

Description

The X6N series is outdoor programmable LED driver that operates in constant current and also provide multiple isolated dimming controls, Dim-to-Off. 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, it provides extreme durability with an IP67 rating and extends product lifetime. Overall protection is provided against lightning surge, output over voltage, short circuit and over temperature to ensure low failure rate.



Product Features

- Universal input voltage: 90~305Vac;
- Isolate constant power design;
- 3-in-1 dimmable: 0~10Vdc / PWM/ Timer dimming;
- Off-line programmable with configurable operating windows;
- Programmable Constant Lumen Output (CLO);
- Output and Dimming Signal Isolating;
- High surge protection: DM 6KV, CM 10KV;
- Protections: SCP / OVP / OTP;
- IP67 design for indoor and outdoor applications;
- Suitable for dry / damp / wet locations;
- 5 years warranty.

Application

Road and street lighting
 Tunnel lighting
 Area and flood lighting
 High-bay lighting

Models

Model Number	Input Voltage Range (Vac)	Max Output Power (W)	Output Voltage Range (Vdc)	Full Power Output Current Range (A)	Default Current(A)	Eff. (Typ.)	PF(Typ.)	THD(Typ.)
X6N-240M240	100~277	240	130-240	1.0~1.5	1.5	93.5%	0.95	5%

NOTES:

[1]. M means 0-10V/PWM dimming.

[2]. All specifications are measured at 25°C ambient temperature, input voltage 230Vac, and the typical value tested by full load, if no specific note.

Input Specifications

Parameter	Min	Typ.	Max	Notes
Input Voltage Range	90Vac	120/220~240/ 277Vac	305Vac	
Input Frequency AC	47Hz	50/60Hz	63Hz	
Max Input Current	-	-	3.3A	120Vac & 100% load
Max Input Power	-	-	290W	120Vac & 100% load
Leakage Current	-	-	0.70mA	IEC 60598-1; 240Vac/60Hz
Inrush Current	-	-	75A	240Vac, 100% load
Power Factor (PF)	0.96	0.98	-	120Vac, 50-60Hz, 70%-100% load
Power Factor (PF)	0.95	0.97	-	230Vac, 50-60Hz, 70%-100% load
Power Factor (PF)	0.93	0.95	-	277Vac, 50-60Hz, 70%-100% load
Total Harmonic Distortion (THD)	-	5%	10%	120-230Vac, 50-60Hz, 70%-100% load
Total Harmonic Distortion (THD)	-	10%	15%	277Vac, 50-60Hz, 70%-100% load
MCB(B16)	-	4	-	230Vac; 100%load

Output Specifications

Parameter	Min	Typ.	Max	Notes
Output Voltage Range	130Vdc	-	240Vdc	
Open Circuit Voltage	-	253Vdc	260Vdc	
Output Current Range	0.15A	-	1.5A	Adjustable Output Current with programmer
Full Power Current Range	1.00A	-	1.5A	
Current Accuracy	-5%	-	+5%	
Total Output Current Ripple (pk-pk)	-	5%	10%	20MHz BW full load & LED load the LED load ripple is slightly different for different LEDs
Startup Overshoot Current	-	-	10%	
Line Regulation	-1%	-	+1%	25°C±10°C ambient temperature, input changes from 120Vac to 277Vac
Load Regulation	-3%	-	+3%	Load varies from 70% to 100% with 230Vac Input at 25°C ±10°C ambient temperature
Turn-on Delay Time	-	-	60s	240Vac, 100% load, 25°C ±10°C ambient temperature

