Product Features：

- Universal input voltage / Full range: 120~277Vac;
- Constant power design, output current programming adjustable;
- (M types) offline 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;
- Output and Dimming Signal Isolating;
- Surge protection: 4KV line-line, 6KV 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 P1-400W series is 400W plant Lighting offline programmable LED driver that operates in constant current with high PF value and universal input voltage range 120~277Vac model. 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 lighting manufacturers, as one driver can be programmed for many different luminaire designs. P1 provides built-in timer dimming schedules further increasing the energy savings and CO_2 reductions achieved with LED lighting. It also helps clients to improve the management of logistics and stock.The compact metal case and high efficiency enables the driver to operating with high reliability, and extending product lifetime. Overall protection is provided against lightening surge, output over voltage, short circuit, and over temperature, to ensure low failure rate.

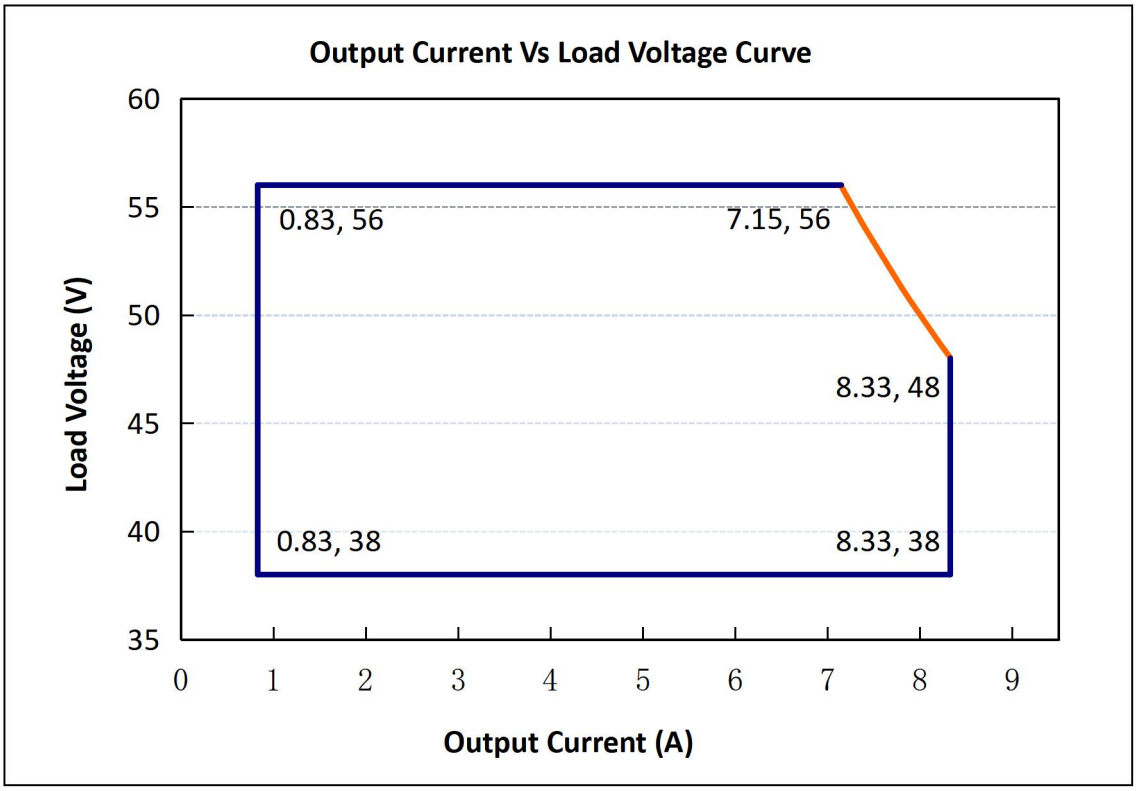
MODELS

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
P1-400M056A12	400	38-56	48-56	7.15- 8.33	48V/8.33A	94%	0.97@230V

Notes:

[1]. All specifications are measured at 25℃ ambient temperature, input voltage 230Vac, and the typical value tested by full load.

OPERATING AREA I-V



Notes：The drivers are not allowed to work in over-load condition, otherwise warranty will expire.

INPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	108Vac	120-277Vac	305Vac	
Input Frequency	47Hz	50/60	63Hz	
Leakage Current	-	-	0.70mA	230Vac/50Hz
Input AC Current	-	-	5.0A	120-277Vac &full load
Inrush Current	-	-	75A	230Vac & full load
Standby Power Consumption			0.75W	25℃ @Dim-to-Off
Power Factor	0.97	0.99	-	120Vac, 50-60Hz,full load
	0.95	0.97		230Vac, 50-60Hz, full load
	0.92	0.95		277Vac, 50-60Hz, full load
THD	-	8%	15%	100-240Vac,50-60Hz, 70%-100% load
	-	-	20%	277Vac, 50-60Hz, 70%-100% load
Max. NO. of PSUs on CIRCUIT BREAKER	B10 2	B16 2	B25 4	230Vac
	C10 3	C16 4	C25 6	

OUTPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Iset	-	5%Iset	
Output Current Setting Range (A)	0.83		8.33	The 'M type' adjustable Iout range: 10%-100% Imax.
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)	-	-	60	
Line Regulation	-1%	-	1%	25℃±10℃ ambient temperature, input voltage changes from 100Vac to277Vac.
Load Regulation	-3%	-	3%	25℃±10℃ambient temperature, Input Voltage 230Vac, load changes from 60% to 100%.
Turn-on Delay Time	-		3S	120Vac,100% load
	-	-	2S	230Vac,100% load
12V auxiliary output voltage	11.4V	12V	12.6V	25℃±10℃ ambient temperature, 230Vac，100% Load
12V auxiliary output source current	0mA		200mA	

GENERAL SPECIFICATIONS

Parameter		Min.	Typ.	Max.	Notes
Efficiency @120Vac I_O=8.33		89.0%	91.0%	-	Measured at full load and 25℃ambient temperature
Efficiency @230Vac I_O=8.33		92.0%	94.0%	-	
Efficiency @277Vac I_O=8.33		92.5%	94.5%	-	
Dielectric Strength	Input-Output	-	3750Vac	-	Max 5mA/60S
	Input-PE	-	1600Vac	-	
	Output-PE	-	1500Vac	-	
	Input-Dim		3750Vac		
Grounding Resistance		-	-	0.1Ω	25A/60S, under 25℃±10℃ambient temperature
Insulation Resistance		10MΩ	-	-	Input-Output, Input-PE, Output-PE, 500Vdc/60S/25℃/70%RH
MTBF (Hr)		-	200000	-	Telcordia SR-332,100% load, & Ta = 25°C
Lifetime (Hr)		-	50000	-	230Vac&100% load, 75℃ case temperature, refer to lifetime curve for details
Ambient Temperature		-20℃		+60℃	Reference derating curve
Operating Case Temperature for Safety Tc_s		-20℃		+90℃	
Operating Case Temperature for Warranty Tc_s		-20℃	-	+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		L285*W85*H50mm;			
Net Weight		2000±100g/PCS			
Package		L590mm*W445mm*H185mm; 10PCS/Ctn, Gross Weight:21 Kg			

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	P1-400M056A12	10%Imax	-	100%Imax	I_{max}=8.33A
	P1-400M056A12	0.83A		8.33A	
Recommended Dimming Range for 0-10V		0V	-	10V	Default 0-10V/ PWM Dimming(0-10V,0-9V,)
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	√
ENEC		EN61347-1, EN61347-2-13, EN62384	√
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	ГОСТР МЭК 61347-1-2011 ГОСТIEC 61347-2-13-2013 ГОСТIEC 62493-2014 СТБ ЕН 55015-2006 ГОСТIEC 0805 ГОСТ 30804.3.2-2013 (IEC61000-3-2:2009) ГОСТ 30804.3.3-2013 (IEC61000-3-3:2008)	

