





# BIS

#### **Product Features:**

- Universal input voltage / Full range: 110~305Vac;
- Constant power design, output current programming adjustable;
- (M type) offline programmable, (V type) output current adjustable by built-in potentiometer;
- 3-in-1 dimmable: 0~10Vdc, PWM, Timer dimming. Dim-to-off;
- (M type)Constant lumen output;
- Output and Dimming Signal Isolating;
- Surge protection: 5KV line-line, 10KV line-earth;
- Protections: Input OVP/Input UVP, SCP, 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 X6-200 series is 200W outdoor offline programmable LED driver that operates in constant current with high PF value and universal input voltage range 110~305Vac. Offline Monitored 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, which deliver maximum flexibility with customized operating settings and intelligent control options for luminaire manufacturers, as one driver can be programmed for many different luminaire designs. X6-200 provides built-in timer dimming schedules further increasing the energy savings and CO<sub>2</sub> reductions achieved with LED lighting. It also helps clients to improve the management of logistics and stock. The compact metal case and high efficiency enable the driver to operate with high reliability, and extending product lifetime. Overall protection is provided against lightning surge, input over voltage, input under voltage, 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
X6-200M286	200	143-286	191-286	0.7-1.05	0.7	92%	0.97

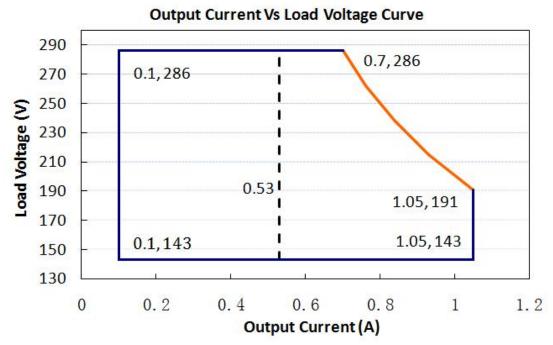
### Notes:

- [1]. Y can be M or V. Y=M means dimmable and offline programmable, The adjustable lout range: 10%-100% lmax; 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℃ ambient temperature, input voltage 240Vac, and the typical value tested at full load, if no specific note.

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# **OPERATING AREA I-V**



Notes: 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	М	in.	Ту	/p.	Ma	ax.	Notes	
Input Voltage	110	Vac	120-2	77Vac	305	Vac	Rated Input Voltage is 240Vac	
Input Frequency	47	Hz	50	/60	63	Hz		
Leakage Current		-		-	0.70	)mA	270Vac/60Hz	
Input AC Current		-		-	2.8	3A	120-270Vac &full load	
Inrush Current	-		-		75A		240Vac & full load	
Standby Power Consumption					2W		240Vac/50Hz	
	0.97		0.99		-	_	120Vac, 50-60Hz,full load	
Power Factor	0.95		0.97				240Vac, 50-60Hz, full load	
	0.92		0.95				270Vac, 50-60Hz, full load	
							120-240Vac,50-60Hz, 70%-100%	
THD		-	5	%	10	1%	load	
	_		_		15%		270Vac, 50-60Hz, 70%-100% load	
Max. NO. of PSUs on CIRCUIT	B10	3	B16	4	B25	7		
BREAKER	C10	4	C16	7	C25	11	230Vac	



# X6 Series 200W (Input 440V over voltage) Off-line Outdoor Programmable Driver

# **OUTPUT SPECIFICATIONS**

Parameter	Min.	Тур.	Max.	Notes
Output Current Tolerance	-5%	-	5%	
Output Current Setting Range	0.105A	-	1.05A	
Output Current Setting Range with Constant Power	0.70A	-	1.05A	
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%	120~270Vac &100% Load, load is LED
No Load Output Voltage	-	-	300Vdc	
Line Regulation	-1%	-	1%	25°C±10°C ambient temperature, input voltage changes from 100Vac to 277Vac.
Load Regulation	-3%	-	3%	25℃±10℃ambient temperature, Input Voltage 240Vac, load changes from 60% to 100%.
Turn on Doloy Time	-	0.5s	2s	120Vac,100% load
Turn-on Delay Time	-	-	0.5s	240Vac,100% load