General Specifications

parameter	Min	Typ.	Max	Notes
Efficiency@120Vac Io=1.0A Io=1.5A	89.0% 89.0%	90.5% 90.5%		100% load, 25°C±10°C ambient temperature
Efficiency@230Vac Io=1.0A Io=1.5A	92.0% 91.0%	93.5% 93.5%	-	100% load, 25°C±10°C ambient temperature
Efficiency@277Vac Io=1.0A Io=1.5A	92.0% 92.0%	94.0% 94.0%		100% load, 25°C±10°C ambient temperature
Mean Time Between Failure	-	200Khours	-	25°C±10°C ambient temperature, 230Vac, 80% load condition (MIL-HDBK-217/SR-332)
Lifetime	-	80Khours	-	230Vac&100% load, Tc 75°C, reference lifetime vs. case temperature curve
Operating Temperature Ta	-60°C	-	+50°C	100~200Vac, Output Power vs. Ambient Temperature curve Start up at -60°C is only applicable for input voltages between 176VAC and 305VAC
Operating Temperature Ta	-60°C	-	+55°C	200~277Vac, Output Power vs. Ambient Temperature curve Start up at -60°C is only applicable for input voltages between 176VAC and 305VAC
Operating Tc for Safety Tc_s	-40°C	-	+90°C	
Operating Tc for Warranty Tc_w	-40°C	-	+75°C	5-year warranty shell temperature, humidity:10% to 95% RH
Storage Temperature Ta	-40°C	-	+85°C	Humidity:5% to 100% RH
Altitude	-60m	-	4000m	
Input Under voltage Protection	65Vac	75Vac	90Vac	Turn off the output or hiccup when the input voltage falls below protection voltage.
Over Temperature Protection_Tc	-	95°C	-	Decreases output current, returning to normal after over temperature is removed.
Short Circuit Protection	-	-	-	Hiccupmode. The output shall return to normal when the fault condition is removed.
Dimensions (L*W*H)	193.5*68*37mm			
Net Weight	940±100g/PCS			
Package(L*W*H)	376*352*172mm; 12PCS/Ctn, Gross Weight: 13.3Kg			

Dimming

Parameter	Min	Typ.	Max	Notes
Absolute Maximum Voltage	-	10V	15V	On the Vdim (+) Pin
Source Current on Vdim (+)Pin		200uA	400uA	
Dimming Range	10% I _{max}	-	100% I _{max}	
Suggest Dimming Input 0-10V	0V	-	10V	
Turn-on Voltage	0.7V	-	1.0V	
Turn-off Voltage	0.4V	-	0.7V	
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%	
Turn-on Duty Cycle	7%	-	10%	
Turn-Off Duty Cycle	4%	-	7%	
Time Dimming	-	-	-	3 types, which is set by software
Droop Compensation	-	-	-	Constant lumen output function

Safety Specification

Dielectric Strength (Input-Output)	-	3750Vac	-	60s, Current not exceeding 5mA
Dielectric Strength (Input-Ground)	-	1554Vac	-	60s, Current not exceeding 5mA
Dielectric Strength (Output-Ground)	-	1520Vac	-	60s, Current not exceeding 5mA
Dielectric Strength (Input-Dimming)	-	3750Vac	-	60s, Current not exceeding 5mA
Dielectric Strength (Dimming-Ground)	-	500Vac	-	60s, Current not exceeding 5mA
Grounding Resistance	-	-	0.1Ω	25℃±10℃ Ambient Temperature, pass 25A Current, 60s.
Insulation Resistance	10MΩ	-	-	Input-Output, Input-PE, Output-PE, 500Vdc/60s/25℃

Safety Compliance

Safety Category	Standards	Approved	Notes
CCC	GB/T 19510.1, GB/T 19510.213	√	
CE	EN61347-1, EN61347-2-13, EN62493	√	
ENEC	EN61347-1, EN61347-2-13, EN62384	√	
CB	IEC61347-1, IEC61347-2-13	√	
BIS	IS 15885(PART 2/SEC 13)		
UL	UL 8750		
CUL	CSA C22.2 No.250.13		
KC	K61347-1, K61347-2-13		
PSE	J61347-1, J61347-2-13		
SAA	AS 61347.2.13, AS/NZS 61347.1		
EAC	ГОСТ Р МЭК 61347-1 ГОСТ IEC 61347-2-13		

