



**LPF-90 Series 90W  
Constant Voltage  
Plus Constant  
Current LED Driver**



# MEAN WELL LPF-90 Series 90W Constant Voltage Plus Constant Current LED Driver Owner's Manual

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**MEAN WELL LPF-90 Series 90W Constant Voltage Plus Constant Current LED Driver**



## Specifications

MODEL	OUTPUT	RATED CURRENT	RATED POWER	EFFICIENCY (Typ.)
LPF-90-15	15V, 9-15V Constant Current Region	5A	75W	89%
LPF-90-20	20V, 12-20V Constant Current Region	4.5A	90W	90%
LPF-90-24	24V, 14.4-24V Constant Current Region	3.75A	90W	90.5%
LPF-90-30	30V, 18-30V Constant Current Region	3A	90W	91%

## Product Usage Instructions

### Installation:

1. Ensure power supply is turned off before installation.
2. Connect the LED driver to the LED lighting system following the correct polarity.
3. Securely mount the LED driver in a well-ventilated area away from moisture or heat sources.

**Operation:**

To operate the LED driver:

1. Apply the appropriate input voltage within the specified range.
2. Connect the output to the LED lighting system following the voltage and current requirements based on the model.
3. Switch on the power supply and monitor the LED system for proper functionality.

## Maintenance:

- Regularly check for any signs of damage or overheating. Clean the driver and surrounding area to prevent dust accumulation.

## FAQ

- **What is the maximum number of LED drivers that can be connected to a 16A circuit breaker?**
  - The maximum number of LED drivers that can be connected to a 16A circuit breaker varies based on the type of circuit breaker. It is recommended to refer to the user manual for specific details.
- **How should I determine the correct model of LED driver for my LED lighting system?**
  - To determine the correct model of LED driver, consider the voltage and current requirements of your LED lighting system. Select a model that provides the appropriate output voltage and current within the specified ranges.

## Features

- Constant Voltage + Constant Current mode output
- Plastic housing with Class I| design
- Built-in active PFC function
- Class 2 power unit
- Fully encapsulated with IP67 level
- Typical lifetime>50000 hours
- 5 years warranty

## Applications

- LED panel lighting
- LED downlight
- LED decorative lighting
- LED tunnel lighting
- Moving sign
- Type “HL” for use in Class I, Division 2 hazardous (Classified) location.

## GTIN CODE

- **MW Search:** <https://www.meanwell.com/serviceGTIN.aspx>



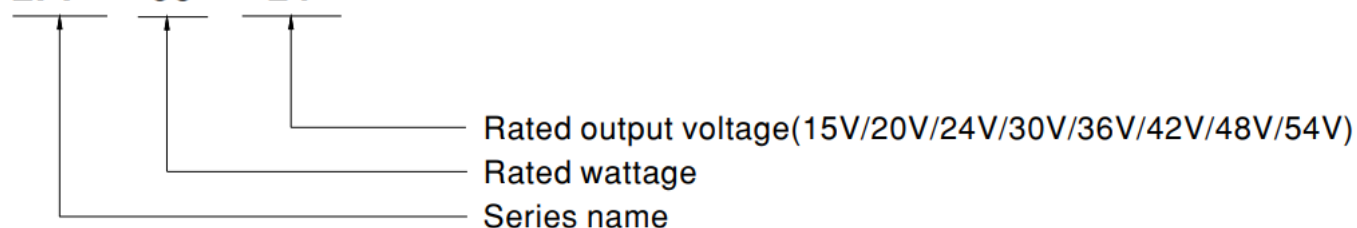
## Description

LPF-90 series is a 90W AC/DC LED driver featuring the dual modes constant voltage and constant current output. LPF-90 operates from 90~305VAC and offers models with different rated voltage ranging between 15 V and 54V.

Thanks to the high efficiency up to 91%, with the fanless design, the entire series is able to operate for -40°C ~ +70°C 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, damp or wet locations.

