

Product Features

- Universal input voltage / Full range: 90~305Vac;
- 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, Timer dimming. Dim-to-off;
- Constant lumen output;
- 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;
- 7 years warranty.

Application

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

DESCRIPTION

The X6-600W series is 600W outdoor offline programmable LED driver that operates in constant current with high PF value and universal input voltage range 90~305Vac 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. X6 provides built-in timer dimming schedules further increasing the energy savings and CO₂ 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)	Default Output Current Setting(A)	Typical Efficiency [2]	PF
X6-600M056A12	600	27-56	48-56	10.7-12.50	10.7	94%	0.96
X6-600M134A12	600	54-134	107-134	4.48-5.60	5.60	94.5%	0.96
X6-600M268A12	600	108-268	214-268	2.24-2.80	2.80	94.5%	0.96
X6-600M428A12	600	240-428	343-428	1.40-1.75	1.40	94%	0.96

Notes:

[1]. M means dimmable and offline programmable, the adjustable lout range: 10%-100% I_{max};

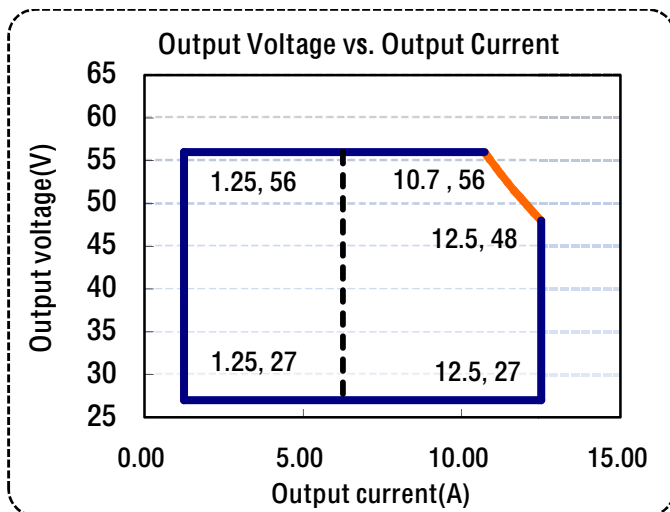
A12 means the driver with 12V/300mA auxiliary power supply.

[2]. Output current adjustable range with constant power at max output power;

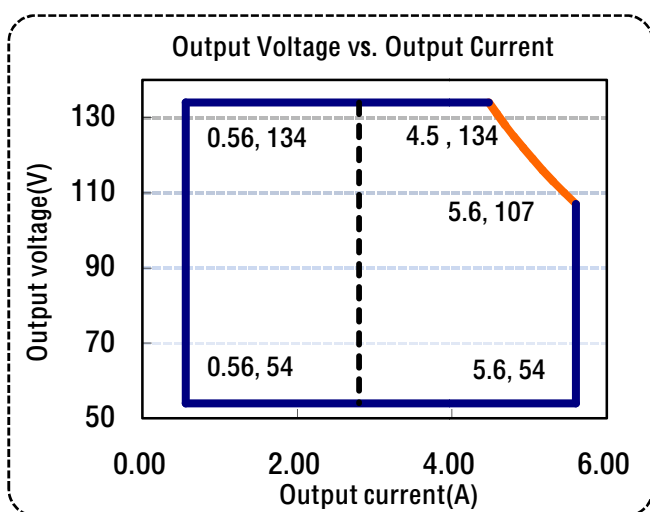
[3]. All specifications are measured at 25℃ ambient temperature, input voltage 230Vac, and the typical value tested by full load, if no specific note.

