60W Constant Voltage + Constant Current LED Driver LPFH-60 series

User's Manual



IP67 PFC c Type HL us EAC FC

Features

- Constant Voltage + Constant Current mode output
- Plastic housing with Class II design
- Built-in active PFC function
- IP67 rating for indoor or outdoor installations
- Class 2 power unit
- Typical lifetime>50000 hours
- 5 years warranty

Applications

- LED panel lighting
- LED flood lighting
- Indoor LED lighting
- High bay lighting
- Type "HL" for use in Class I, Division 2 hazardous (Classified) location

Description

LPFH-60 series is a 60W AC/DC LED driver featuring the dual modes constant voltage and constant current output. LPFH-60 operates from 200～400VAC and offers models with different rated voltage ranging between 12V and 54V. Thanks to the high efficiency up to 90%, with the fanless design, the entire series is able to operate for -40℃ ~ +90℃ case temperature under free air convection. The entire series is rated with IP67 ingress protection level and is suitable to work for a variety of applications at dry or damp locations.

Model Encoding

LPFH - 60 - 24

- 24 — Rated output voltage(12V/15V/24V/36V/42V/48V/54V)
- 60 — Rated wattage
- LPFH — Series name

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SPECIFICATION

MODEL		LPFH-60-12	LPFH-60-15	LPFH-60-24	LPFH-60-36	LPFH-60-42	LPFH-60-48	LPFH-60-54
OUTPUT	DC VOLTAGE	12V	15V	24V	36V	42V	48V	54V
	CONSTANT CURRENT REGION Note.2	7.2 ~12V	9 ~ 15V	14.4 ~ 24V	21.6 ~ 36V	25.2 ~ 42V	28.8 ~ 48V	32.4 ~ 54V
	RATED CURRENT	5A	4A	2.5A	1.67A	1.43A	1.25A	1.12A
	RATED POWER Note.5	60W	60W	60W	60.12W	60.06W	60W	60.48W
	RIPPLE & NOISE (max.) Note.3	150mVp-p	150mVp-p	150mVp-p	250mVp-p	250mVp-p	250mVp-p	350mVp-p
	VOLTAGE TOLERANCE Note.4	±4.0%	±4.0%	±4.0%	±4.0%	±4.0%	±4.0%	±4.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±2.0%	±1.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME Note.6	500ms, 100ms / 347VAC 700ms, 100ms / 230VAC,277VAC						
	HOLD UP TIME (Typ.)	10ms/230VAC,277VAC 10ms/347VAC						
INPUT	VOLTAGE RANGE Note.5	200 ~ 400VAC 282 ~ 565VDC (Please refer to "STATIC CHARACTERISTIC" section)						
	FREQUENCY RANGE	47 ~ 63Hz						
	POWER FACTOR (Typ.)	PF≧0.95/230VAC, 277VAC, PF≧0.92/347VAC@full load (Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)						
	TOTAL HARMONIC DISTORTION	THD< 20%(@load≧60%/230VC,277VAC; @load≧75%/347VAC) (Please refer to "TOTAL HARMONIC DISTORTION(THD)" section)						
	EFFICIENCY (Typ.)	86%	87%	89%	90%	90%	90%	90%
	AC CURRENT (Typ.)	0.4A / 230VAC,277VAC 0.32A / 347VAC						
	INRUSH CURRENT (Typ.)	COLD START 40A(twidth=550μs measured at 50% Ipeak) at 347VAC; Per NEMA 410						
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	7 units (circuit breaker of type B) / 12 units (circuit breaker of type C) at 347VAC						
	LEAKAGE CURRENT	<0.75mA / 347VAC						
PROTECTION	OVER CURRENT	95 ~ 108%						
		Hiccup mode, recovers automatically after fault condition is removed						
	SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed.						
	OVER VOLTAGE	15 ~ 17V	17.5 ~ 21V	28 ~ 35V	41 ~ 49V	46 ~ 54V	54 ~ 63V	59 ~ 66V
		Shut down o/p voltage, auto-recovery or re-power on to recovery						
	OVER TEMPERATURE	Shut down o/p voltage, auto-recovery or re-power on to recovery						
ENVIRONMENT	WORKING TEMP.	Tcase=-40 ~ +90℃ (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)						
	MAX. CASE TEMP.	Tcase=+90℃						
	WORKING HUMIDITY	20 ~ 95% RH non-condensing						
	STORAGE TEMP., HUMIDITY	-40 ~ +90℃, 10 ~ 95% RH						
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)						
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes						
SAFETY & EMC	SAFETY STANDARDS	UL8750(type"HL"), CSA C22.2 No. 250.0-08, EAC TP TC 004, IP67 approved						
	WITHSTAND VOLTAGE	I/P-O/P:3.0KVAC						
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH						
	EMC EMISSION	Compliance to FCC part 15 class B (@load≧60%),EAC TP TC 020						
	EMC IMMUNITY	Compliance to IEC61000-4-2,4,5; light industry level (surge immunity : Line-Line:2KV),EAC TP TC 020						
OTHERS	MTBF	1267.7K hrs min. Telcordia SR-332 (Bellcore) ; 343.9Khrs min. MIL-HDBK-217F (25℃)						
	DIMENSION	162.5*43*32mm (L*W*H)						
	PACKING	0.45Kg; 32pcs/15.4Kg/0.93CUFT						