## Model Encoding

**LPF - 90 - 24**



## SPECIFICATION

MODEL		LPF-90-15	LPF-90-20	LPF-90-24	LPF-90-30	LPF-90-36	LPF-90-42	LPF-90-48	LPF-90-54
OUTPUT	DC VOLTAGE	15V	20V	24V	30V	36V	42V	48V	54V
	CONSTANT CURRENT REGION Note.2	9 ~ 15V	12 ~ 20V	14.4 ~ 24V	18 ~ 30V	21.6 ~ 36V	25.2 ~ 42V	28.8 ~ 48V	32.4 ~ 54V
	RATED CURRENT	5A	4.5A	3.75A	3A	2.5A	2.15A	1.88A	1.67A
	RATED POWER Note.5	75W	90W	90W	90W	90W	90.3W	90.24W	90.18W
	RIPPLE & NOISE (max.) Note.3	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	200mVp-p	200mVp-p	200mVp-p
	VOLTAGE TOLERANCE Note.4	±4.0%	±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%	±0.5%
	LOAD REGULATION	±1.5%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME Note.6	1200ms, 200ms / 115VAC      500ms, 200ms / 230VAC							
	HOLD UP TIME (Typ.)	16ms/230VAC		16ms/115VAC					
	VOLTAGE RANGE Note.5	90 ~ 305VAC      127 ~ 431VDC (Please refer to “STATIC CHARACTERISTIC” section)							

INPUT	FREQUENCY RANGE	47 ~ 63Hz							
	POWER FACTOR	PF≥0.97/115VAC, PF≥0.96/230VAC, PF≥0.92/277VAC@full load (Please refer to “POWER FACTOR (PF) CHARACTERISTIC” section)							
	TOTAL HARMONIC DISTORTION	THD< 20%(@load≥60%/115VC,230VAC; @load≥75%/277VAC) (Please refer to “TOTAL HARMONIC DISTORTION(THD)” section)							
	EFFICIENCY (Typ.)	89%	90%	90.5%	91%	91%	91%	91%	91%
	AC CURRENT	0.95A / 115VAC		0.5A / 230VAC		0.4A / 277VAC			
	INRUSH CURRENT(Typ.)	COLD START 70A(twidth=435μs measured at 50% Ipeak) at 230VAC; Per NEMA 410							
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	4 units (circuit breaker of type B) / 6 units (circuit breaker of type C) at 230VAC							
	LEAKAGE CURRENT	<0.75mA / 240VAC							
PROTECTION	OVER CURRENT	95 ~ 108%							
		Constant current limiting, recovers automatically after fault condition is removed							
	OVER VOLTAGE	18 ~ 21 V	23 ~ 27 V	28 ~ 34 V	34 ~ 38 V	41 ~ 46 V	47 ~ 53 V	54 ~ 60 V	59 ~ 65 V
		Shut down o/p voltage, re-power on to recover							
OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover								
ENVIRONMENT	WORKING TEMP.	Tcase=-40 ~ +70°C (Please refer to “ OUTPUT LOAD vs TEMPERATURE” section )							
	MAX. CASE TEMP.	Tcase=+70°C							
	WORKING HUMIDITY	20 ~ 95% RH non-condensing							
	STORAGE TEMP. , HUMIDITY	-40 ~ +80°C, 10 ~ 95% RH							
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)							

	<b>VIBRATION</b>	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes
<b>SAFE TY &amp; EMC</b>	<b>SAFETY STANDARDS Note.8</b>	UL8750(type"HL"), CSA C22.2 No.250.13-12, ENEC BS EN/EN61347-1, BS EN/EN61347-2-13 independent, BS EN/EN62384, J61347-1, J61347-2-13, EAC TP TC 004, GB19510.1,GB19510.14,IP67 approved ; Design refer to UL60950-1
	<b>WITHSTAND VOLTAGE</b>	I/P-O/P:3.75KVAC
	<b>ISOLATION RESISTANCE</b>	I/P-O/P:100M Ohms / 500VDC / 25°C/ 70% RH
	<b>EMC EMISSION Note.8</b>	Compliance to BS EN/EN55015,BS EN/EN61000-3-2 Class C (@load $\geq$ 60%) ; BS EN/EN61000-3-3, GB/T 17743 , GB17625.1,EAC TP TC 020
	<b>EMC IMMUNITY</b>	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11; BS EN/EN61547, light industry level (surge immunity Line-Line 2KV),EAC TP TC 020
<b>OTHE RS</b>	<b>MTBF</b>	3292.9K hrs min. Telcordia SR-332 (Bellcore) ; 301.7Khrs min. MIL-HDB K-217F (25°C)
	<b>DIMENSION</b>	161*61*36mm (L*W*H)
	<b>PACKING</b>	0.7Kg;20pcs/15Kg/0.73CUFT