OPERATING AREA I-V

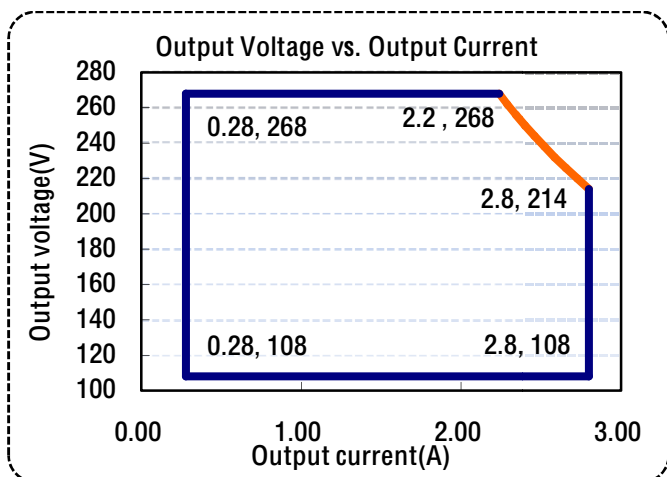
X6-600M056A12



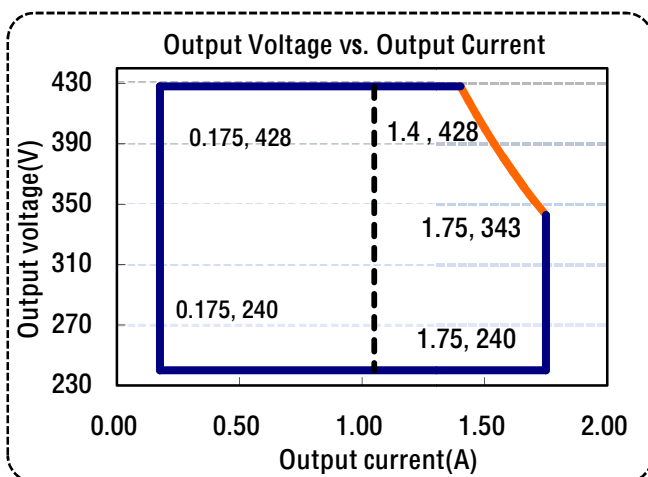
X6-600M134A12



X6-600M268A12



X6-600M428A12



INPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90Vac	100-277Vac	305Vac	
Input Frequency	47Hz	50/60	63Hz	
Leakage Current	-	-	0.75mA	277Vac/60Hz
Input AC Current	-	-	6.6A	100-277Vac & full load
Inrush Current	-	-	75A	230Vac & full load
Standby Power Consumption			0.5W	
Power Factor	0.97	0.99	-	115Vac, 50-60Hz, full load
	0.95	0.97		230Vac, 50-60Hz, full load
	0.90	0.95		277Vac, 50-60Hz, full load
THD	-	5%	10%	100-240Vac, 50-60Hz, 50%-100% load
	-	-	15%	277Vac, 50-60Hz, 70%-100% load

OUTPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%	-	5%	
Output Current Setting Range (A) X6-600M056A12 X6-600M134A12 X6-600M268A12 X6-600M428A12	6.25 2.80 1.40 0.875	- - - -	12.50 5.60 2.80 1.75	The 'M type' adjustable lout range: 10%-100% Imax
Output Current Setting Range with Constant Power (A) X6-600M056A12 X6-600M134A12 X6-600M268A12 X6-600M428A12	10.7 4.48 2.24 1.40	- - - -	12.50 5.60 2.80 1.75	
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) X6-600M056A12 X6-600M134A12 X6-600M268A12 X6-600M428A12	-	-	60 150 290 450	
No Load Power(W)	-	-	0.5W	220Vac/50Hz, no load
Line Regulation	-1%	-	1%	25°C±10°C ambient temperature, input voltage changes from 100Vac to 277Vac.
Load Regulation	-3%	-	3%	25°C±10°C ambient temperature, Input Voltage 230Vac, load changes from 60% to 100%.
Turn-on Delay Time	-	-	1S	120Vac, 100% load
	-	-	0.5S	230Vac, 100% load

GENERAL SPECIFICATIONS

Parameter		Min.	Typ.	Max.	Remark
Efficiency @120Vac X6-600M056A12 I _o =10.7		91%	92%	-	Measured at full load and 25°C ambient temperature
X6-600M134A12 I _o =4.48		92%	92%		
X6-600M268A12 I _o =2.24		92%	92%		
X6-600M428A12 I _o =1.40		91%	92%		
Efficiency @230Vac X6-600M056A12 I _o =10.7		93%	94%	-	Measured at full load and 25°C ambient temperature
X6-600M134A12 I _o =4.48		93%	94%		
X6-600M268A12 I _o =2.24		94%	95%		
X6-600M428A12 I _o =1.40		94%	95%		
Efficiency @277Vac X6-600M056A12 I _o =10.7		93%	94%	-	Measured at full load and 25°C ambient temperature
X6-600M134A12 I _o =4.48		93%	94%		
X6-600M268A12 I _o =2.24		94%	95%		
X6-600M428A12 I _o =1.40		94%	95%		
AUX. Power(Optional)		10.8V	12V	13.2V	Only for A12 version
		0	-	300mA	
Dielectric Strength	Input-Output	-	3750Vac	-	Max 5mA/60S
	Input-PE	-	1600Vac	-	
	Output-PE	-	1600Vac	-	
Grounding Resistance		-	-	0.1Ω	25A/60S, under 25°C±10°C ambient temperature
Insulation Resistance		50MΩ	-	-	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		-	70000Hrs	-	230Vac&100% load, 75°C case temperature, refer to lifetime curve for details
Ambient Temperature		-40°C		+55°C	230Vac&100% load
Operating Case Temperature for Safety Tc _s		-40°C	-	+90°C	
Operating Case Temperature for Warranty Tc _s		-40°C	-	+75°C	7 years warranty case temperature Humidity: 10% to 95% RH
Storage Temperature		-40°C	-	+85°C	Humidity: 5% to 100% RH
Dimensions (LxWxH)mm		L277*W144*H47.5mm;			
Net Weight		3200±200g/PCS			
Package		L475mm*W385mm*H150mm; 5PCS/Ctn, Gross Weight: 16 Kg			

DIMMING

Parameter		Min.	Typ.	Max.	Notes
0~10V Absolute Maximum Voltage on the Vdim (+) Pin		-	10V	-	
0~10V Source Current on Vdim(+)Pin		-	0.2mA	0.4mA	
Dimming Output Range	X6-600M056A12	10% I _{max}	-	100% I _{max}	I _{max} =12.50A I _{max} =5.60A I _{max} =2.80A I _{max} =1.75A
	X6-600M134A12				
	X6-600M268A12				
	X6-600M428A12				
	X6-600M056A12	1.25	-	12.5	Default 0-10V/ PWM Dimming(0-10V,0-9V,0-5V,0-3.3V can be customized as request)
	X6-600M134A12	0.56		5.60	
	X6-600M268A12	0.28		2.80	
	X6-600M428A12	0.175		1.75	
Recommended Dimming Range for 0-10V		0V	-	10V	
PWM_in High Level		9.7V	-	10.3V	Default 0-10V/ PWM Dimming(0-10V,0-9V,0-5V,0-3.3V can be customized as request)
PWM_in Low Level		0V	-	0.3V	
PWM_in Frequency Range		200Hz		2000Hz	
PWM_in Duty Cycle		1%	-	99%	

