MEAN WELL NPF-90 Series Constant Current LED Driver Installation Guide

Contents

MEAN WELL NPF-90 Series, Constant Current LED Driver

Specifications

MODEL	DC VOLTAGE	OUTPUT	RATED CURRENT	RATED POWER	RIPPLE & NOISE (max.)
NPF-90-12	12V	7.2 ~ 12V	7.5A	90W	150mVp-p
NPF-90-15	15V	9 ~ 15V	6A	90W	150mVp-p

Product Usage Instructions

Installation

1. Ensure power is disconnected before installation.
2. Connect the LED driver to the appropriate power source based on the DC votage requirement.
3. Securely mount the LED driver in a well-ventilated area to prevent overheating.

Operation

1. Power on the LED driver after installation is complete.
2. Verify that the output voltage and current levels meet the requirements of your LED lighting system.

Maintenance

1. Regularly check for any signs of damage or overheating.
2. Clean the LED driver periodically to prevent dust buildup that can affect performance.

FAQ

- **Q:** Can I use multiple LED drivers together?
  - **A:** Yes, you can use multiple LED drivers together, but ensure not to exceed the maximum number specified in the manual for your circuit breaker type.
- **Q:** What should I do if the LED driver overheats?
  - **A:** If the LED driver overheats, immediately disconnect power and allow it to cool down before investigating the cause, which could be inadequate ventilation or overload.

Features And Applications

Features

- Constant Voltage + Constant Current mode output
- Plastic housing with Class II design
- Built-in active PFC function
- Class 2 power unit(except NPF-90-12/15)
- No load power consumption <0.15W
- IP67 rating for indoor or outdoor installations
- Typical lifetime>50000 hours
- 5 years warranty

Applications

- LED panel lighting
- LED downlight
- LED decorative lighting
- LED tunnel lighting
- Moving sign

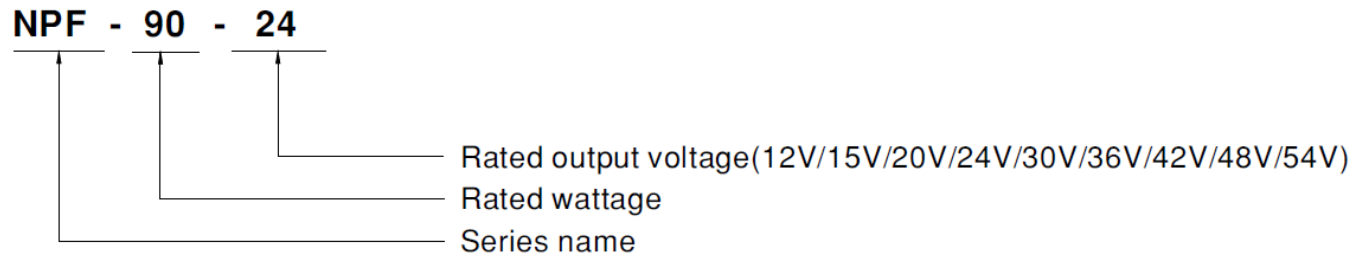
GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

Description

NPF-90 series is a 90W AC/DC LED driver featuring the dual modes constant voltage and constant current output. NPF-90 operates from 90 ~ 305VAC and offers models with different rated voltage ranging between 12V and 54V. Thanks to the hign efficiency up to 91%, with the fanless design, the entire series is able to operate for -40°C ~ +85°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



