

FEATURES



- ◆ Ultra high input voltage range: 249~528Vac;
- ◆ Constant power design, outputs programmable;
- ◆ Output current reconfigurable by infrared controller;
- ◆ 3-in-1 dimmable (M types): 0~10Vdc / PWM signal / Timer dimming;
- ◆ Surge immunity : 4KV line-line, 6KV line-earth;
- ◆ IP67 design for indoor and outdoor applications;
- ◆ Suitable for dry / damp / wet locations;
- ◆ 5 years warranty

APPLICATION

- ◆ Suitable for LED architecture lighting, industrial lighting, flood lighting, and roadway lighting, etc.

DESCRIPTION

With 249 to 528Vac input, LHP series is designed for ultra high voltage market (277Vac/347Vac/480Vac), it's especially suitable for North America industrial electrical network. LHP is configurable constant current LED driver with high reliability, Monitored by an infrared based programming device, the fully programmed drivers offer all dimming 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 OEMs, as one driver can be programmed for many different luminaire designs. LHP provides built-in timer dimming schedules further increasing the energy savings and CO2 reductions achieved with LED lighting. It also help clients to improve the management of logistics and stock.

MODELS

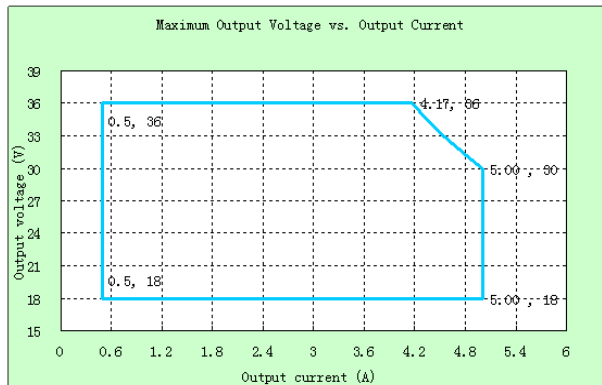
Model	Power(W)	Output voltage range(V)	Output current adjustable range (A)	Full power current adjustable range (A) ⁽²⁾	Default output spec	Typ. Eff. ⁽³⁾	Typ. PF	
							277Vac	528Vac
LHP-150X036(1)	150	18~36	0.50~5.00	4.17~5.00	18~36V/4.20A	91%	0.98	0.93
LHP-150X062	150	20~62	0.375~3.75	2.42~3.75	20~54V/2.80A	91%	0.98	0.93
LHP-150X108	150	60~108	0.21~2.10	1.39~2.10	60~71V/2.10A	91%	0.98	0.93
LHP-150X214	150	80~214	0.11~1.10	0.70~1.10	80~214V/0.70A	91%	0.98	0.93

NOTES:

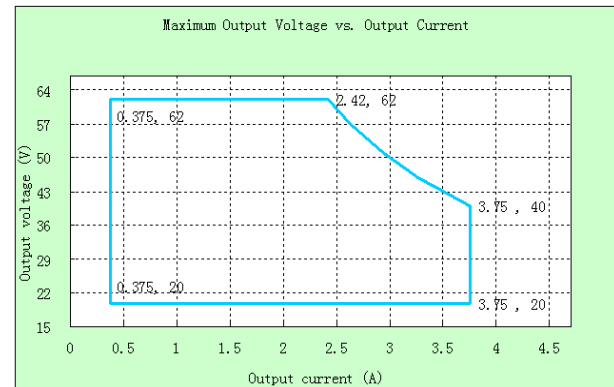
1. X can be M or R, means dimmable or non-dimmable. Take LHP-150X036 for example, LHP-150M036 is programmable and 3-in-1 dimmable; LHP-150R036 is programmable and timer dimmable;
2. Output current adjustable range with constant power at max output power;
3. Measured at full load and 480Vac input (see below "General Specifications" for details).