SAFTY STANDARDS

Safety Category	Country / Territory	Standards	Approved
CCC	China	GB19510.1, GB19510.14	√
CE	Europe	EN61347-1, EN61347-2-13	√
		EN62493	√
ENEC		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	√
SAA	Australia	AS/NZS IEC 61347.2.13	
		AS/NZS 61347.1	

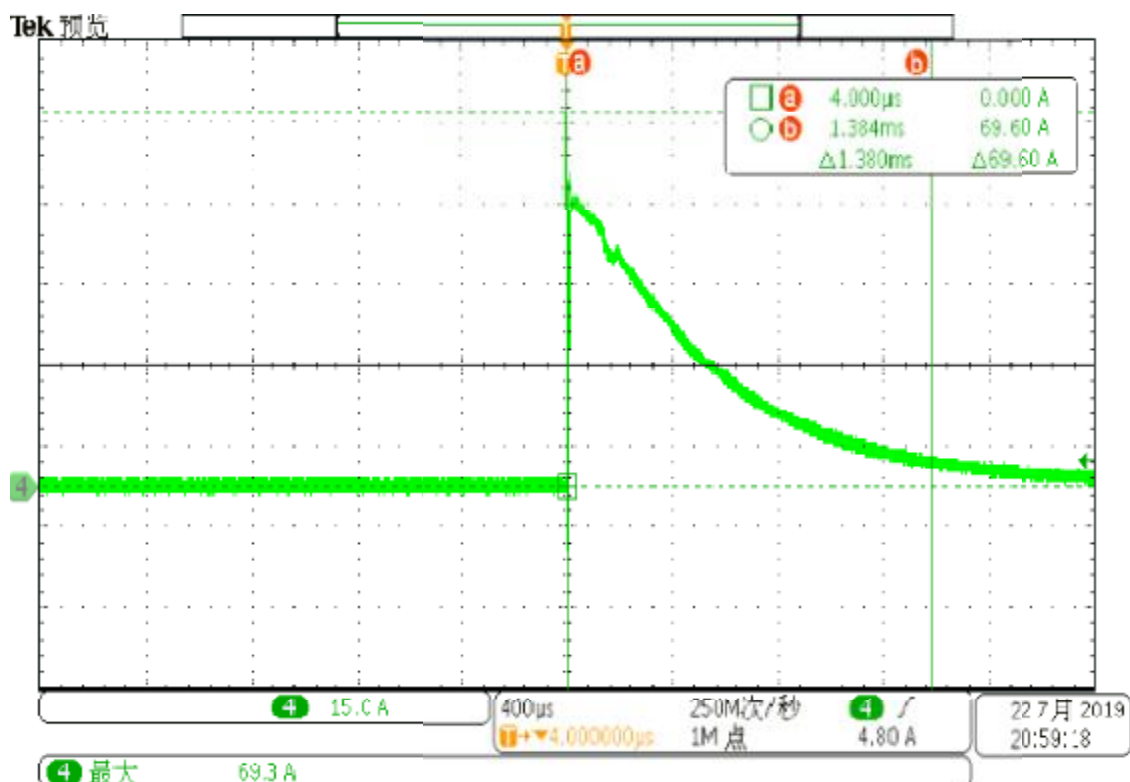
EMC COMPLIANCE

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	√
FCC	USA	FCC part 15	√

NOTE:

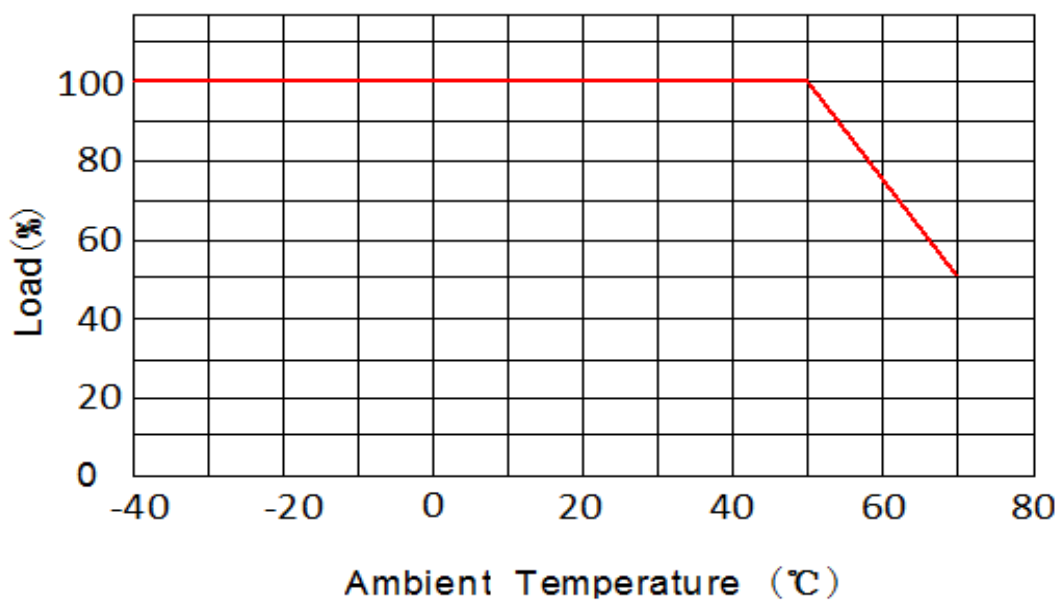
This LED driver meets the EMI specifications above, but as a component of a luminaire, end customer need to identify the EMI performance of a luminaire including LED driver, other devices connected to the driver and on the luminaire itself.