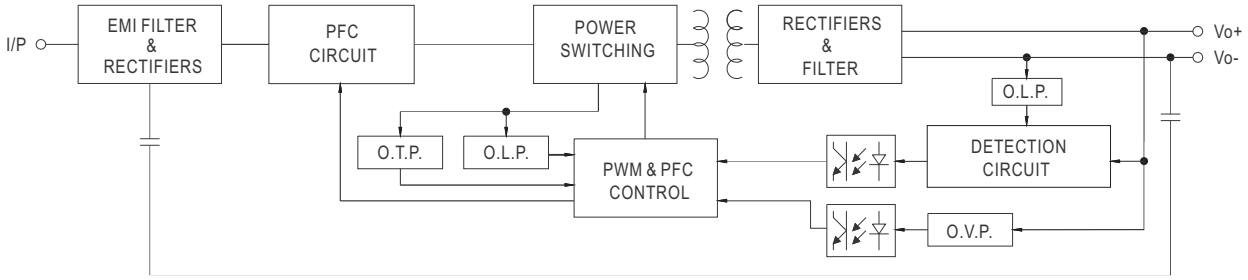
NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature.
2. Please refer to "DRIVING METHODS OF LED MODULE".
3. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
4. Tolerance : includes set up tolerance, line regulation and load regulation.
5. Length of set up time is measured at first cold start. Turning ON/OFF the driver may lead to increase of the set up time.
6. The driver is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.
7. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly (tc) point (or TMP, per DLC), is about 70℃ or less.
8. Please refer to the warranty statement on MEAN WELL's website at http://www.meanwell.com

※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

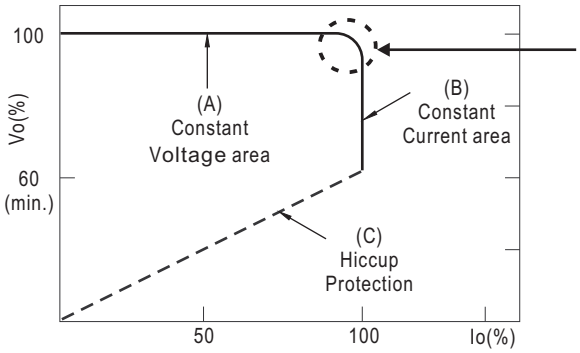
■ Block Diagram

PFC fosc : 50~120KHz
PWM fosc : 60~130KHz



■ DRIVING METHODS OF LED MODULE

※ This series is able to work in either Constant Current mode (a direct drive way) or Constant Voltage mode (usually through additional DC/DC driver) to drive the LEDs.