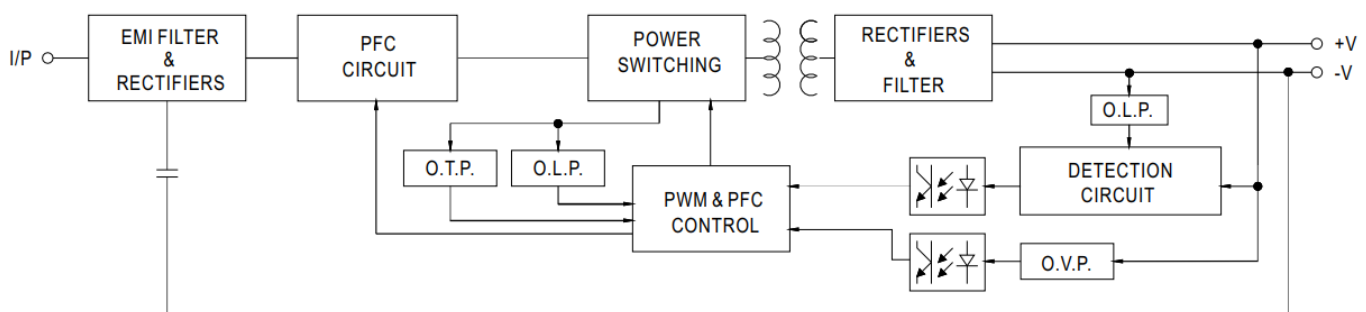
## NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25°C 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. De-rating may be needed under low input voltages. Please refer to “STATIC CHARACTERISTIC” sections for details.
6. 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.
7. 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.  
(as available on [https://www.meanwell.com//Upload/PDF/EMI\\_statement\\_en.pdf](https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf))
8. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED driver can only be used behind a switch without permanently connected to the mains.
9. 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°C or less.
10. Please refer to the warranty statement on MEAN WELL's website at <http://www.meanwell.com>
11. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).
12. For any application note and IP water proof function installation caution, please refer our user manual before using. [https://www.meanwell.com/Upload/PDF/LED\\_EN.pdf](https://www.meanwell.com/Upload/PDF/LED_EN.pdf)