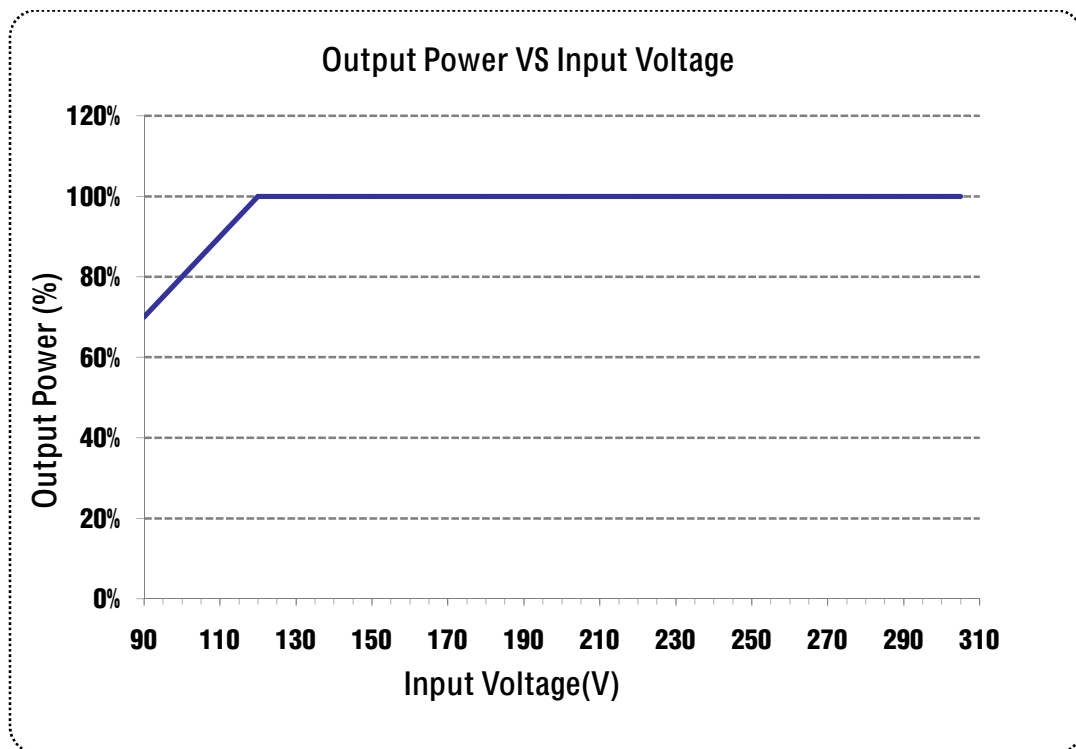
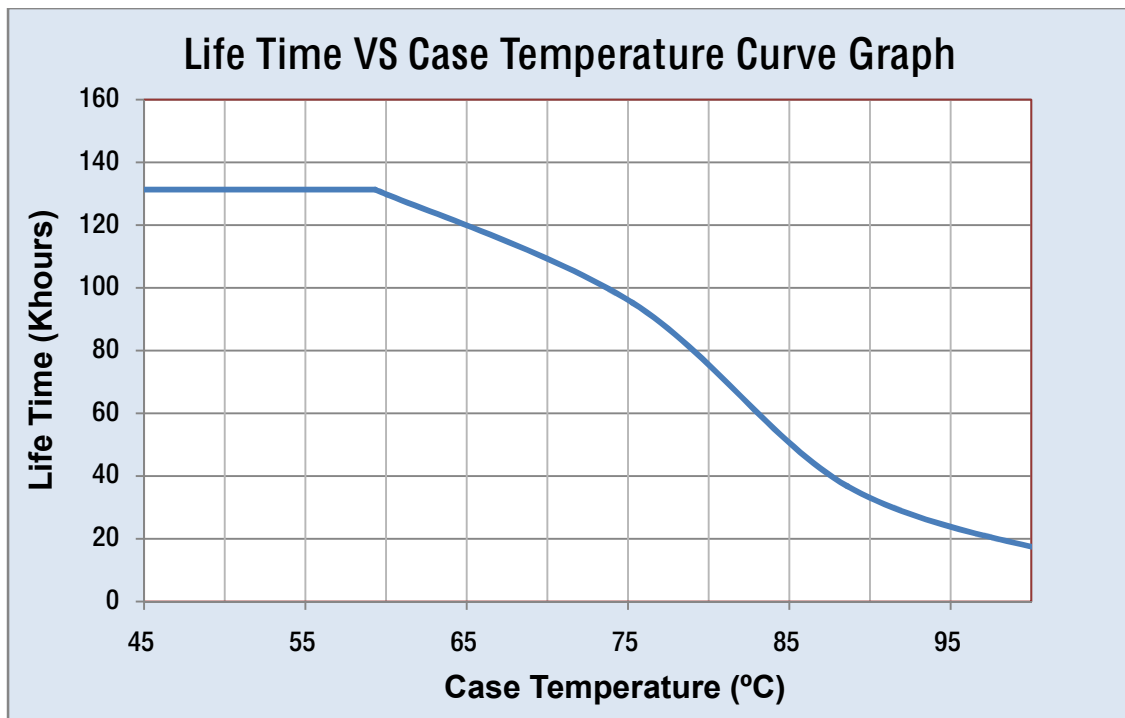
INRUSH CURRENT WAVEFORM