# **GENERAL SPECIFICATIONS**

Paran	Parameter		Тур.	Max.	Notes
Efficiency @120Vac I <sub>o</sub> =0.70A I <sub>o</sub> =1.05A		88% 88%	89% 89%		Measured at full load and 25℃ ambient temperature
Efficiency @240Vac I <sub>0</sub> =0.70A I <sub>0</sub> =1.05A		91% 91%	92% 92%	-	Measured at full load and 25℃ ambient temperature
Efficiency @270Vac I <sub>0</sub> =0.70A I <sub>0</sub> =1.05A		91% 91%	92% 92%		Measured at full load and 25°C ambient temperature
	Input-Output	-	3750Vac	-	
Dielectric Strength	Input-PE	-	1600Vac	-	Max 5mA/60s
	Output-PE	-	1600Vac	-	
Grounding F	Resistance	_	-	0.1Ω	25A/60s, under 25℃±10℃ ambient temperature
Insulation F	Resistance	10ΜΩ	-	-	Input-Output, Input-PE, Output-PE, 500Vdc/60s /25°C/70%RH
MTE	BF	-	200000Hrs	-	25℃±10℃ambient temperature, 230Vac,80% load (MIL-HDBK-217F)
Lifetime		-	50000Hrs	-	240Vac&100% load, 85℃ case temperature, refer to lifetime curve for details
Ambient Temperature		-40℃		+60℃	240Vac&100% load
Operating Case Ter Safety Tc_s	nperature for	-40℃	-	+90℃	
Operating Case Ter Warranty Tc_s	nperature for	-40℃	-	<b>+75</b> ℃	5 years warranty case temperature Humidity: 10% to 95% RH

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# X6 Series 200W (Input 440V over voltage) Off-line Outdoor Programmable Driver

Storage Temperature	-40℃	-	+85℃	Humidity: 5% to 100% RH
Dimensions (L*W*H)	L193.6*W68*H39mm			
Net Weight	g	940±100g/PCS		
Package	L502*W372*H222mm; 15PCS/Ctn, Net weight:15.7Kg			

#### **DIMMING**

Parameter		Min.	Тур.	Max.	Notes
0~10V Absolute Maximum Voltage on the Vdim (+) Pin		-	10V	-	
0~10V Source	Current on Vdim(+)Pin	-	200uA	400uA	
Dimming Output	X6-200M286	10%I <sub>max</sub>	-	100%I <sub>max</sub>	I <sub>max</sub> =1.05A
Range	X6-200M286	0.105A	-	1.05A	
Recommended D	imming Range for 0-10V	0V	-	10V	Default 0-10V/ PWM
PWM_	PWM_in High Level		-	10.3V	
PWM_in Low Level		0V	-	0.3V	Dimming(0-10V,0-9V,0-5V,0-3.3V
PWM_in Frequency Range		300Hz		2KHz	and Forward and reverse dimming
PWM_	in Duty Cycle	1%	-	99%	can be customized as request)

# **SAFETY STANDARDS**

Safety Category	Country / Territory	Standards	Approved
CCC	China	GB19510.1, GB19510.14	
CE		EN61347-1, EN61347-2-13	
OE .	Europe	EN62493	
ENEC		EN62384	
СВ	CB Countries	IEC61347-1, IEC61347-2-13	
BIS	India	IS 15885(PART 2/SEC 13)	$\sqrt{}$
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	
		AS/NZS IEC 61347.2.13	
SAA	Australia	AS/NZS 61347.1	
		ГОСТ Р МЭК 61347-1-2011	
		ГОСТ IEC 61347-2-13-2013	
		ΓΟCT IEC 62493-2014	
		СТБ ЕН 55015-2006	
EAC	Russia	ΓΟCT IEC 61547-2013	
		ΓΟCT 30804.3.2-2013 (IEC	
		61000-3-2:2009)	
		ΓΟCT 30804.3.3-2013 (IEC	
		61000-3-3:2008)	

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# X6 Series 200W (Input 440V over voltage) Off-line Outdoor Programmable Driver

#### Insulation

Insulation	Input/Mains	Dimming	LED Output	Case
Input/Mains	/	Double	Double	Basic
Dimming	Double	1	Basic	Basic
LED Output	Double	Basic	/	Basic
Case	Basic	Basic	Basic	/