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

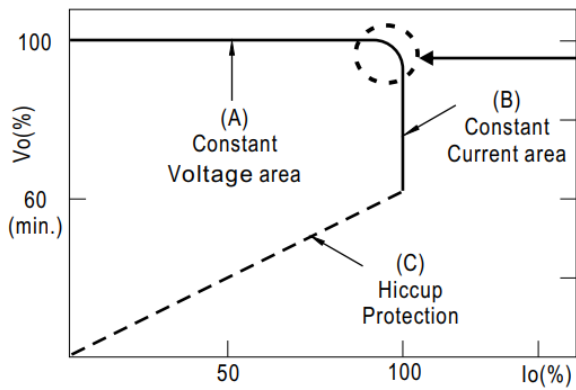
## BLOCK DIAGRAM

fosc: 100KHz



## 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.

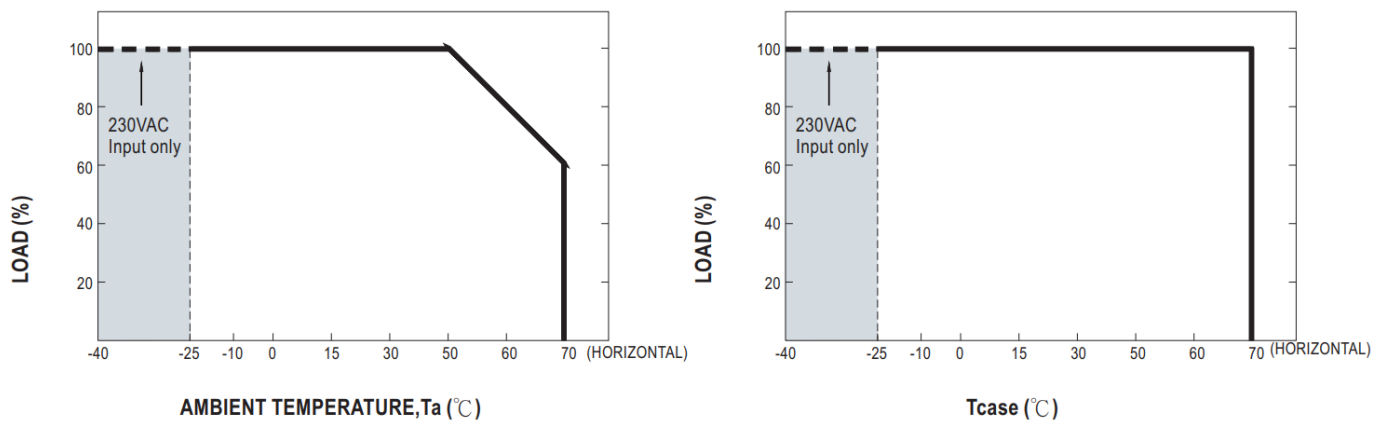


In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.  
Should there be any compatibility issues, please contact MEAN WELL.

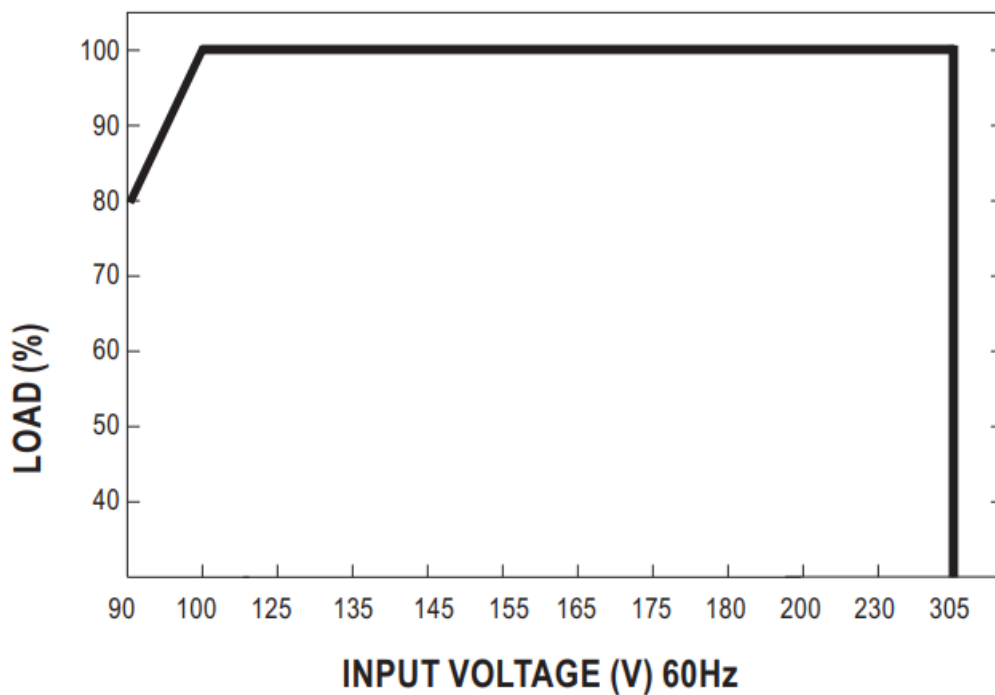
Typical output current normalized by rated current (%)