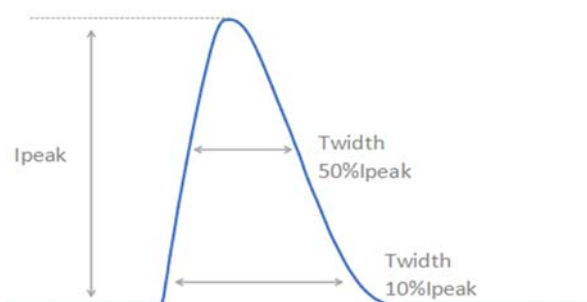
EMC Compliance

EMC Category	Standards	Approved	Notes
CCC	GB/T 17743, GB 17625.1	√	
CE	EN 55015	√	
CE	EN 61000-3-2, EN 61000-3-3	√	
CE	EN61000-4-2,3,4,5,6,11	√	
CE	EN 61547	√	
KC	K61547		
KC	K00015		
PSE	J55015		
FCC	FCC part 15		
Surge Shock Immunity	ANSI/C82.77-5-2017		
Ringing Wave			
EAC	ГОСТ IEC 62493, СТБ EH 55015 ГОСТ IEC 61547		
EAC	ГОСТ 30804.3.2 (IEC 61000-3-2) ГОСТ 30804.3.3 (IEC 61000-3-3)		

RoHS

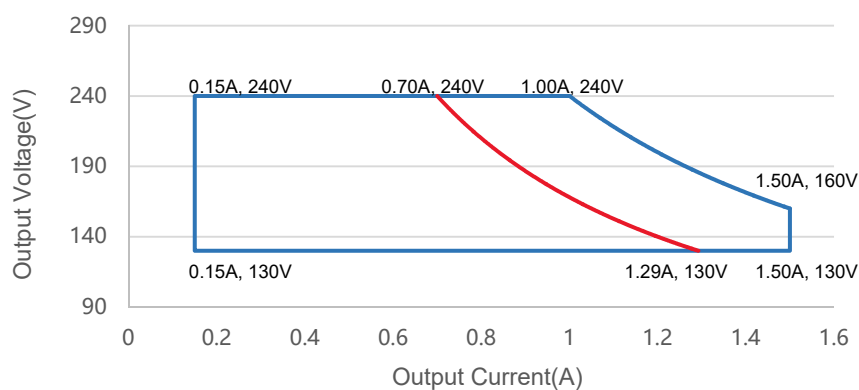
Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.

Inrush Current



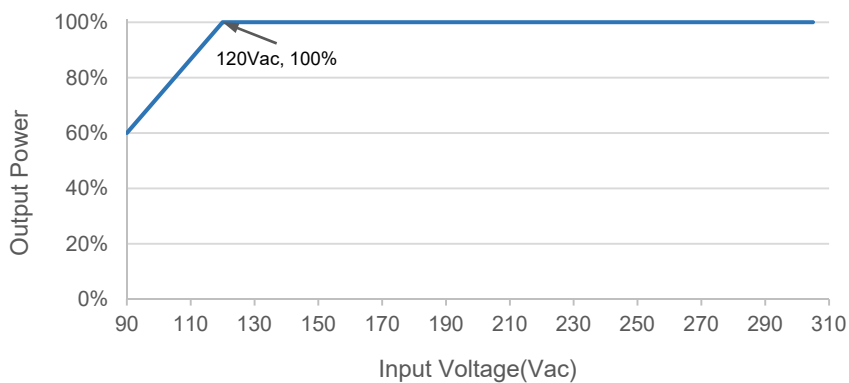
Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
230Vac	65A	780uS	350uS