OPERATING AREA I-V

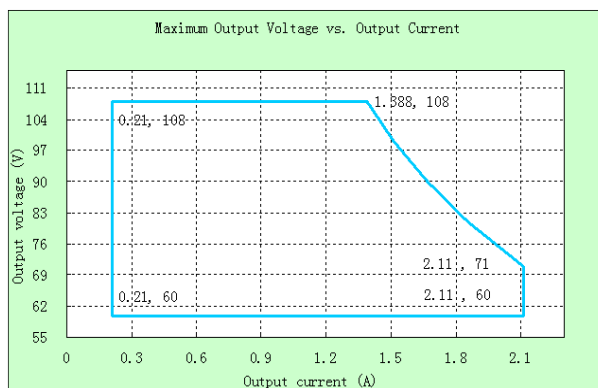
LHP-150X036



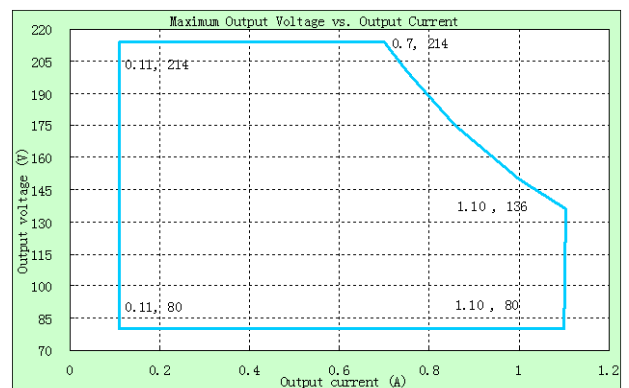
LHP-150X062



LHP-150X108



LHP-150X214



INPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	249Vac	277~480Vac	528Vac	
Input Frequency	47Hz	50/60	63Hz	
Leakage Current	-	-	0.75mA	480Vac/50Hz
Input AC Current	-	-	2.0A	277~480Vac & full Load
Inrush Current	-	-	75A	480Vac & full Load
PF	0.97	0.98	-	277Vac & full Load
	0.93	0.95	-	347Vac & full Load
	0.90	0.93	-	528Vac & full Load
THD	-	-	20%	528Vac, 80% Load

OUTPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Imax	-	5%Imax	Full load
Output Current Setting Range(Iset) LHP-150X036 LHP-150X062 LHP-150X108 LHP-150X214	0.50A 0.37A 0.21A 0.11A	-	5.00A 3.75A 2.10A 1.10A	
Output Current Setting Range With Constant Power LHP-150X036 LHP-150X062 LHP-150X108 LHP-150X214	4.17A 2.42A 1.39A 0.70A	-	5.00A 3.75A 2.10A 1.10A	
Total Output Current Ripple (pk-pk)	-	-	10%	480Vac & full Load , load is LED, ripple is different with difference LED load.
Startup Overshoot Current	-	-	10%	277~480Vac & 100% Load , load is LED
NO Load Output Voltage LHP-150X036 LHP-150X062 LHP-150X108 LHP-150X214	-	-	45V 70V 120V 240V	
Line Regulation	-	-	1%	Under 25℃±10℃ ambient temperature, 100% load, change input from 277Vac to 480Vac
Load Regulation	-	-	3%	Under 25℃±10℃ ambient temperature, 480Vac input voltage, change load from 50% to 100%
Turn-on Delay Time	-	-	3S	480Vac, 100% Load

GENERAL SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 277Vac input LHP-150X036 Io=4.17A Io=5.00A LHP-150X062 Io=2.42A Io=3.75A LHP-150X108 Io=1.39A Io=2.10A LHP-150X214 Io=0.70A Io=1.10A	88% 88%	90% 90%		Measured at full load and 25℃Ambient Temperature, full load.
Efficiency at 347Vac input LHP-150X036 Io=4.17A Io=5.00A LHP-150X062	88% 88%	90% 90%		Measured at full load and 25℃Ambient Temperature, full load.

LHP-150X108		Io=2.42A Io=3.75A	88% 88%	90% 90%	
LHP-150X214		Io=1.39A Io=2.10A Io=0.70A Io=1.10A	88% 88% 88% 88%	90% 90% 90% 90%	
Efficiency at 480Vac input					
LHP-150X036		Io=4.17A Io=5.00A	89% 89%	91% 91%	
LHP-150X062		Io=2.42A Io=3.75A	89% 89%	91% 91%	
LHP-150X108		Io=1.39A Io=2.10A	89% 89%	91% 91%	
LHP-150X214		Io=0.70A Io=1.10A	89% 89%	91% 91%	
Dielectric Strength	Input-Output	-	3750Vac	-	10mA/60S
	Input-PE	-	1650Vac	-	
	Output- PE	-	1650Vac	-	
Grounding Resistance		-	-	0.1Ω	25A/60S
Insulation Resistance		50MΩ	-	-	Input-Output, Input-PE, Output-PE, 500Vdc/60S/25℃/70%RH
MTBF		-	200,000 Hours	-	480Vac,80% Load (MIL-HDBK-217F)
Lifetime		-	50000 Hours	-	480Vac&100% load, 70℃case temperature, refer to lifetime VS Tc curve for details
Operating Case Temperature for Safety Tc_s		-40℃	-	+85℃	
Operating Case Temperature for Warranty Tc_w		-40℃	-	+70℃	
Storage Temperature		-40℃	-	+85℃	Humidity: 20% to 95% RH
Dimensions (L×W×H)mm		247*68*43.5			
Net Weight		1200±50g/PCS			
Reference Packing		L500*W390*H170mm, 10PCS/ctn.			