## DIAGRAMS

### OUTPUT LOAD vs TEMPERATURE



### STATIC CHARACTERISTIC

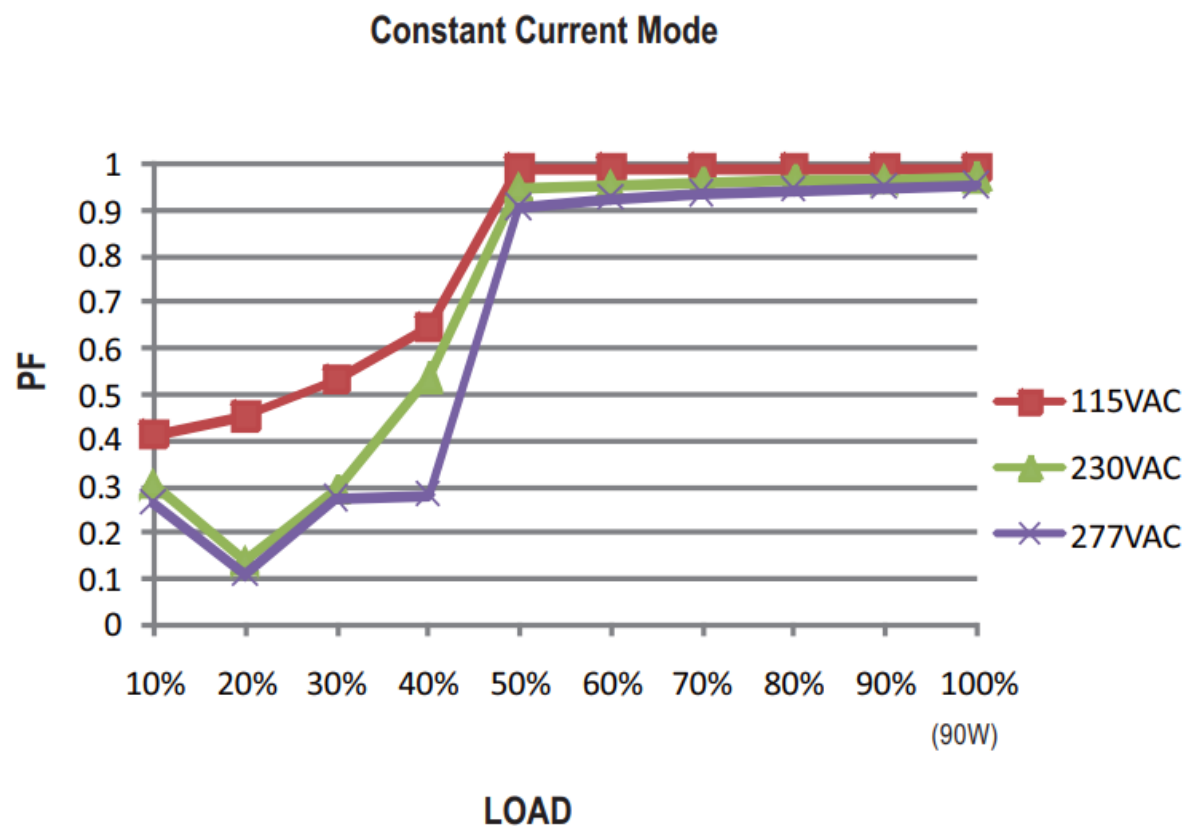


- De-rating is needed under low input voltage.