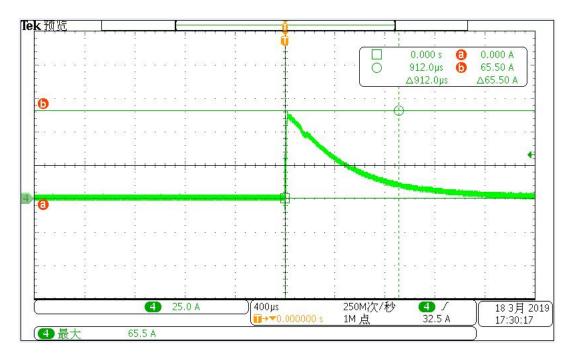
#### **EMC COMPLIANCE**

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

#### NOTE:

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

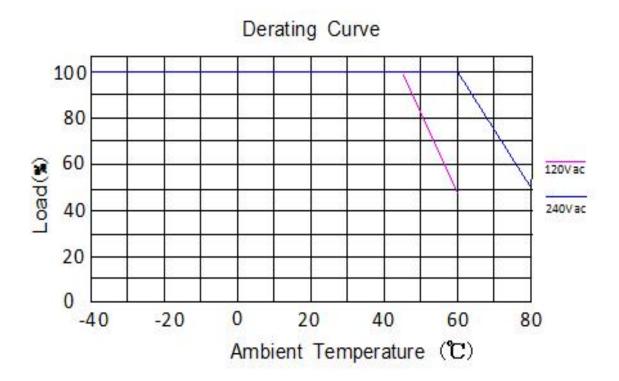
# **INRUSH CURRENT WAVEFORM**



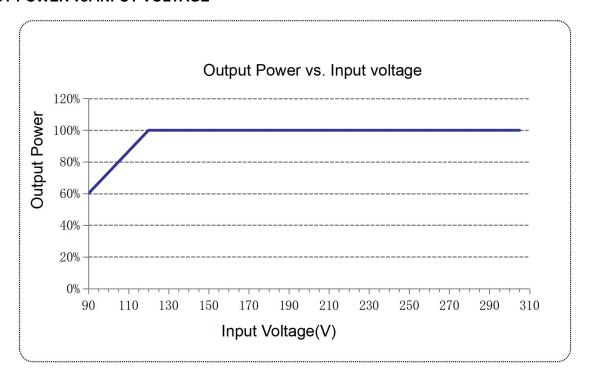
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# **DERATING CURVE**