DIMMING SPECIFICATIONS

Parameter		Min.	Typ.	Max.	Notes
0~5V/0~10V Absolute Maximum Voltage on the Vdim (+) Pin		-	5V/10V	-	
0~5V/0~10V Source Current on Vdim(+)Pin		-	-	2mA	
Dimming Output Range	LHP-150X036 LHP-150X062 LHP-150X108 LHP-150X214	10%Imax	-	100%Imax	Imax=5.00A Imax=3.75A Imax=2.10A Imax=1.10A
	LHP-150X036 LHP-150X062 LHP-150X108 LHP-150X214	0.50A 0.375A 0.21A 0.11A	-	5.00A 3.75A 2.10A 1.10A	
Recommended Dimming Range for 0-5V		0V	-	5V	Default 0-10V/10V PWM Dimming
Recommended Dimming Range for 0-10V		0V	-	10V	
PWM__in High Level		9.7V	-	10.3V	
PWM__in Low Level		0V	-	0.3V	
PWM__in Frequency Range		250Hz	-	1000Hz	
PWM__in Duty Cycle		1%	-	99%	

SAFTY STANDARDS

Safety Category	Country / Territory	Standards
CE	Europe	EN61347-1, EN61347-2-13
CB	CB Countries	IEC61347-1, IEC61347-2-13
UL	USA	UL 8750
CUL	Canada	CSA C22.2 No.250.13

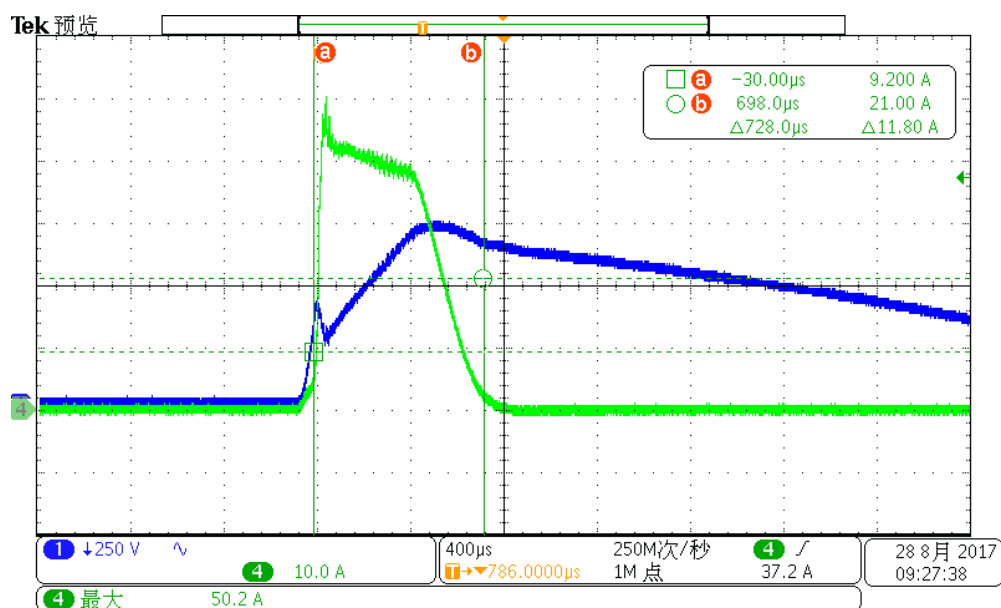
EMC COMPLIANCE

EMC Category	Country / Territory	Standards
CE	Europe	EN 55015
		EN 61000-3-2, EN 61000-3-3
		EN61000-4-2,3,4,5,6,8,11
		EN 61547
FCC	USA	FCC part 15

NOTE:

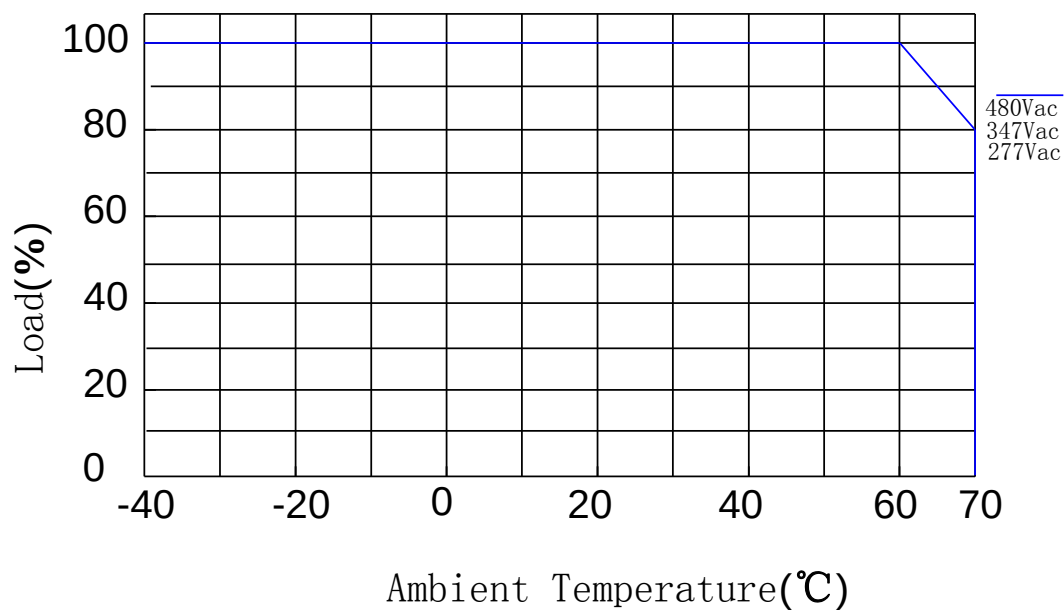
This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