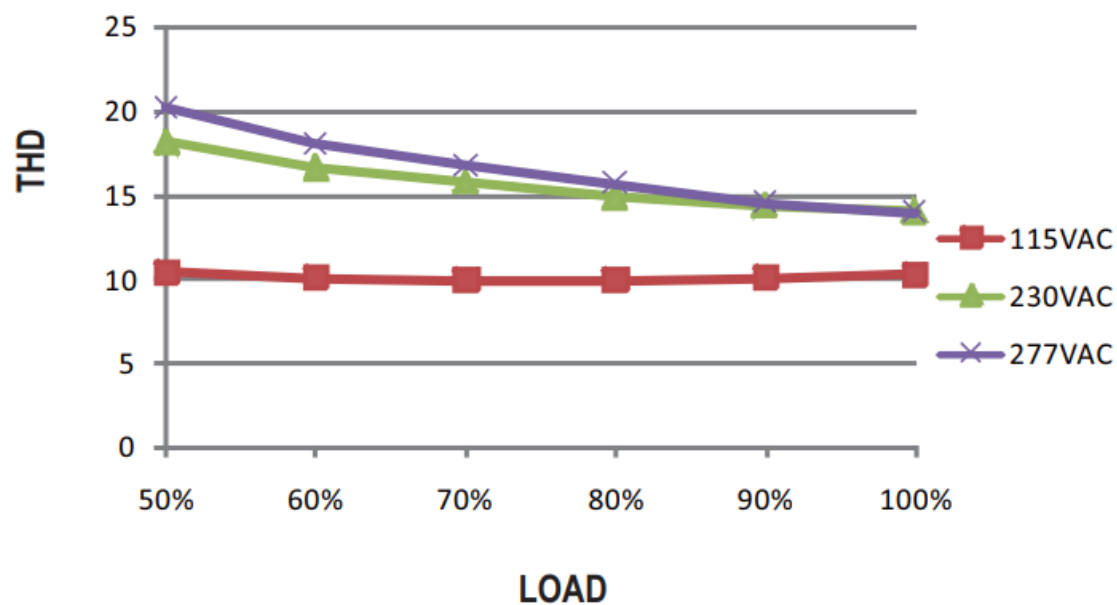
POWER FACTOR (PF) CHARACTERISTIC

- Tcase at 60°C



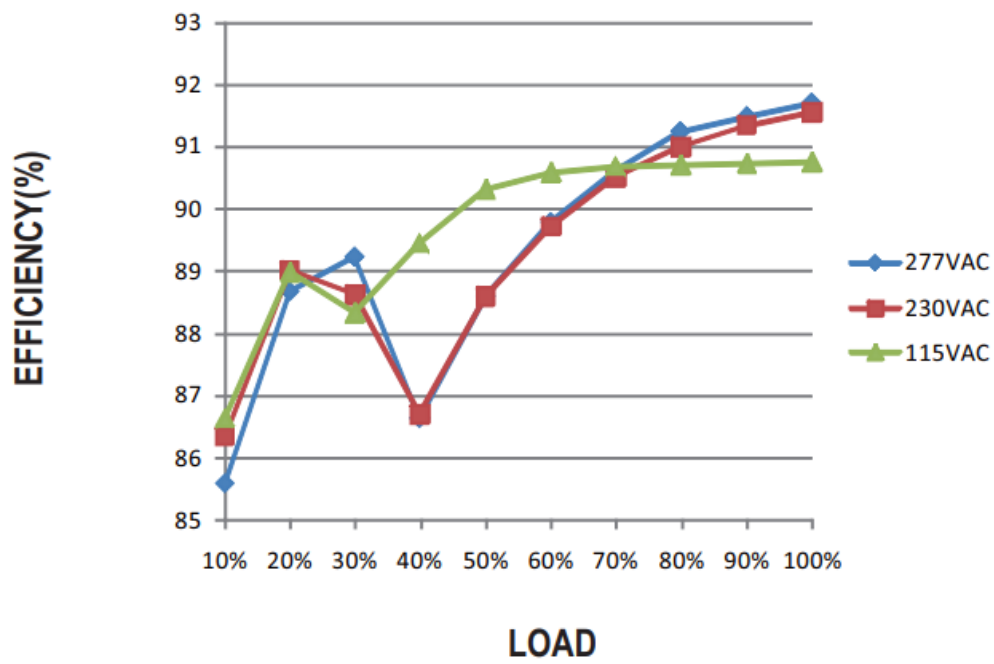
TOTAL HARMONIC DISTORTION (THD)