Output Voltage vs. Output Current

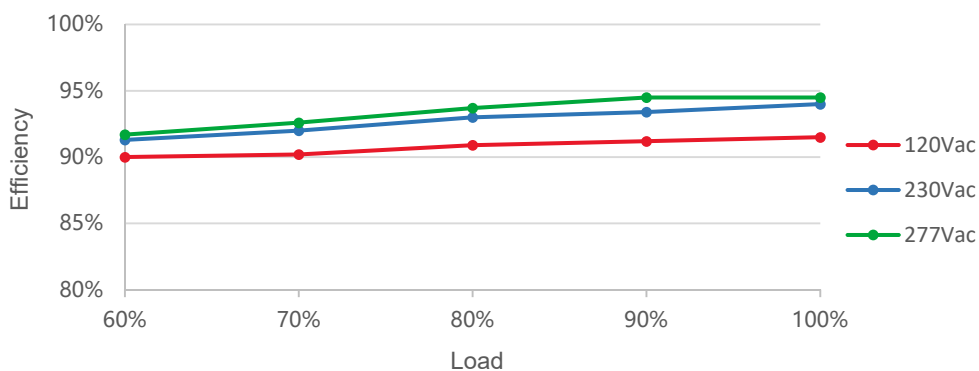


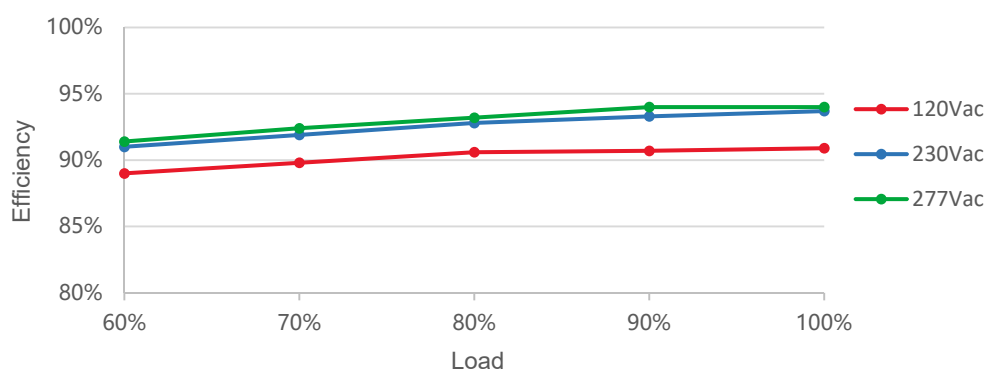
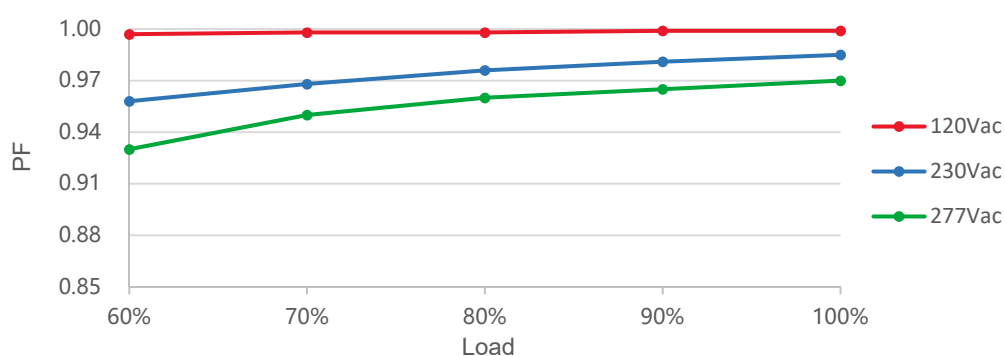
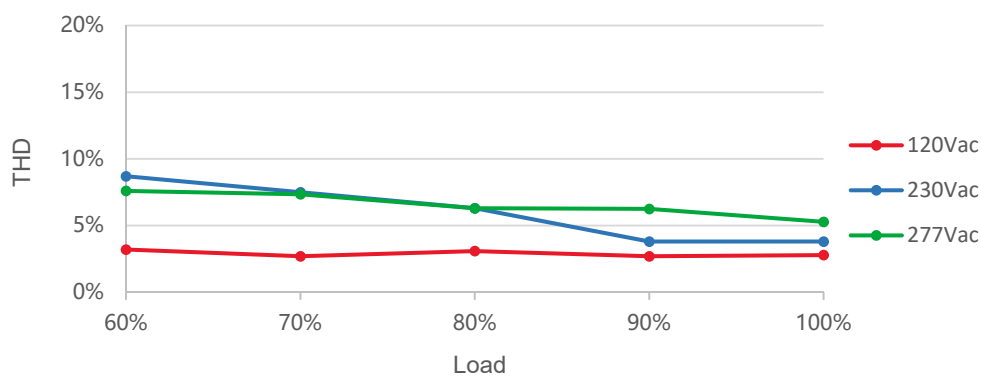
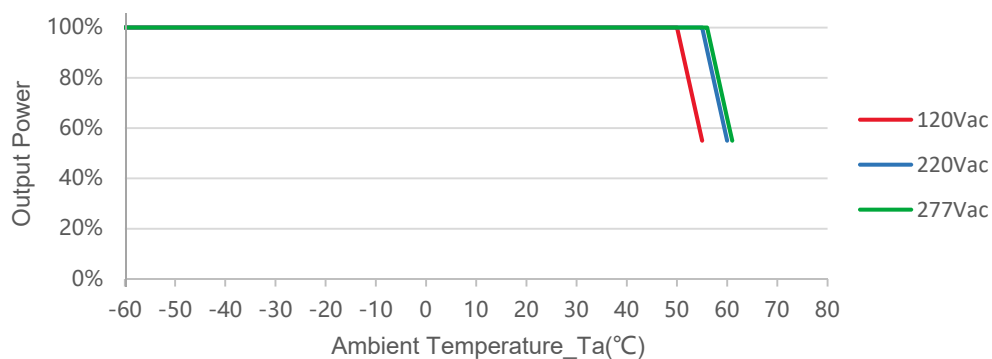
Red curve: good performance area