Insulation

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

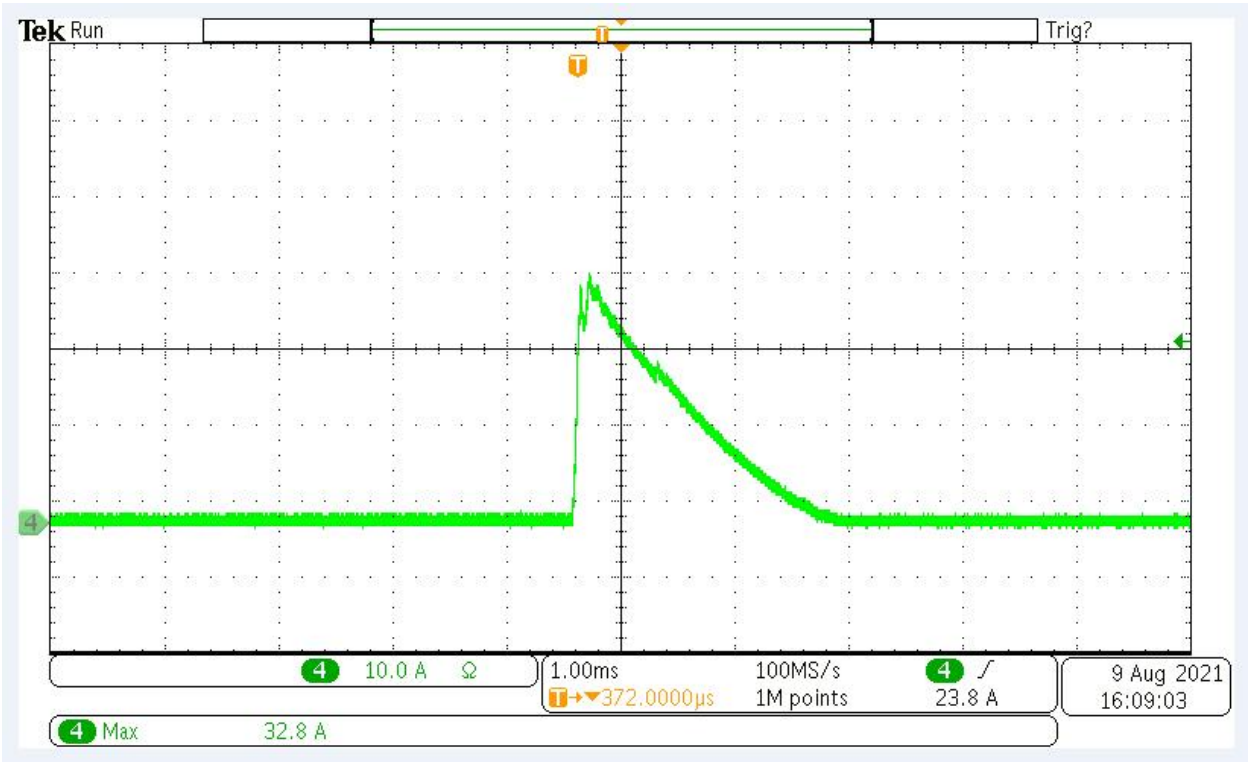
EMC COMPLIANCE

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	√

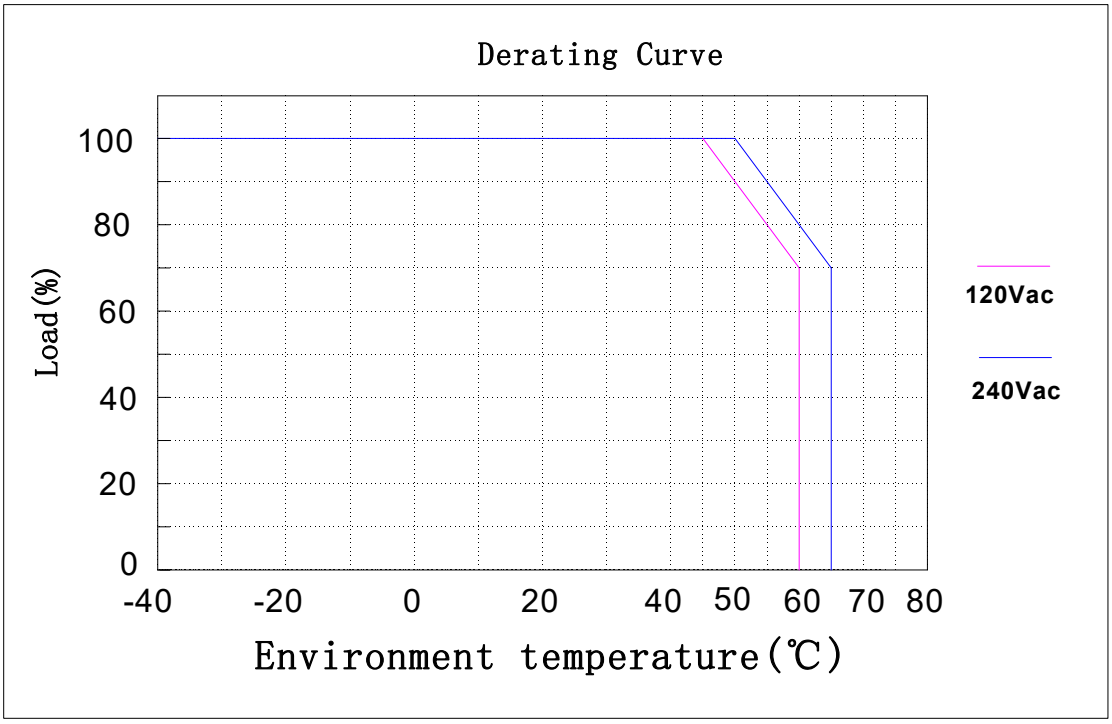
NOTE:

