号黑体。



# Specification for Approval

Product Name: 320W Outdoor Off-line Programmable Driver  
X6-320M041P   
Product Model: X6-320V041P   
X6-320M041A12P   
Rev. B.2  
Sample Date: -

CUSTOMER AUTHORIZED SIGNATURE		
Tested By	Checked By	Approved By
(Company seal)Return one copy to MOSO with approved signature and company seal.		

XiLi Songbai Road 1061,  
Address: Nanshan District, Shenzhen City, Post Code: 518108  
Guangdong Province, P.R.China  
TEL: 0755-27657000 FAX: 0755-27657908  
E-mail: info@mosopower.com Web site: http://www.mosopower.com

Prepared By	Checked By	Approved By

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# Product Specification

Product Name: 320W Outdoor Off-line Programmable Driver

X6-320M041P

Product Model: X6-320V041P

X6-320M041A12P

Rev. B.2

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Post Code: 518108

TEL: 0755-27657000

FAX: 0755-27657908

E-mail: info@mosopower.com

Web site: <http://www.mosopower.com>

Prepared By	Checked By	Approved By