SPECIFICATION

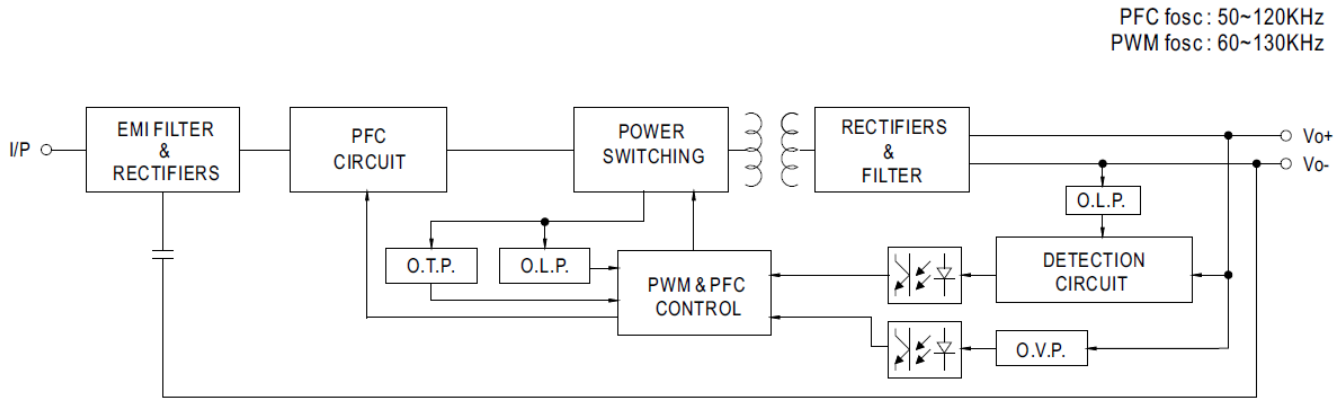
MODEL			NPF-90-12	NPF-90-15	NPF-90-20	NPF-90-24	NPF-90-30	NPF-90-36	NPF-90-42	NPF-90-48	NPF-90-54
OUTPUT	DC VOLTAGE		12V	15V	20V	24V	30V	36V	42V	48V	54V
	CONSTANT CURRENT REGION Note.2		7.2 ~ 12V	9 ~ 15V	12 ~ 20V	14.4 ~ 24V	18 ~ 30V	21.6 ~ 36V	25.2 ~ 42V	28.8 ~ 48V	32.4 ~ 54V
	RATED CURRENT		7.5A	6A	4.5A	3.75A	3A	2.5A	2.15A	1.88A	1.67A
	RATED POWER	Note.5	90W	90W	90W	90W	90W	90W	90.3W	90.24W	90.18W
	RIPPLE & NOISE (max.) Note.3		150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	250mVp-p	250mVp-p	350mVp-p
	VOLTAGE TOLERANCE Note.4		±4.0%	±4.0%	±4.0%	±3.0%	±3.0%	±2.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION		±0.5%	±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%	±0.5%
	SETUP, RISE TIME Note.6		500ms, 80ms 115VAC / 230VAC								
	HOLD UP TIME (Typ.)		16ms/230VAC	16ms/115VAC							
	VOLTAGE RANGE	Note.5	90 ~ 305VAC 127 ~ 431VDC (Please refer to “STATIC CHARACTERISTIC” section)								
	FREQUENCY RANGE		47 ~ 63Hz								
	POWER FACTOR		PF≧0.98/115VAC, PF≧0.96/230VAC, PF≧0.94/277VAC@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)								

INPUT	**EFFICIENCY (Typ.)**	89%	89.5%	90.5%		91%	89.5 %	90.5 %	90.5 %	90.5 %	90.5 %
	AC CURRENT	0.95A / 115VAC	0.5A / 230VAC		0.4A / 277VAC						
	INRUSH CURRENT(Typ.)	COLD START 60A(twidth=550μs measured at 50% Ipeak) at 230VAC; Per NEMA 410									
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	3 units (circuit breaker of type B) / 6 units (circuit breaker of type C) at 230VAC									
	LEAKAGE CURRENT	<0.25mA / 277VAC									
	NO LOAD POWER CONSUMPTION	<0.15W									
PROTECTION	**OVER CURRENT**	95 ~ 108%									
		Constant current limiting, recovers automatically after fault condition is removed									
	SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed									
	OVER VOLTAGE	15 ~ 17V	17.5 ~ 21 V	23 ~ 27V		28 ~ 34V	34 ~ 40V	41 ~ 46V	46 ~ 54V	54 ~ 60V	59 ~ 66V
		Shut down and latch off o/p voltage, re-power on to recover									
	OVER TEMPERATURE	Shut down the o/p voltage, and re-power on to recover									
ENVIRONMENT	**WORKING TEMP.**	Tcase=-40 ~ +85℃ (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)									
	MAX. CASE TEMP.	Tcase=+85℃									
	WORKING HUMIDITY	20 ~ 95% RH non-condensing									
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 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 Note.8**	UL8750, CSA C22.2 No. 250.13-12, ENEC BS EN/EN61347-1, BS EN/EN61347-2-13 independent, BS EN/EN62384, GB19510.1,GB19510.14, EAC TP TC 004,IP67 approved; Design refer to BS EN/EN60335-1
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH
	EMC EMISSION Note.8	Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C (@load≧60%) ; BS EN/EN61000-3-3; GB/T 17743, GB17625.1,EAC TP TC 020
	EMC IMMUNITY	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
OTHERS	**MTBF**	2749.4K hrs min. Telcordia SR-332 (Bellcore) ; 292.8Khrs min. MIL-HDBK-217F (25℃)
	DIMENSION	171*63*37.5mm (L*W*H)
	PACKING	0.77Kg; 18pcs/14.9Kg/0.82CUFT