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

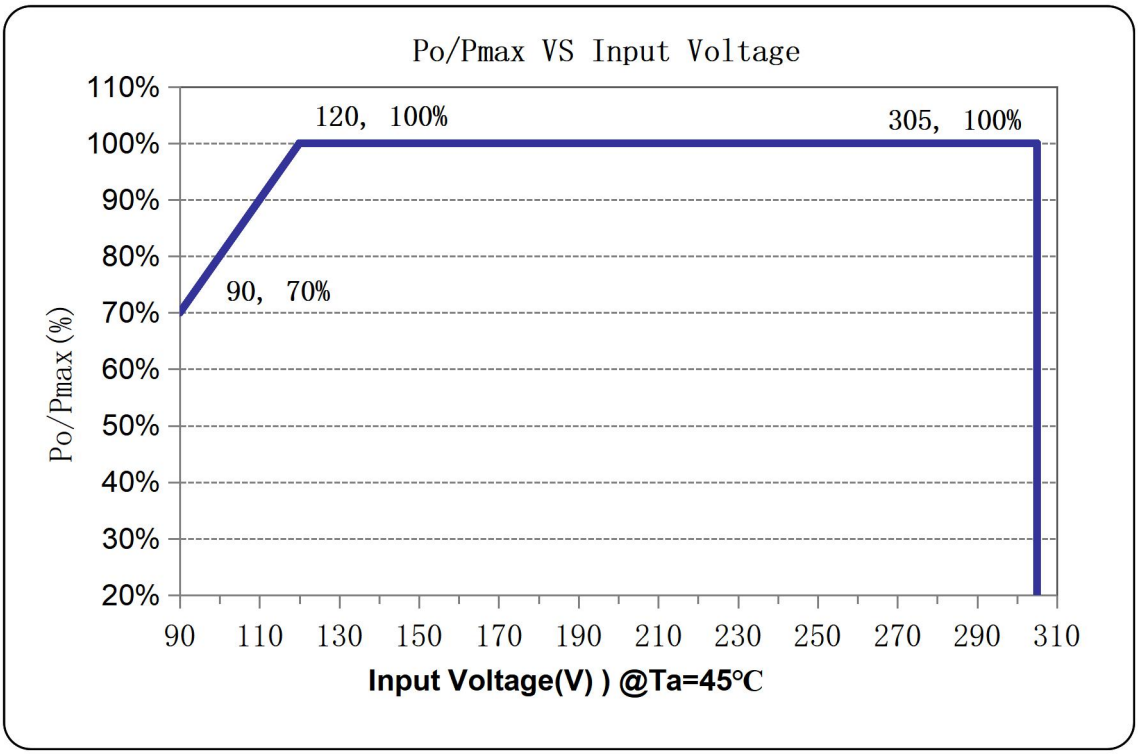
INRUSH CURRENT WAVEFORM



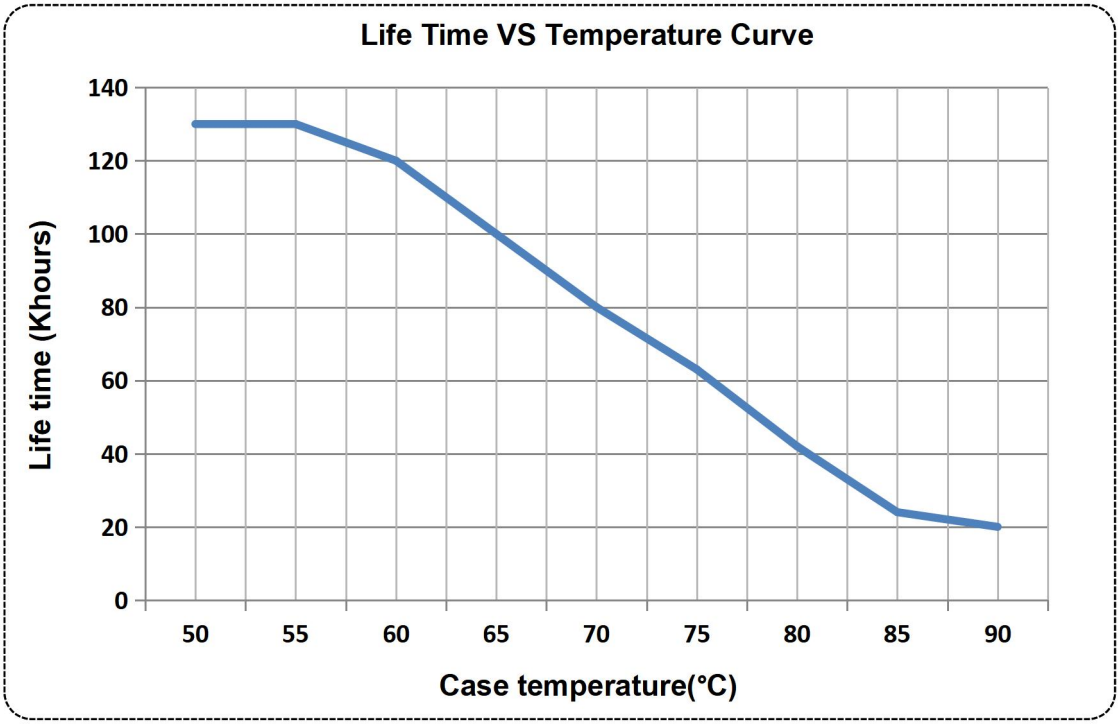
DERATING CURVE



OUTPUT POWER VS INPUT VOLTAGE

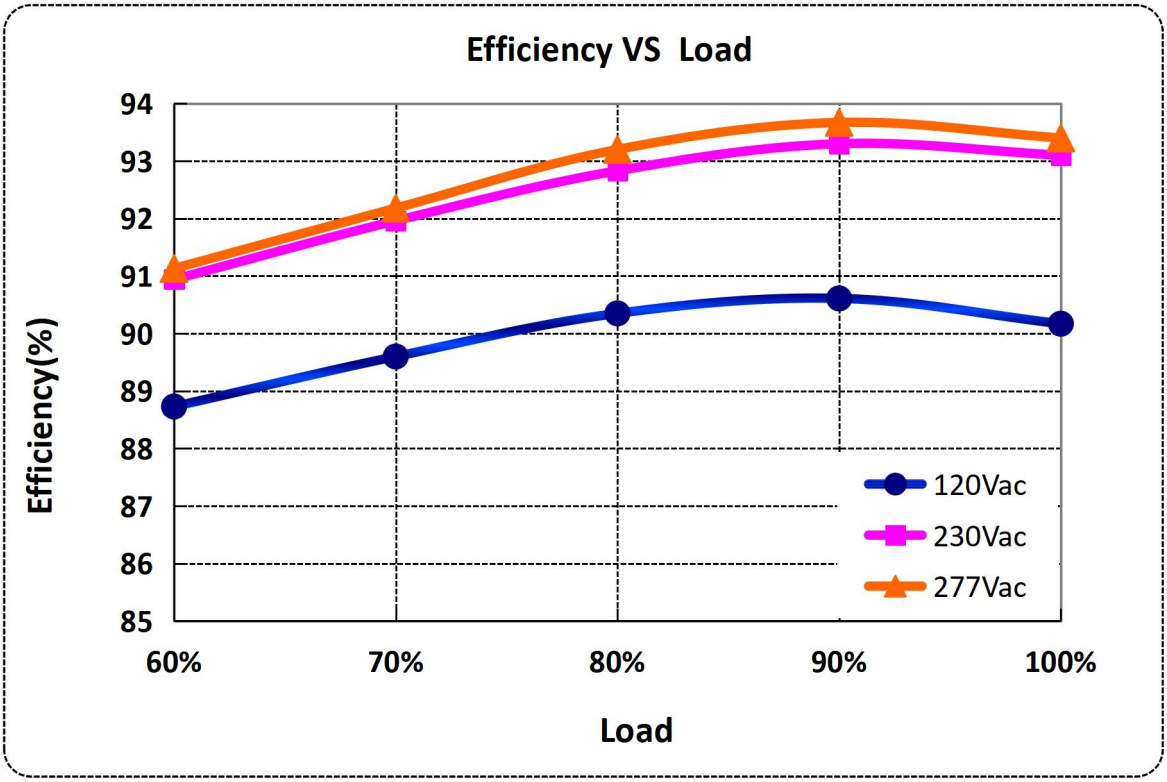


LIFETIME VS CASE TEMPERATURE

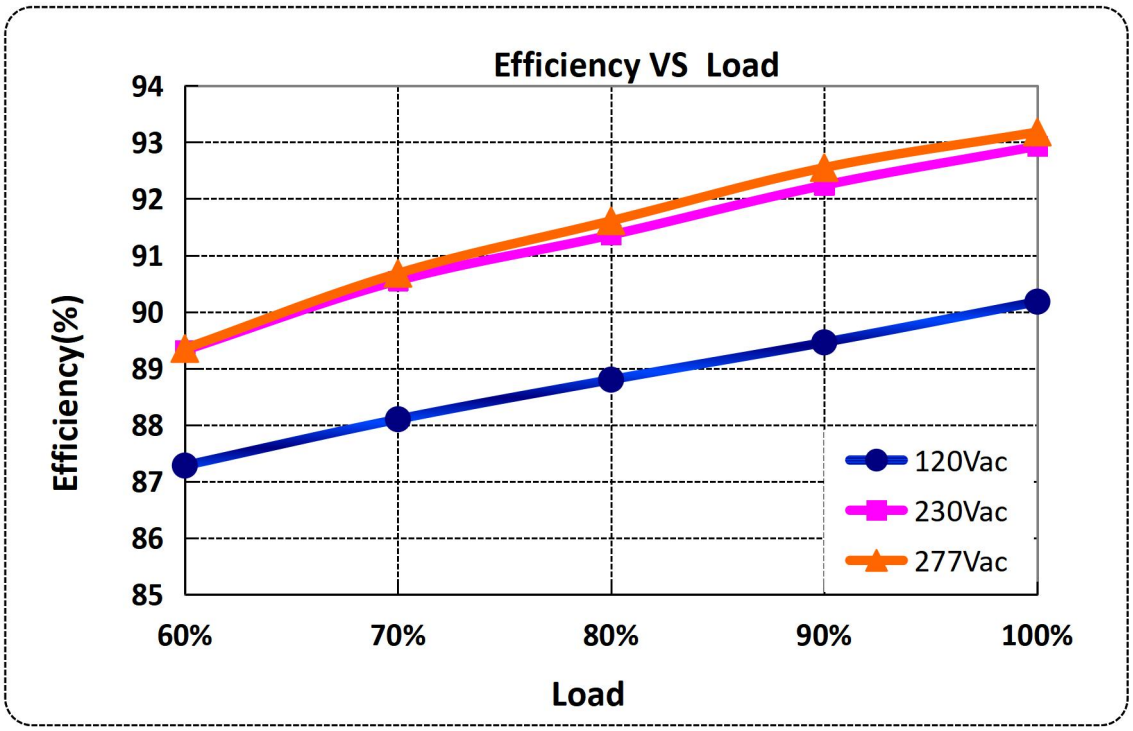


EFFICIENCY VS LOAD

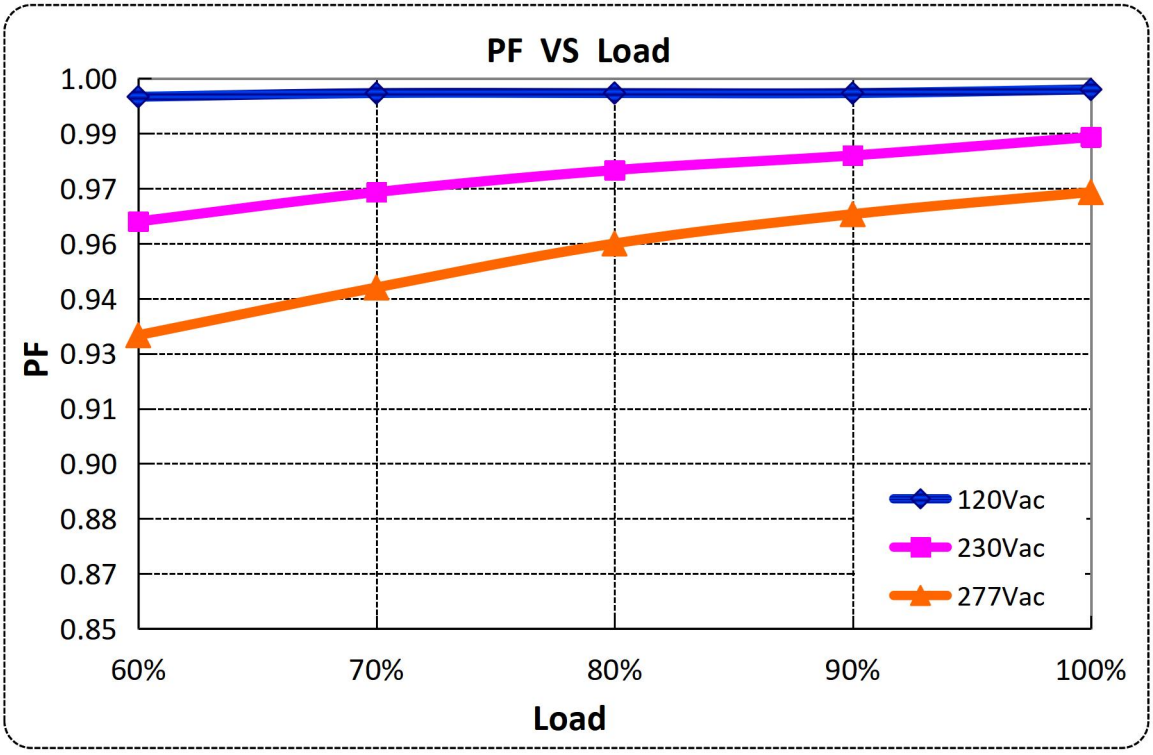