- 48V Model, Tcase at 60°C

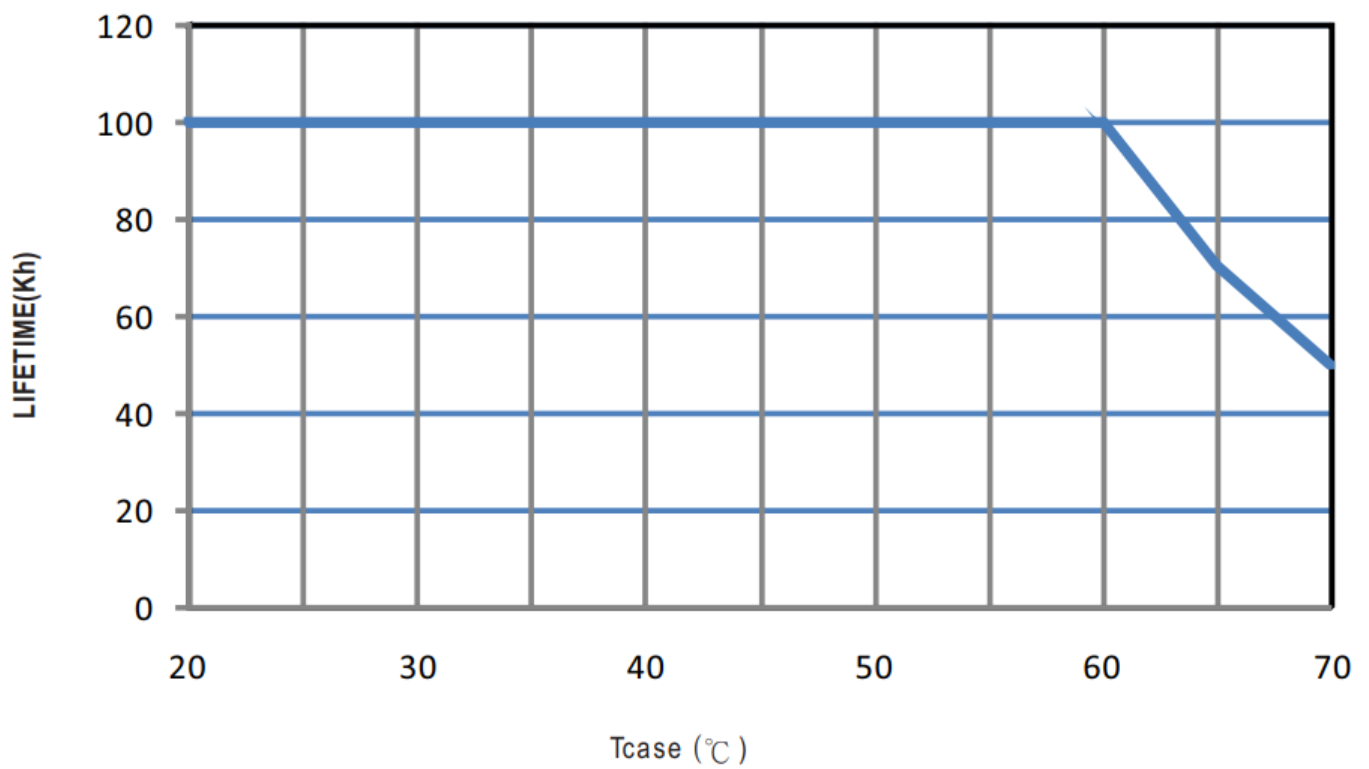


EFFICIENCY vs LOAD

- LPF-90 series possess superior working efficiency that up to 91% can be reached in field applications.
- 48V Model, Tcase at 60°C