INRUSH CURRENT WAVEFORM

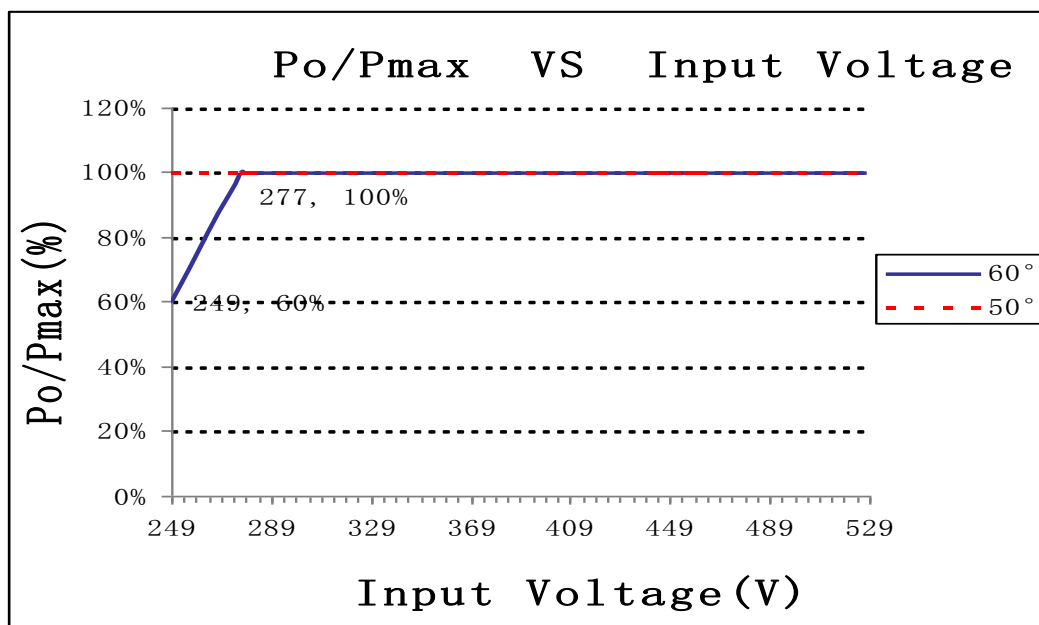


DERATING CURVE

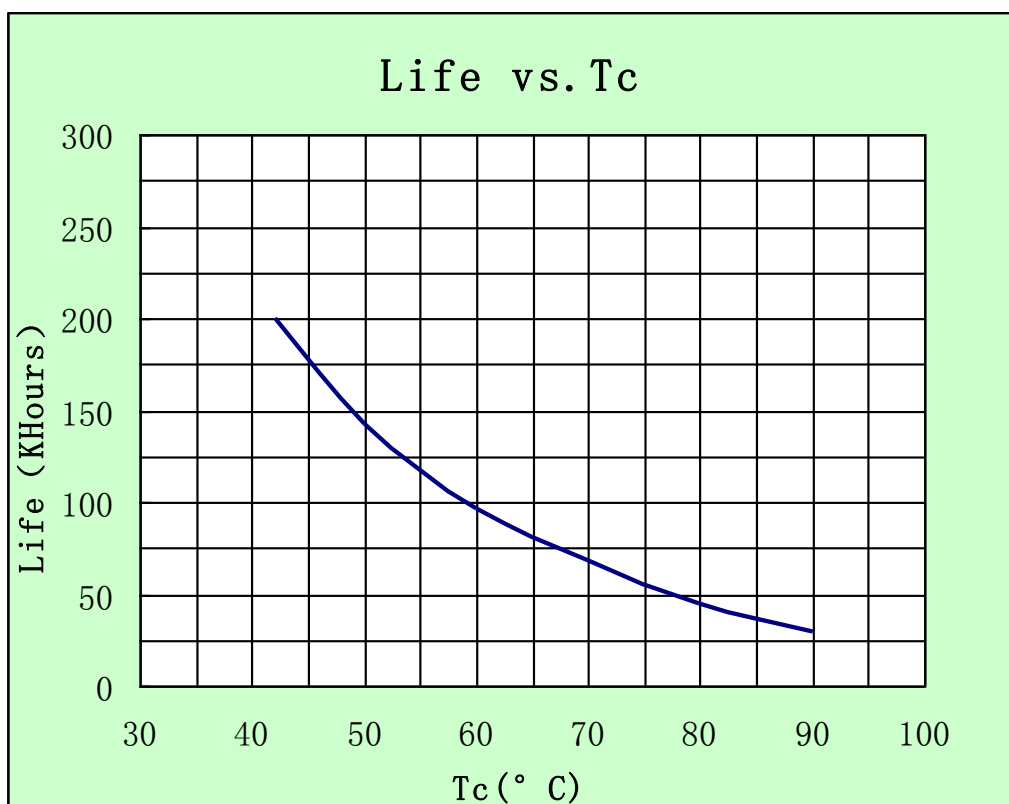
Derating Curve