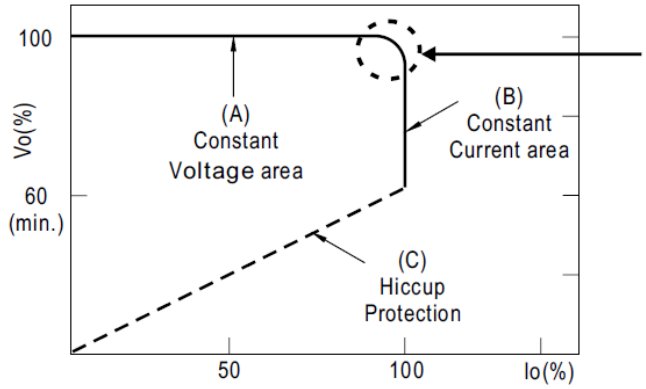
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature. 2. Please refer to “DRIVING METHODS OF LED MODULE”. 3. Ripple & noise are measured at 20MHz of bandwidth by using a 12″ twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 4. **Tolerance :** includes set up tolerance, line regulation and load regulation. 5. 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)** 8. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly tc point (or TMP, per DLC), is about 75℃ or less. 9. Please refer to the warranty statement on MEAN WELL’s website at **http://www.meanwell.com** 10. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft). 11. 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** Product Liability Disclaimer For detailed information, please refer to **https://www.meanwell.com/serviceDisclaimer.aspx**

BLOCK DIAGRAM



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.

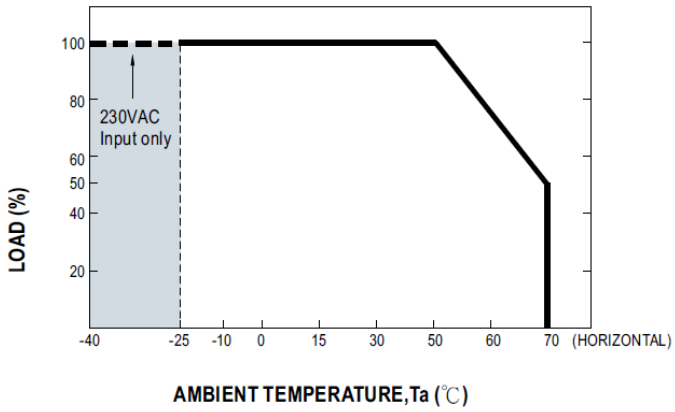


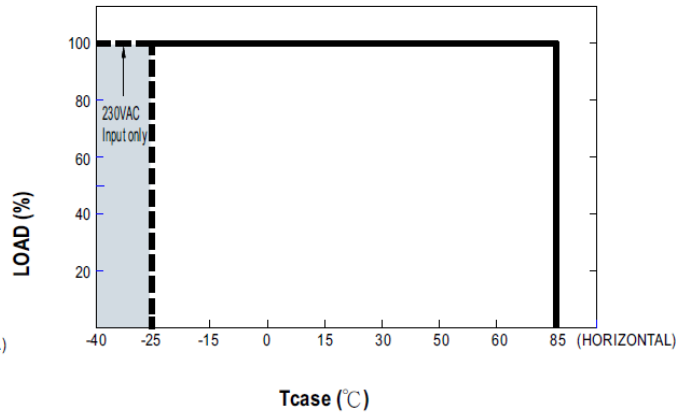
In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.