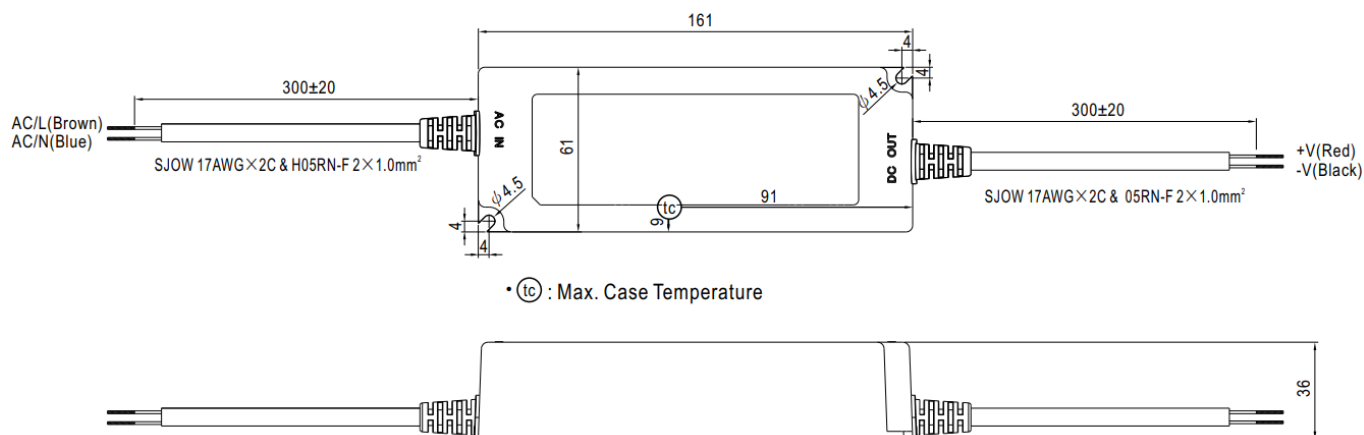


## LIFE TIME



## MECHANICAL SPECIFICATION

- **CASE NO.:** LPF-90A
- **Unit:** mm
- **Tolerance:**  $\pm 1$



## Recommend Mounting Direction



## MORE INFORMATION

### INSTALLATION MANUAL

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

### User's Manual



## Documents / Resources

<p><b>LPF-90 Series</b></p> <p>LED DRIVER - DC-DC</p> <p>90W</p> <p>Input: AC 100-240V, 50/60Hz</p> <p>Output: 12V, 15V, 24V, 30V, 36V, 48V, 54V, 60V, 72V, 84V, 96V, 108V, 120V, 132V, 144V, 156V, 168V, 180V, 192V, 204V, 216V, 228V, 240V</p> <p>Output Current: 0.5A, 0.6A, 0.7A, 0.8A, 0.9A, 1.0A, 1.1A, 1.2A, 1.3A, 1.4A, 1.5A, 1.6A, 1.7A, 1.8A, 1.9A, 2.0A, 2.1A, 2.2A, 2.3A, 2.4A, 2.5A, 2.6A, 2.7A, 2.8A, 2.9A, 3.0A, 3.1A, 3.2A, 3.3A, 3.4A, 3.5A, 3.6A, 3.7A, 3.8A, 3.9A, 4.0A, 4.1A, 4.2A, 4.3A, 4.4A, 4.5A, 4.6A, 4.7A, 4.8A, 4.9A, 5.0A, 5.1A, 5.2A, 5.3A, 5.4A, 5.5A, 5.6A, 5.7A, 5.8A, 5.9A, 6.0A, 6.1A, 6.2A, 6.3A, 6.4A, 6.5A, 6.6A, 6.7A, 6.8A, 6.9A, 7.0A, 7.1A, 7.2A, 7.3A, 7.4A, 7.5A, 7.6A, 7.7A, 7.8A, 7.9A, 8.0A, 8.1A, 8.2A, 8.3A, 8.4A, 8.5A, 8.6A, 8.7A, 8.8A, 8.9A, 9.0A, 9.1A, 9.2A, 9.3A, 9.4A, 9.5A, 9.6A, 9.7A, 9.8A, 9.9A, 10.0A, 10.1A, 10.2A, 10.3A, 10.4A, 10.5A, 10.6A, 10.7A, 10.8A, 10.9A, 11.0A, 11.1A, 11.2A, 11.3A, 11.4A, 11.5A, 11.6A, 11.7A, 11.8A, 11.9A, 12.0A, 12.1A, 12.2A, 12.3A, 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