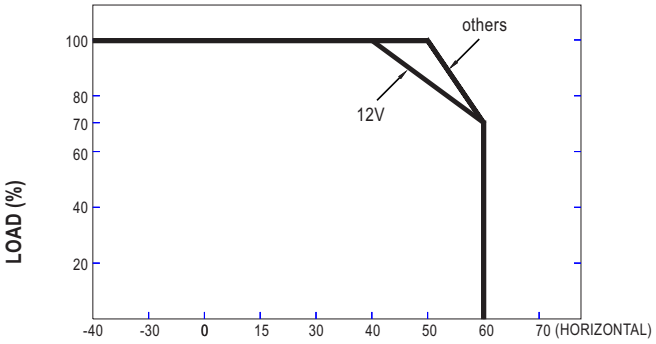


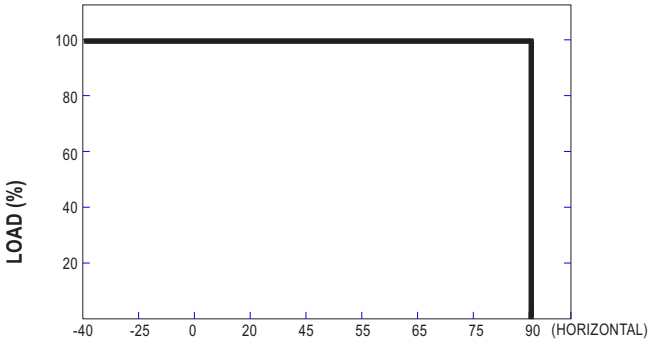
Typical output current normalized by rated current (%)

In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.

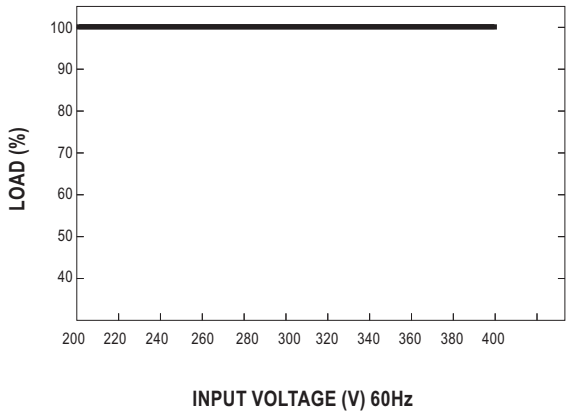
Should there be any compatibility issues, please contact MEAN WELL.

■ OUTPUT LOAD vs TEMPERATURE





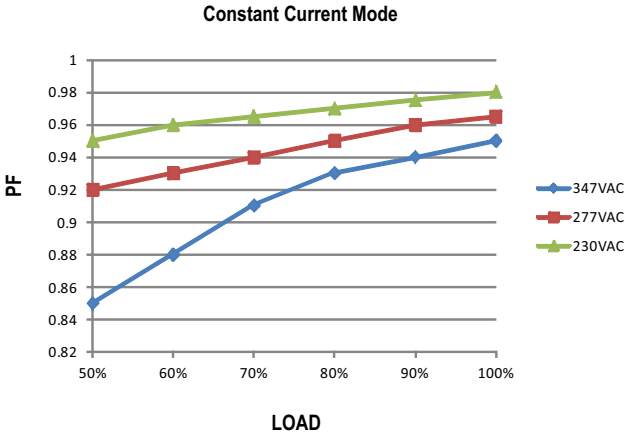
■ STATIC CHARACTERISTIC



※ De-rating is needed under low input voltage.

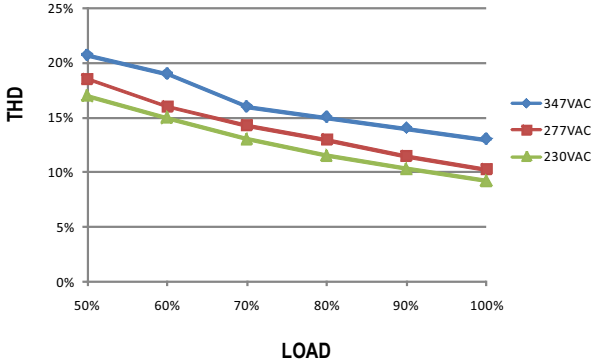
■ POWER FACTOR (PF) CHARACTERISTIC

※ Tcase at 80℃



■ TOTAL HARMONIC DISTORTION (THD)