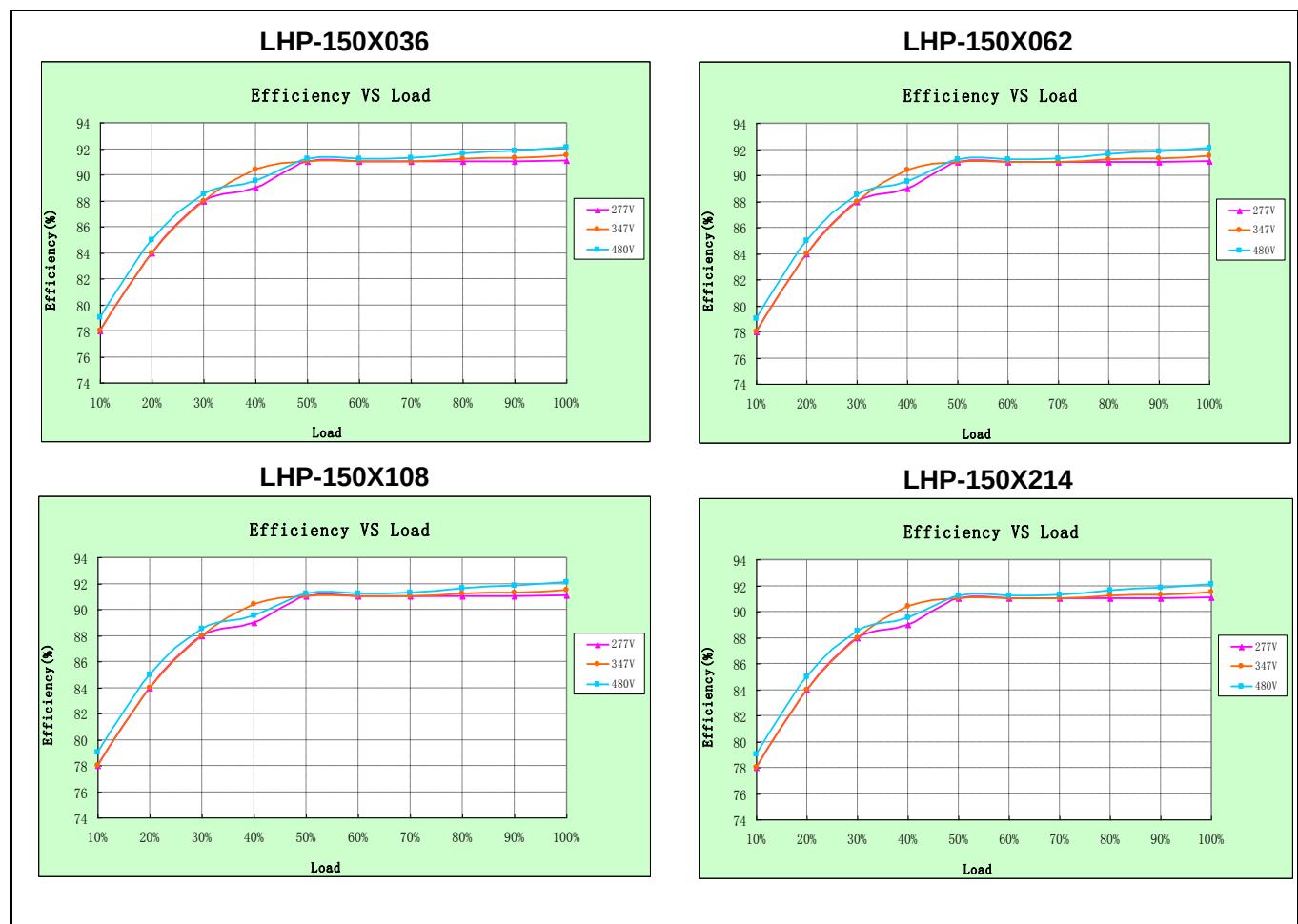
OUTPUT POWER VS. INPUT VOLTAGE CURVE



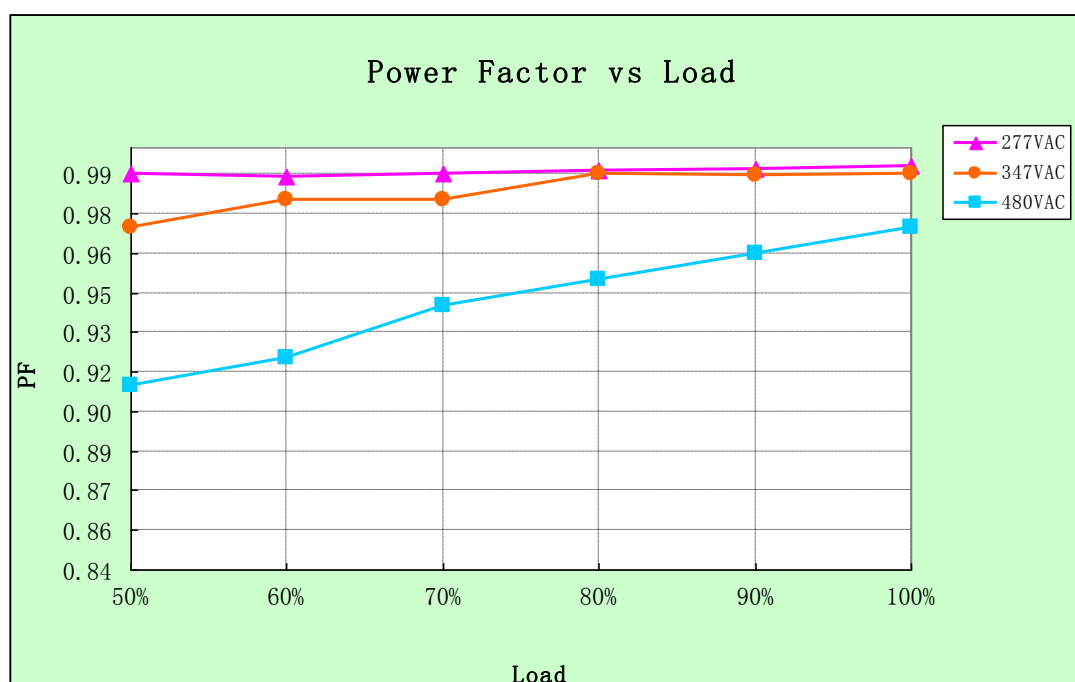
LIFETIME VS. CASE TEMPERATURE