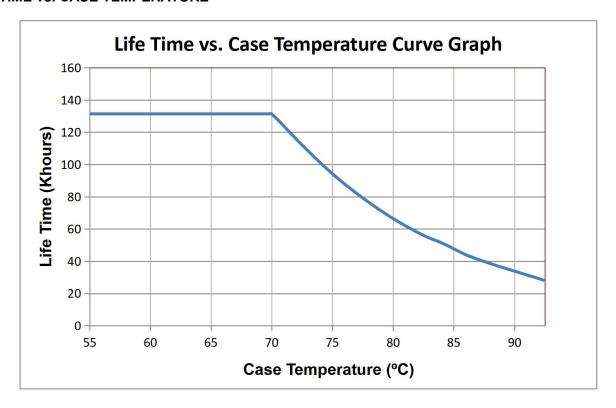


#### **OUTPUT POWER vs. INPUT VOLTAGE**

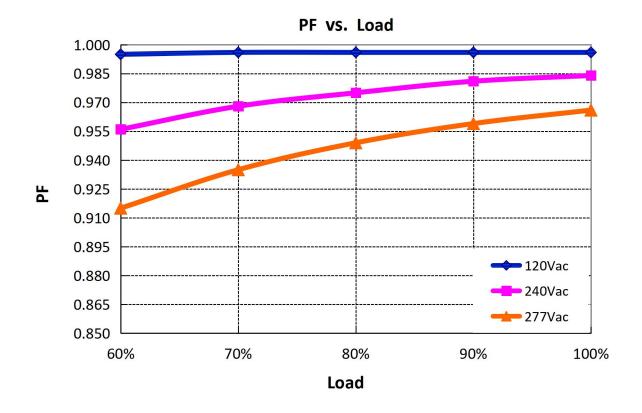


Website: https://www.mosopower.com

#### LIFE TIME vs. CASE TEMPERATURE



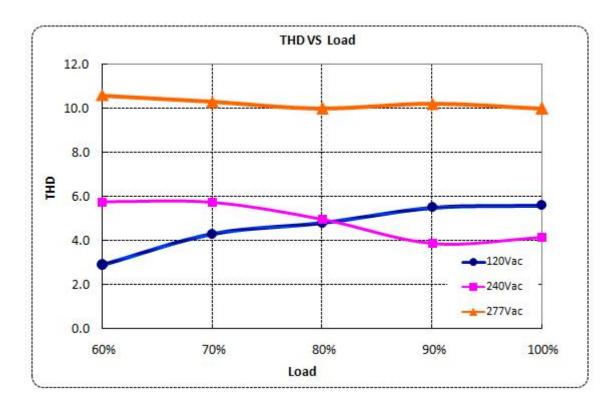
#### **POWER FACTOR vs. LOAD**



Tel: 400-889-0018 E-mail: info@mosopower.com

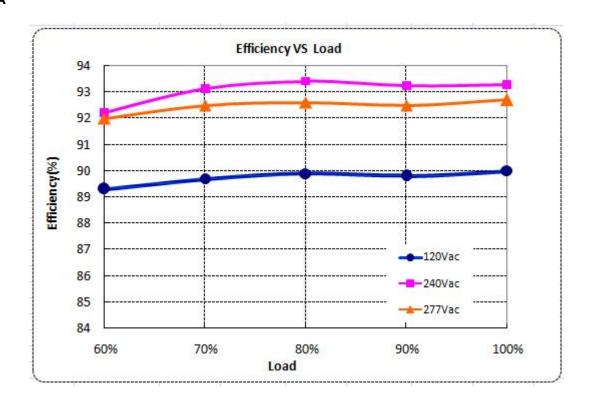
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# **TOTAL HARMONIC DISTORTION**



# **EFFICIENCY vs. LOAD**

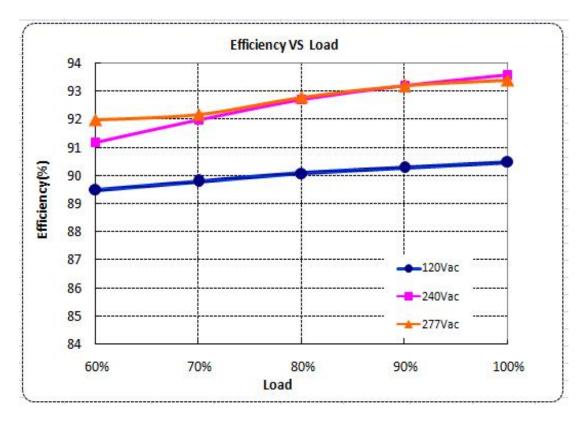
# lo=0.7A



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Website: https://www.mosopower.com

#### Io=1.05A



#### **PROTECTIONS**

Parameter		Min.	Тур.	Max.	Notes	
	Input Protection Voltage	325Vac	340Vac	350Vac	Turn off the output when the input voltage exceeds protection voltage.	
Input Over Voltage Protection	Recovery Voltage	300Vac		315Vac	Auto Recovery. The driver will restart when the input voltage falls below recovery voltage.	
	Max. of Input Over Voltage	-	-	440Vac	The driver can survive for 48 hours with input over-voltage of 440Vac.	
Over Temperature Protection		Decreases output current, returning to normal after over temperature is removed.				
Short Circuit Protection		Hiccup mode and auto recovery. No damage will occur when any output is short circuited. The output shall return to normal when the fault condition is removed.				
Output Over Volt	tage Protection	Limits output voltage at no load and in case the normal voltage limit fails.				

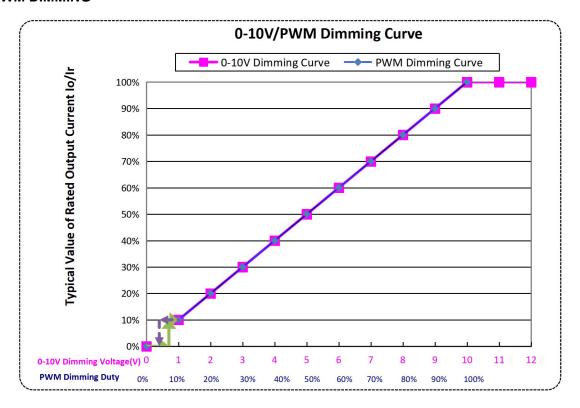
# Notes:

[1]. All specifications are measured at  $25^{\circ}$ C ambient temperature, input voltage 240Vac, and the typical value tested at full load, if no specific note.