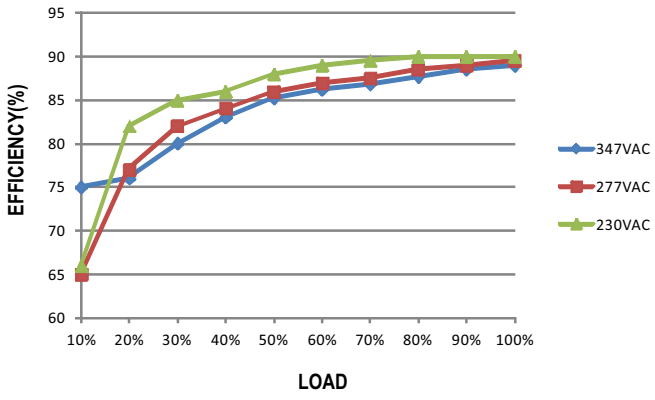
※ 54V Model, Tcase at 80℃



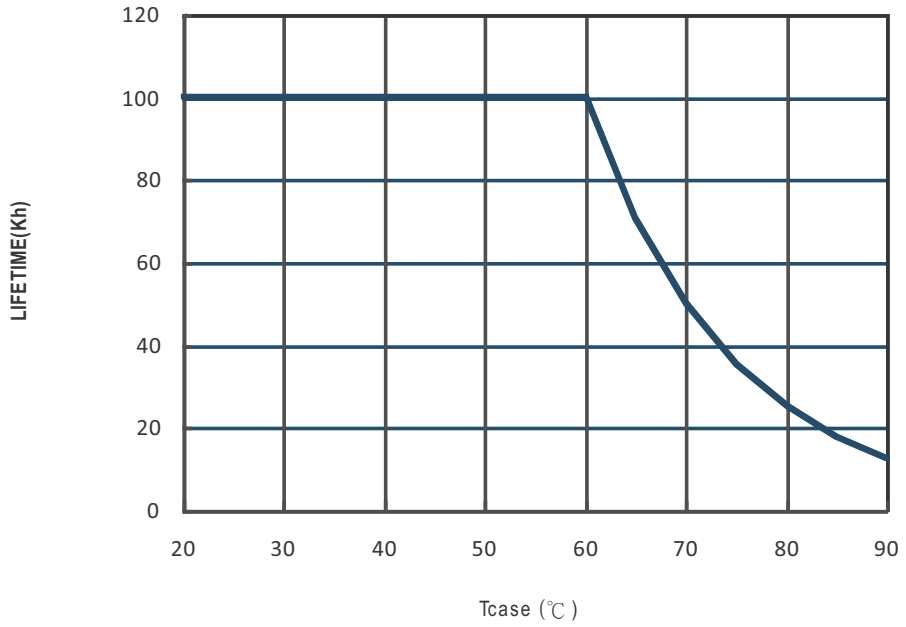
■ EFFICIENCY vs LOAD

LPFH-60 series possess superior working efficiency that up to 90% can be reached in field applications.

※ 54V Model, Tcase at 80℃

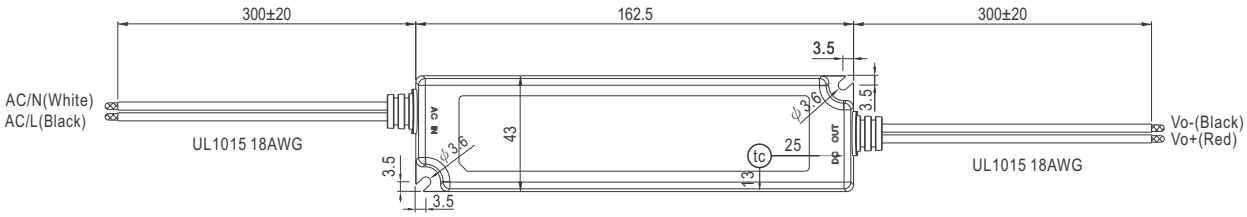


LIFE TIME

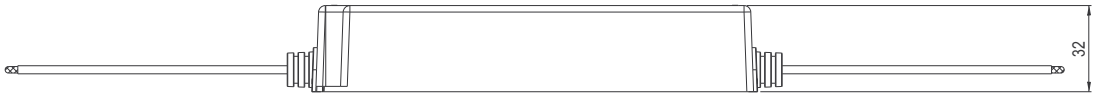


■ MECHANICAL SPECIFICATION

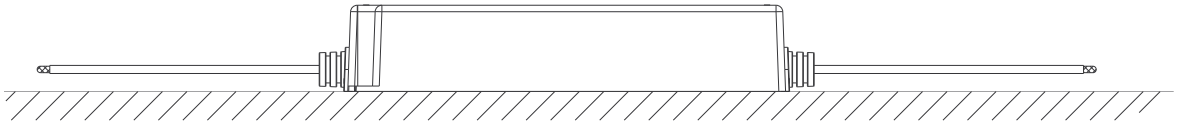
Case No. LPF-60 Unit:mm



• ⓣc : Max. Case Temperature



■ Recommend Mounting Direction



■ INSTALLATION MANUAL

Please refer to : http://www.meanwell.com/manual.html