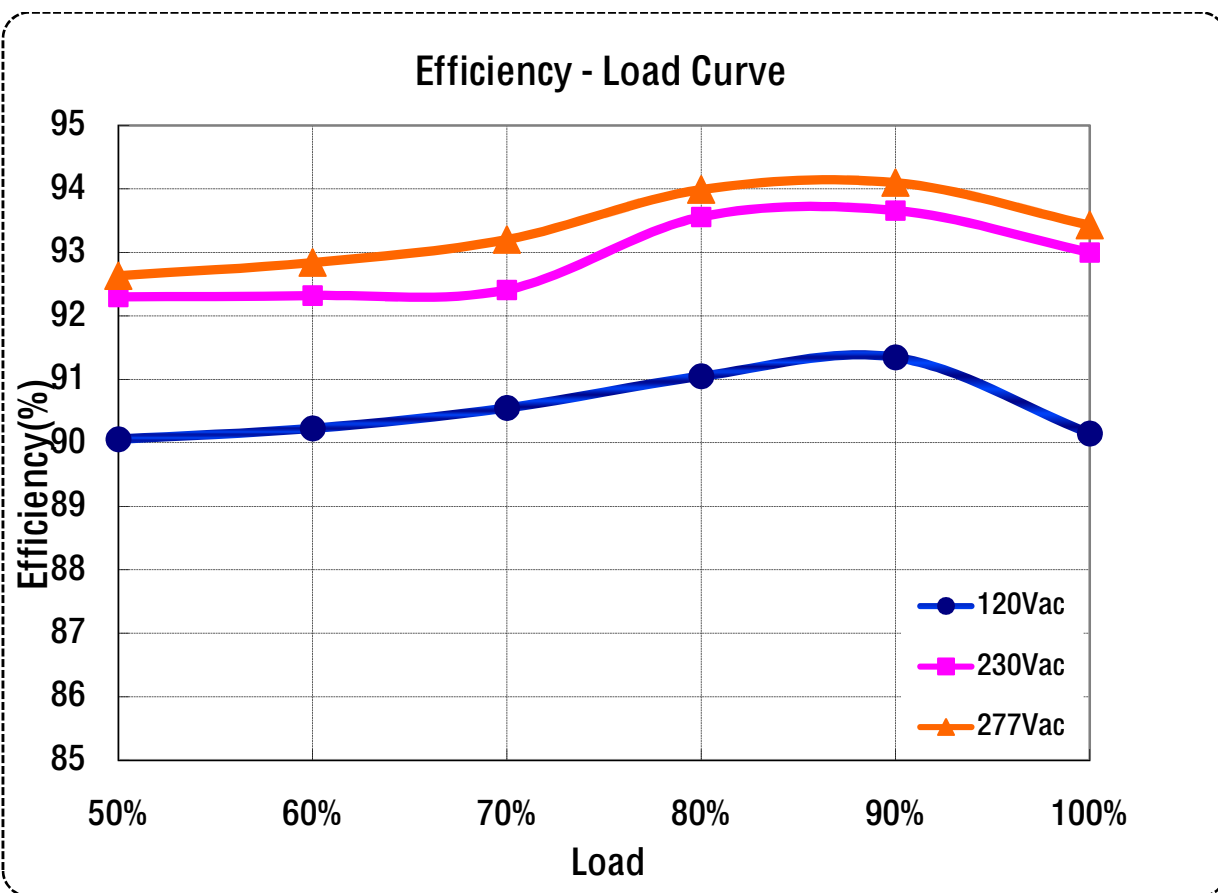
DERATING CURV

Derating Curve

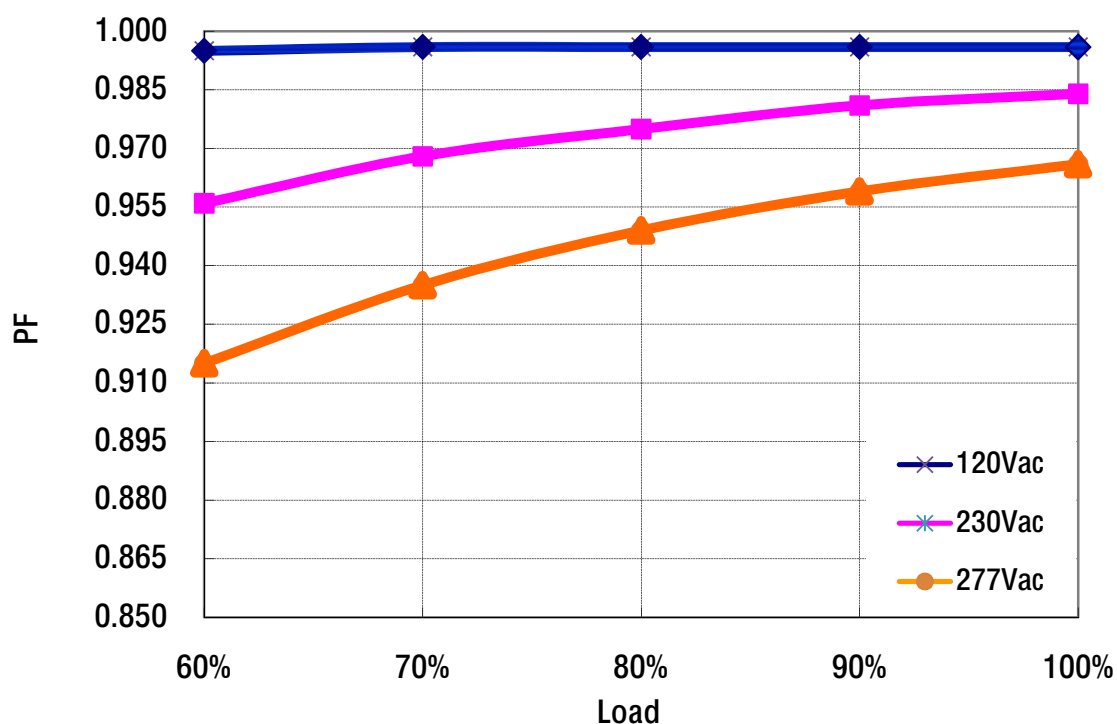


OUTPUT POWER VS INPUT VOLTAGE**LIFETIME VS CASE TEMPERATURE**

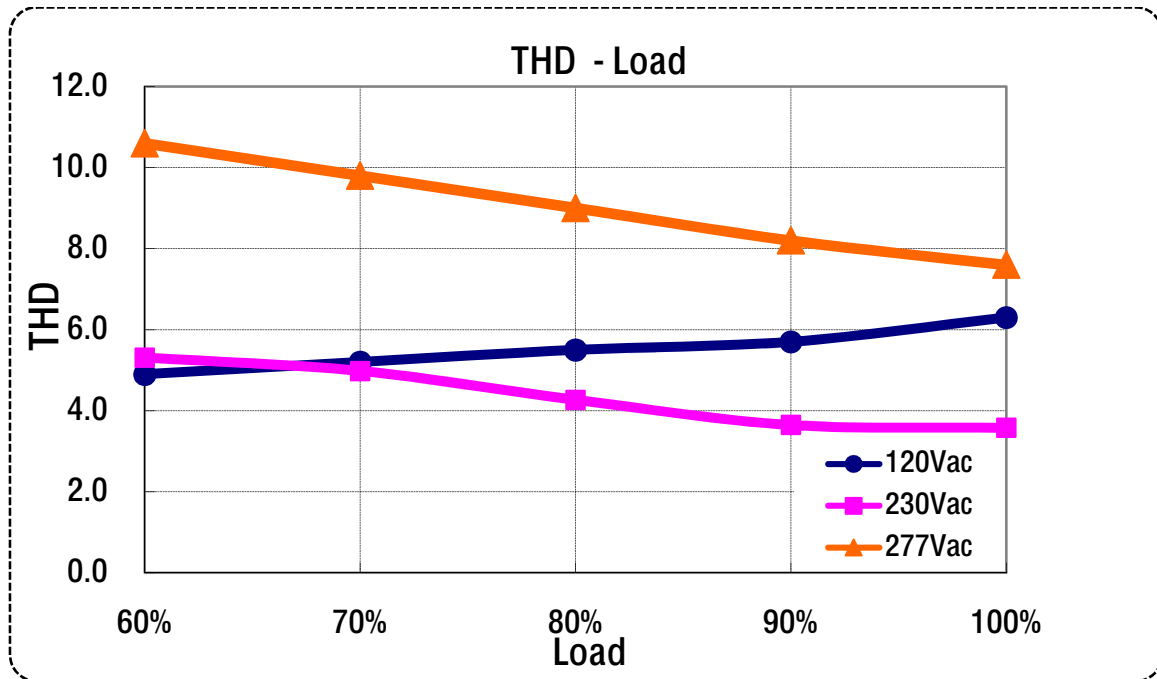
EFFICIENCY VS LOAD



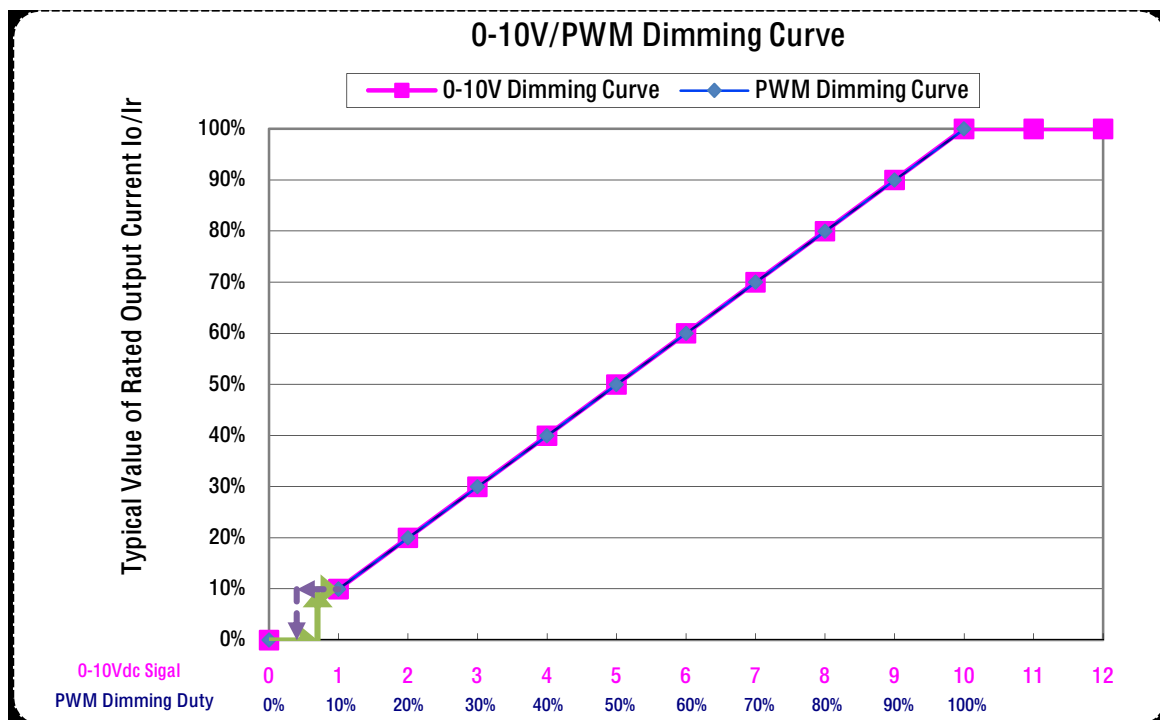