Io=7.15A



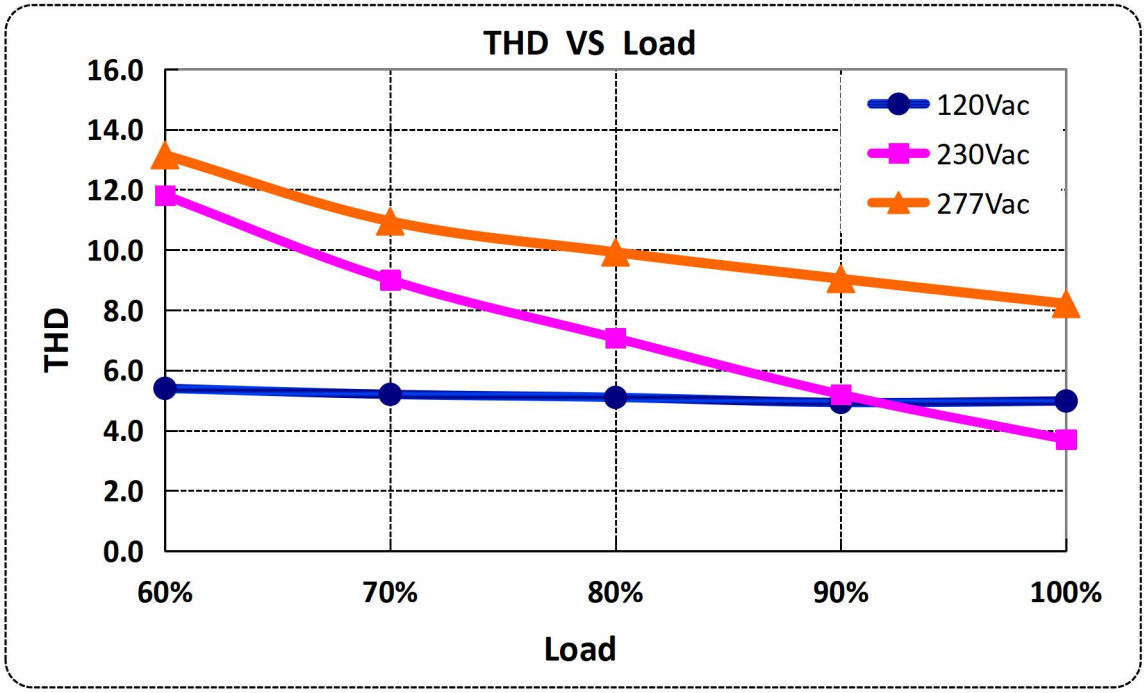
Io=8.33A



POWER FACTOR VS LOAD



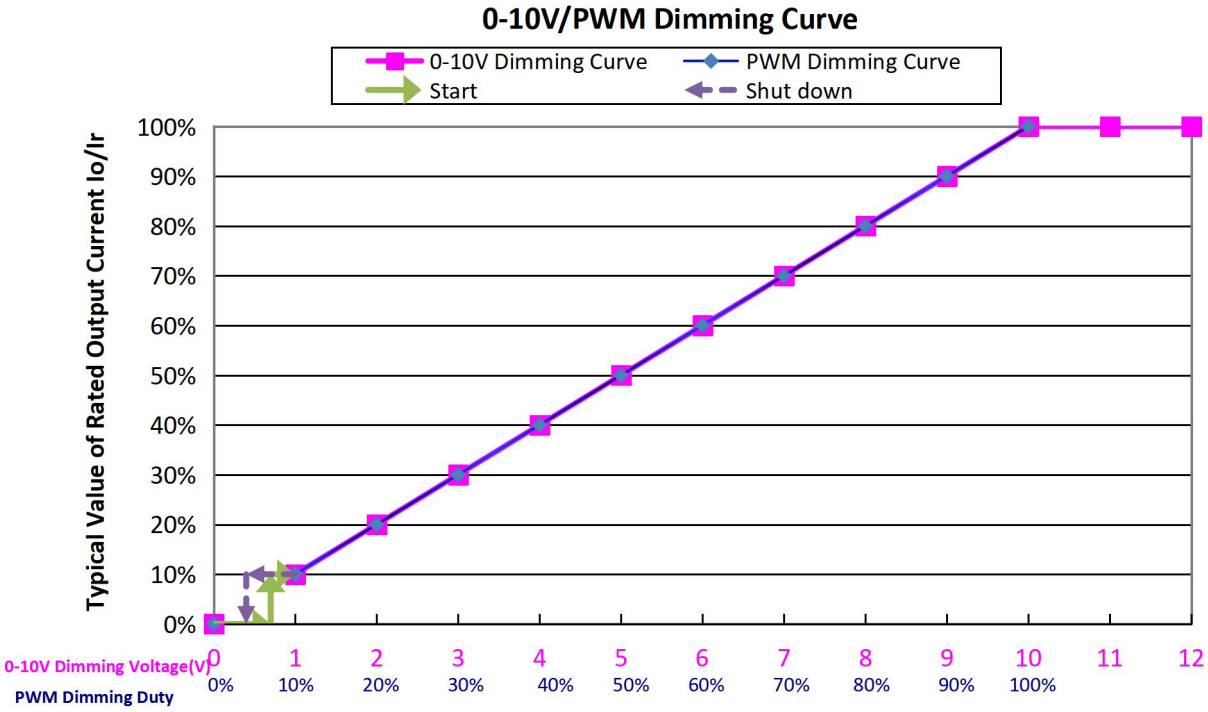
TOTAL HARMONIC DISTORTION



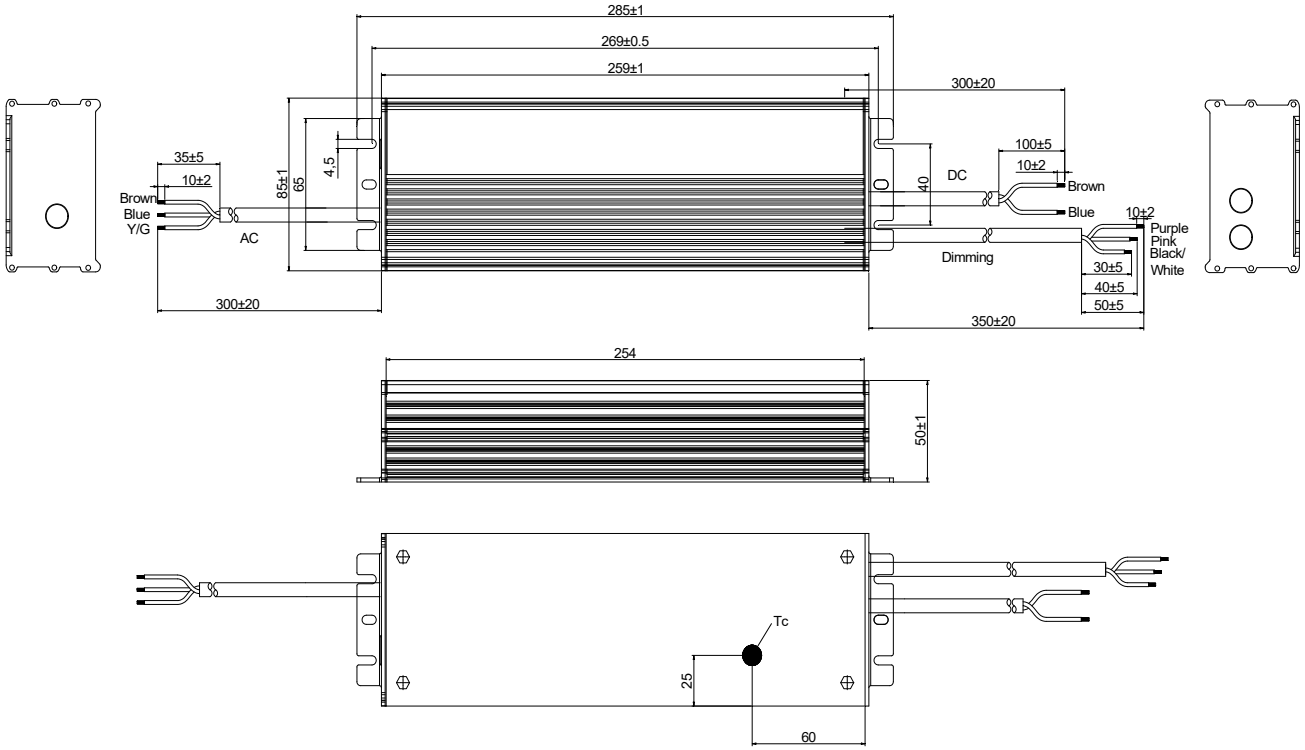
PROTECTIONS

Parameter	Notes
Over Temperature Protection	Decreases output current, returning to normal after over temperature is removed.
Short Circuit Protection	Constant current 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.