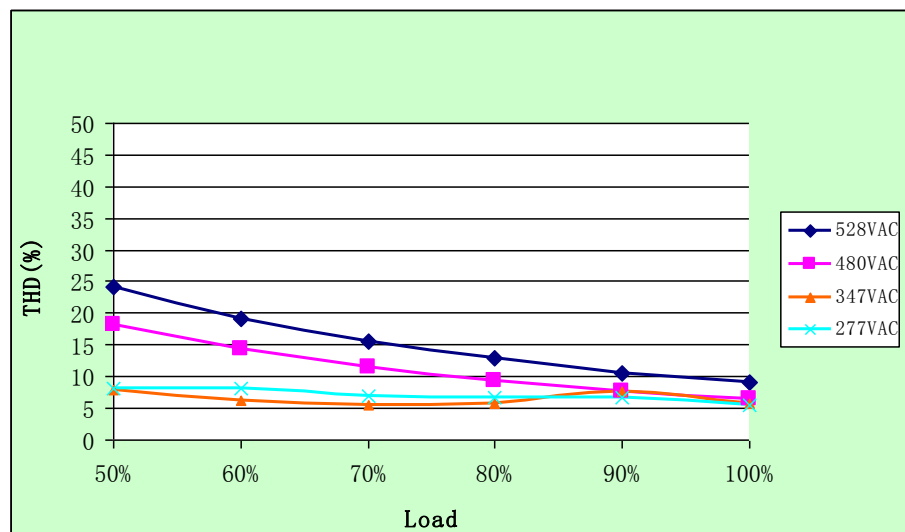
EFFICIENCY VS. LOAD CURVE



POWER FACTOR VS. LOAD CURVE



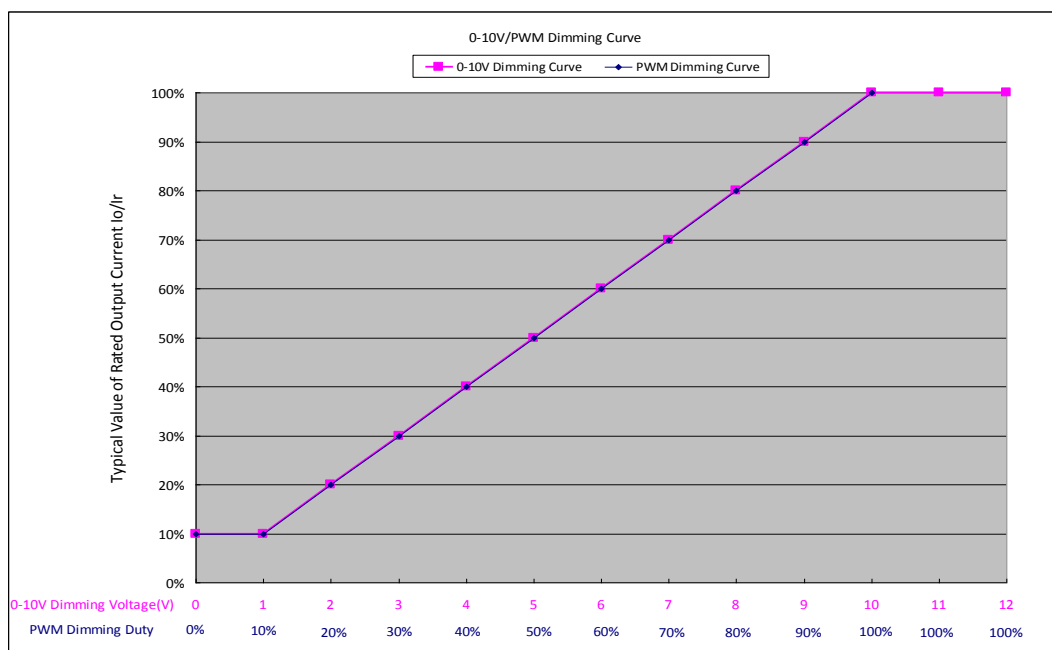
TOTAL HARMONIC DISTORTION CURVE