POWER FACTOR VS LOAD



TOTAL HARMONIC DISTORTION



0-10V/PWM DIMMING

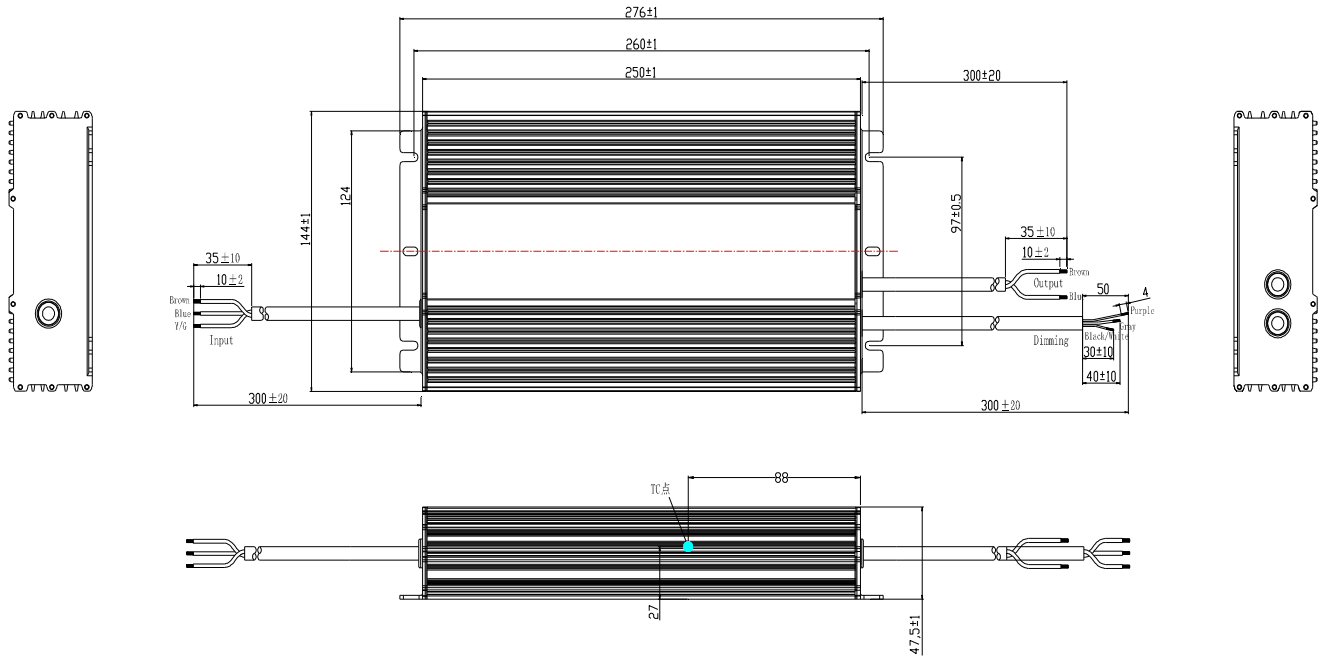


PROTECTIONS

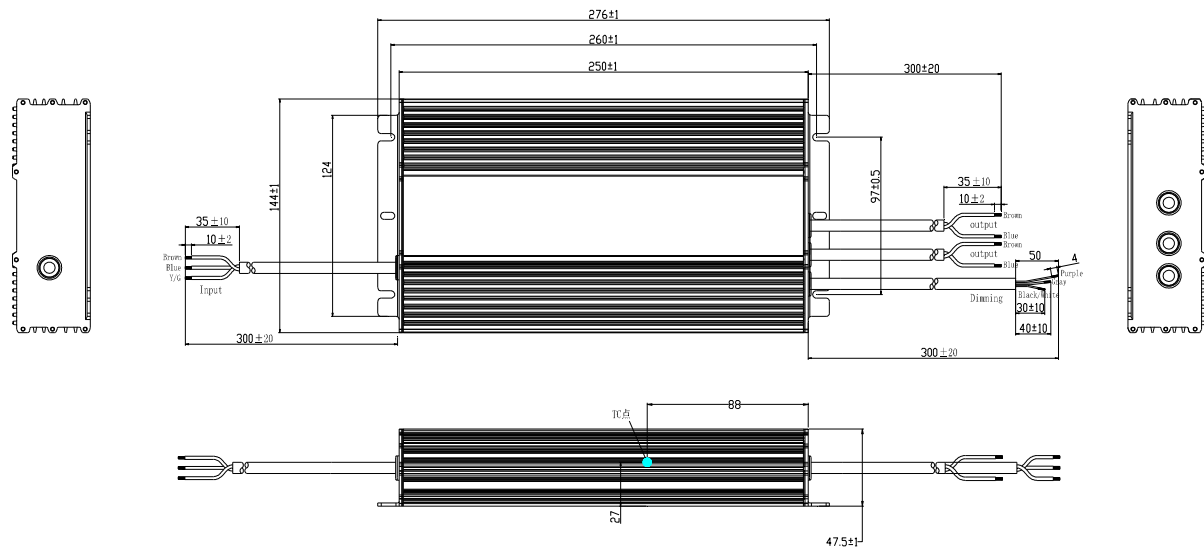
Parameter	Notes
Over Temperature Protection	Decreases output current, returning to normal after over temperature is removed. The max derating could be 30% (typ.).
Short Circuit Protection	Constant current mode and auto recovery. No damage will occur when any output is short circuited. The output shall 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