Over Voltage Protection	Run into protection model when output voltage exceeds limit, and return to normal when the fault is eliminated and restart the power supply

0-10V/PWM DIMMING

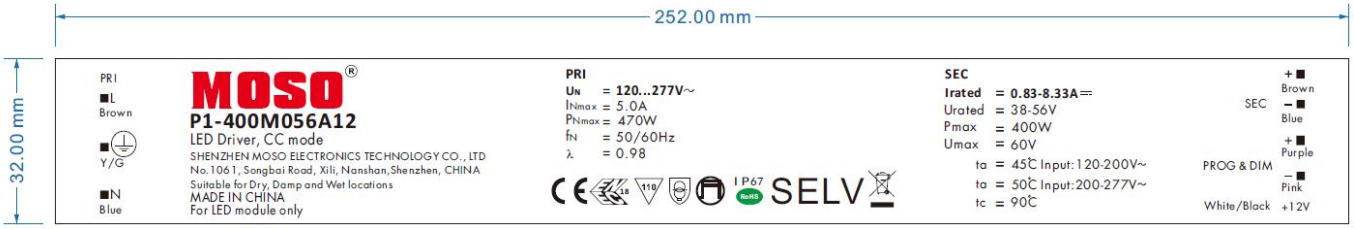


MECHANICAL OUTLINE



Wire	Specification	Note
Input	CCC+VDE H05RN-F *3C L=300±20mm	CCC/CE
Output	CCC+VDE H07RN-F *2C L=300±20mm	CCC/CE
Dimming	UL 21996 22AWG *3C L=350±20mm	A12

LABEL



REVISION HISTORY

Rev..	Description of Change		Changed Date	Notes
	Before	After		
A.1	Original Release—		2023-06-02	

Specification for Approval

Product Name: 400W Plant Lighting Off-line Programmable
Product Model: P1-400M056A12
Sample Date: 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: XiLi Songbai Road 1061, Nanshan District, Shenzhen City, Guangdong Province, P.R.China
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

Product Specification

Product Name:	400W Plant Lighting Off-line Programmable
Product Model:	P1-400M056A12
Rev.	A.1

Address:	XiLi Songbai Road 1061, Nanshan District, Shenzhen City, Guangdong Province, P.R.China	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