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#### 0-10V/PWM DIMMING



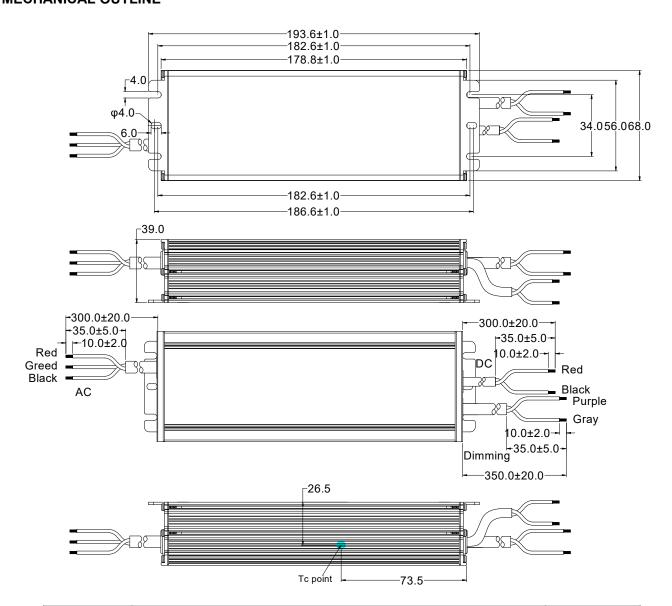
# Note:

Dim to off model is realized by decreasing the output voltage, the power supply still has residual voltage when dim to off, so the start up voltage of the lamp should be higher than residual voltage.

Website: https://www.mosopower.com



# **MECHANICAL OUTLINE**

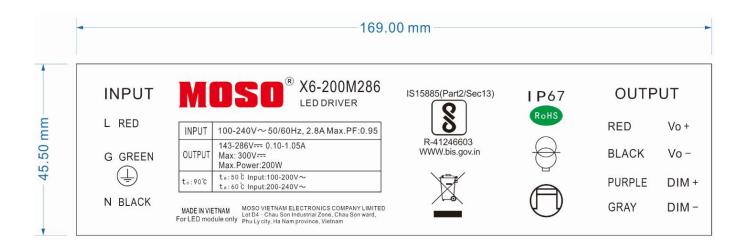


Wire	Specification	Note
Input	BIS-9968 3x1.0mm <sup>2</sup> external diameter:7.3mm L=300±20mm	BIS
Output	BIS-9968 2x1.0mm <sup>2</sup> external diameter:6.9mm L=300±20mm	BIS
Dimming	UL2733 22AWG*2C external diameter: 5.45mm L=350±20mm	Y=M

Website: https://www.mosopower.com



# **LABEL**



Website: https://www.mosopower.com



# 深圳茂硕电子科技有限公司 SHEN ZHEN MOSO ELECTRONICS TECHNOLOGY CO., LTD

# **REVISION HISTORY**

Rev.	Description	n of Change	Changed Date	e Notes	
Nev.	Before	After	Changed Date	Notes	
A.1	Original Release		2023-02-01		



# 深圳茂硕电子科技有限公司 SHEN ZHEN MOSO ELECTRONICS TECHNOLOGY CO., LTD

# **Specification for Approval**

<u>Product Name:</u> 200W outdoor off-line programmable driver

Product Model: X6-200M286 ☑

<u>Rev.</u> <u>A.1</u>

Sample Date:

XiLi Songbai Road 1061, Nanshan

Address: District, Shenzhen City, Guangdong Post Code: 518108

Province, P.R.China

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

TEL: 0755-27657000 FAX: 0755-27657908

E-mail: yoyo@mosopower.com Web site: http://www.mosopower.com

Prepared By	Checked By	Approved By

Specification subject to change without notice



# 深圳茂硕电子科技有限公司 SHEN ZHEN MOSO ELECTRONICS TECHNOLOGY CO., LTD

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