Output Power vs. Input Voltage

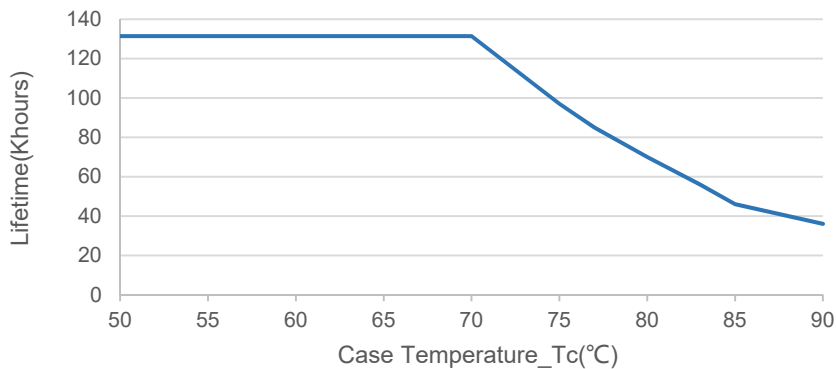


Efficient vs. Load (Io=1.0A)

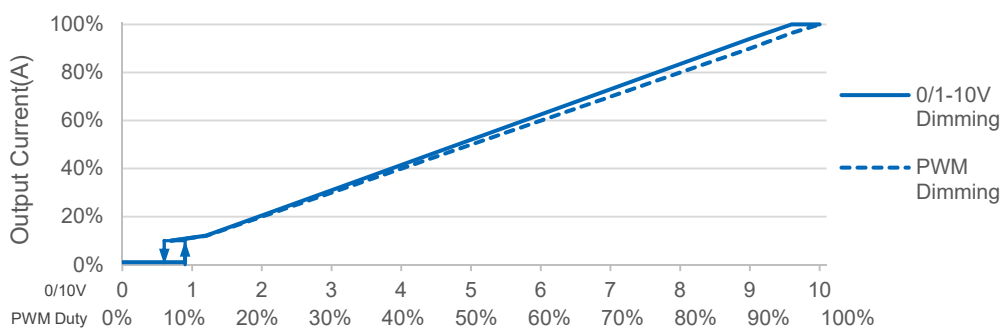


Efficient vs. Load ($I_o=1.5A$)

PF vs. Load

THD vs. Load

Output Power vs. Ambient Temperature


Lifetime vs. Case Temperature



0-10V/PWM Dimming



Note: Afterglow may appear after switching off dimming due to the difference of lamp panel. Thus, lighting fixture grounding test is suggested. 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.