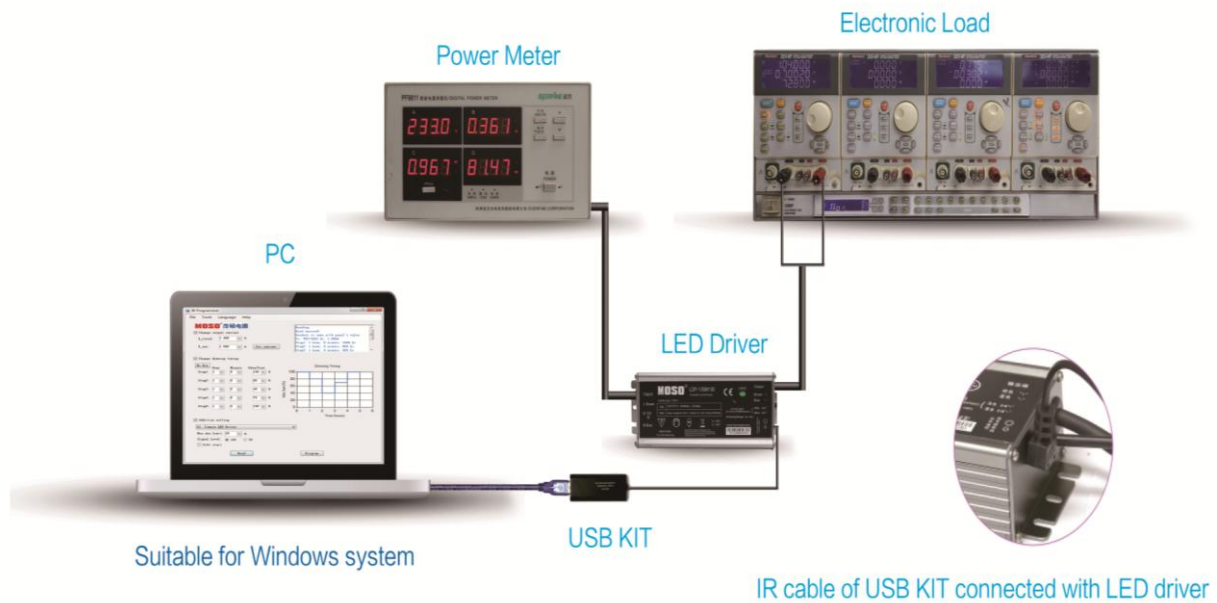
PROTECTION FUNCTIONS

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 condition is removed.