MECHANICAL OUTLINE

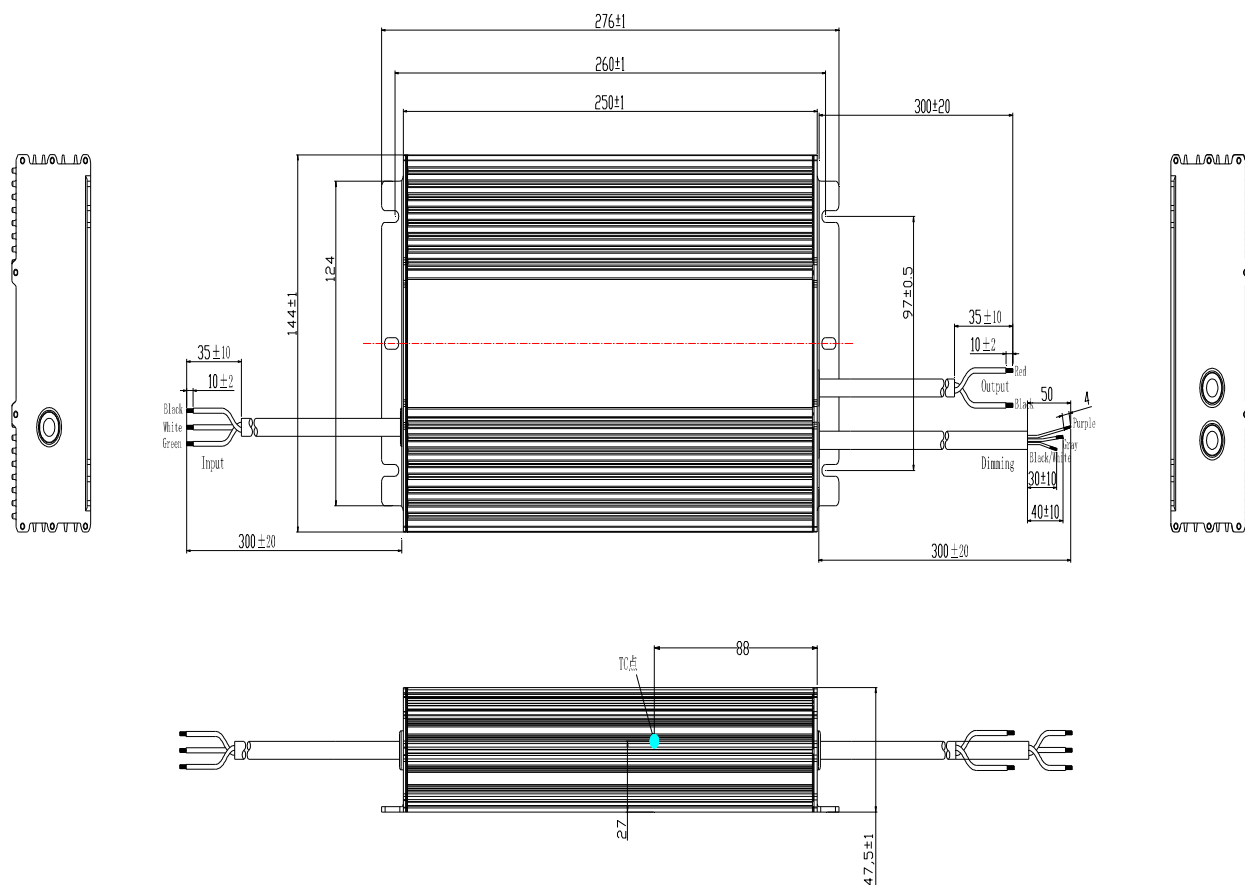
X6-600 (except 056 model) Global Version



X6-600M056A12 Global Version



X6-600 (UL Version)



Wire	Specification	Note
Input	SJOW 17AWG*3 external diameter: 8.3mm L=300±10mm; L=300±10mm; peel length 35mm, Tin-dip length 10mm	for CCC/CE/UL
Output	17AWG*2 external diameter: 7.7mm L=300±10mm; L=300±10mm; peel length 35mm, Tin-dip length 10mm	for CCC/CE/UL
Input	SJOW 17AWG*3 external diameter: 8.3mm L=300±10mm; L=300±10mm; peel length 35mm, Tin-dip length 10mm	for CCC/CE/UL
Output	2 in parallel SJOW 17AWG*2 external diameter: 7.7mm L=300±10mm; L=300±10mm; peel length 35mm, Tin-dip length 10mm	X6-600Y056Z for CCC/CE/UL
Input	18AWG*3, L=300±10mm;	for UL
Output	14AWG*2, L=300±10mm;	for UL(056Model)
Output	18AWG*2, L=300±10mm;	for UL(except 056Model)
Dimming	UL 21996; 22AWG*3C L=300±10mm(black/white is 12v(+) ,gray is 12v(-) and DIM(-),purple is DIM(+))	A12 types

REVISION HISTORY

[illegible]