Off-line Programming

User-friendly connection of programming without necessary to power on device(suitable for X6, XCP, X6I, PHC, MTP Series).

Programming mode 1



Visual Intelligent Programming

1. Set the output parameters through the control signal line 0-3.3V/0-5V/0-9V/0-10V optional.
2. Timer dimming. Set the timer control function, support up to 7 segments;
3. Set output CLO;
4. Read the recorded system parameters; Record the working time working temperature, and software version information of the LED driver.
5. Configure the driving parameters. After setting is completed, then click the configured parameters to complete programming.
6. Download it to the offline programmer.

Programming mode 2



Instructions of one touch programmer:

1. Open the software interface and download the program to the offline programmer;
2. Connect the dimming wire with the programmer, press the programmer button, the programmer will give you a subtle reminder "(Beep) " to tell you the installation completed.

Operating instructions

The Soft-start function is disabled by default. Select "EN_SoftStart" and set the parameters to enable it (Default 60s or dimming 20%).

U-I Curve

Model: X6N-320M056

Set Current: I Max 7500 mA, I Set 5000 mA

Select Dimming Mode: ☒ Signal Dimming, ☐ Timer Dimming

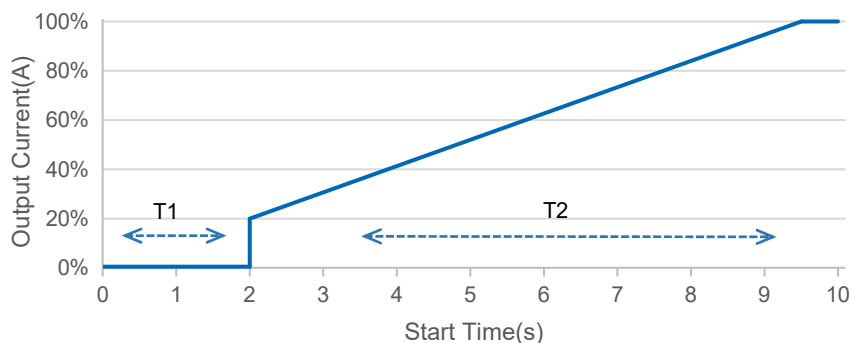
Signal Dimming: ☒ Cut-off Setup, ☒ Set Min Current, ☒ OTP Setup, ☒ Set Dimmer Voltage, ☒ Set Reverse Dimming

SoftStart: ☒ EN_SoftStart, Time 60 s, Out 20 %

The T2 Time can be set here

Dim level %

Dimming curve (V)



Soft-start Curve

Note:

1. T1 is turn-on time of driver (i.e., charging time of main capacitor within driver), T1=2s max, cannot be set.
2. T2 is soft-start time of driver (i.e., rise time of current output controlled by MCU), T2 can be set 1~60s (with a tolerance of $\pm 0.5s$).

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Version

A.1	First release	2026-06-24

Specification for Approval

Product Name: 240W LED Driver

Product Model: X6N-240M240

Rev: A.1

Address: XiLiSongbai Road 1061, Nanshan District, Shenzhen City, Guangdong, China

Tel: 0755-27657000

FAX: 0755-27657908

E-mail: info@mosopower.com

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

Prepared By	Checked By	Approved By

Specification for Approval

Product Name: 240W LED Driver

Product Model: X6N-240M240

Rev: A.1

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

Address: XiLiSongbai Road 1061, Nanshan District, Shenzhen City, Guangdong, China

Tel: 0755-27657000

FAX: 0755-27657908

E-mail: info@mosopower.com

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

Prepared By	Checked By	Approved By