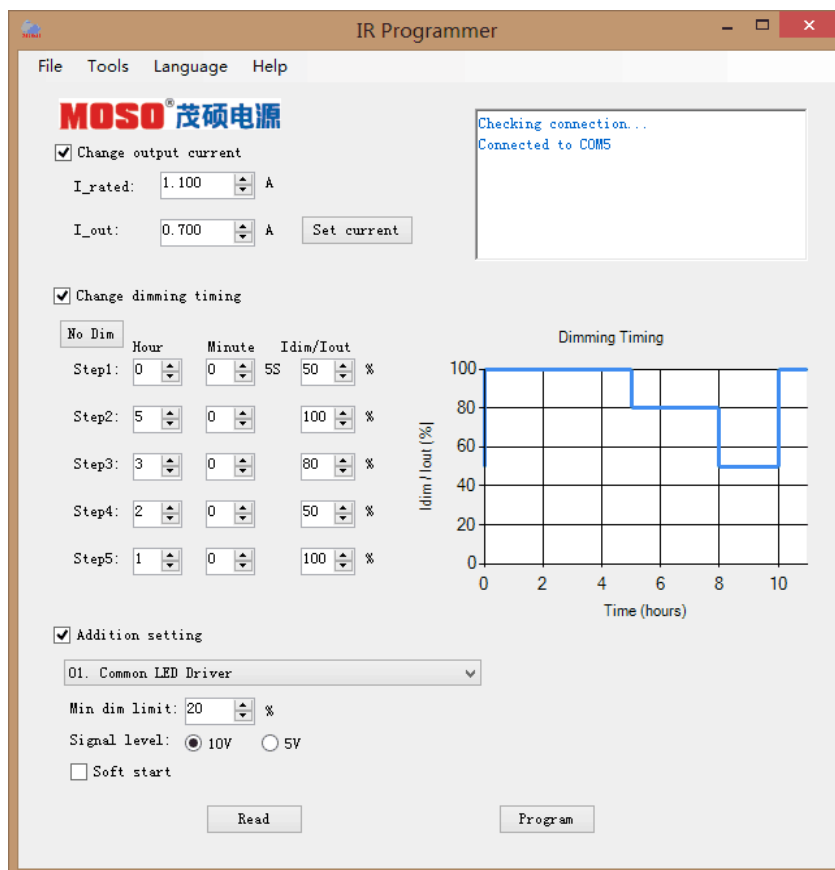
0-10V DIMMING/PWM DIMMING CURVE



PROGRAMMING CONNECTION



PROGRAMMING GUIDE AND SOFTWARE INTERFACE



Programming by Software:

- 1) Read existing setting of the driver
- 2) Change output current;
- 3) Set timer dimming schedules;
- 4) Addition setting
 - Set min. dim value;
 - Set signal level can be 5V or 10V;
 - Set soft start.

USING INFRARED CONTROLLER TO RESET OUTPUT CURRENT



Operation Instruction:

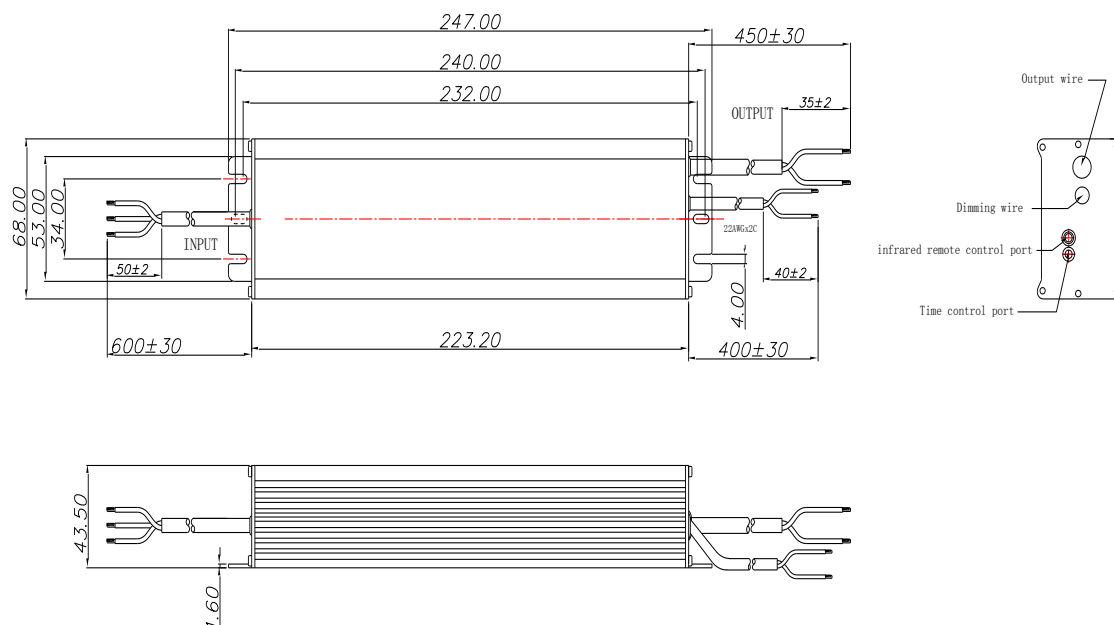
- 1) Insert cable terminal of the infrared controller into the infrared communication port, which is at the DC output side of the LED driver.
- 2) Press "ON" key to power on the controller;
- 3) Within 10S interval, press a function key to adjust output current to the percentage of max delivered current;
 - 10%-100% : Percentage of maximum output current of such driver.
 - + / - : Fine adjustment of output current, increase / decrease 1% each time.
 - ON: Power on controller.
 - OFF: Set min output current of such driver.
 - SET: No function.

Warning:

- Please do not hold "+"key, to avoid the over power protection and unstable output.
- Each step of operation should be done within 10S interval, otherwise the controller is power off automatically.

MECHANICAL OUTLINE

LHP-150 types



Note: Model LHP-150R no dimming wire.

Wire	Specification
AC Input	UL STW 3x18AWG L=600mm
DC Output	UL SJOW 2x16AWG L=450mm
Dimming	22AWG 2C L=400mm

REVISION HISTORY

Version	Description of Change		Date	Notes
	Before	Now		
A.2	—	Datasheets Release	2018-06-21	