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

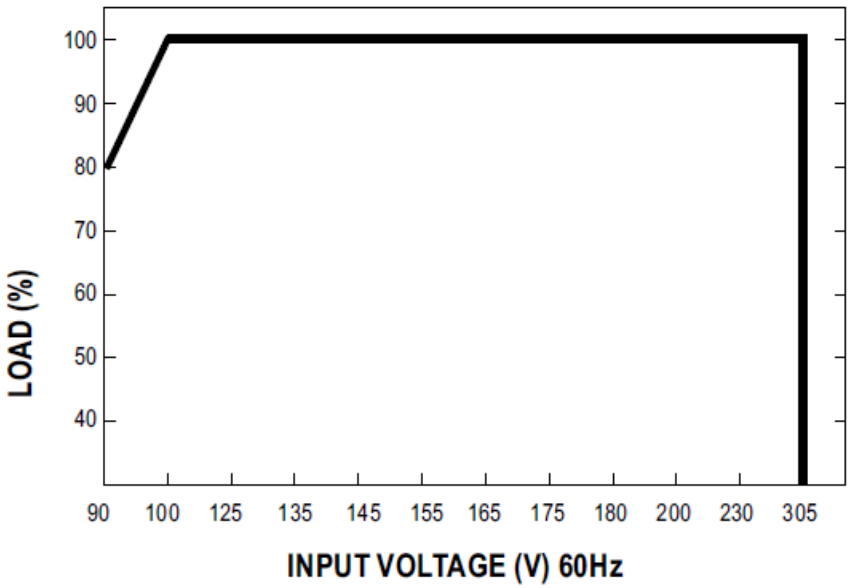
Typical output current normalized by rated current (%)

OUTPUT LOAD vS TEMPERATURE

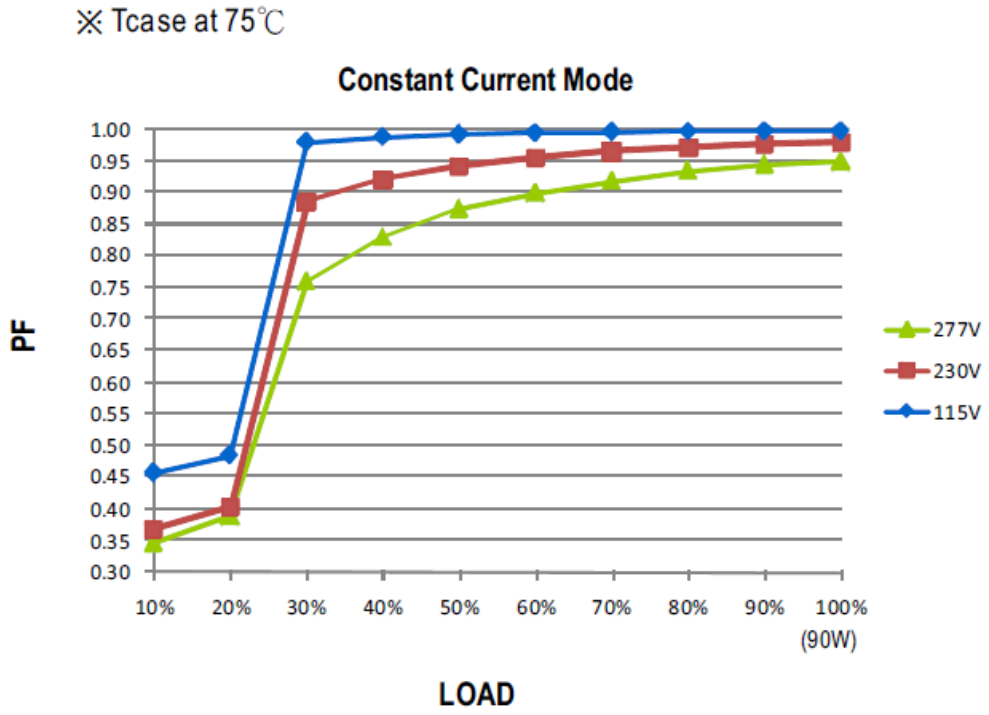




STATIC CHARACTERISTIC

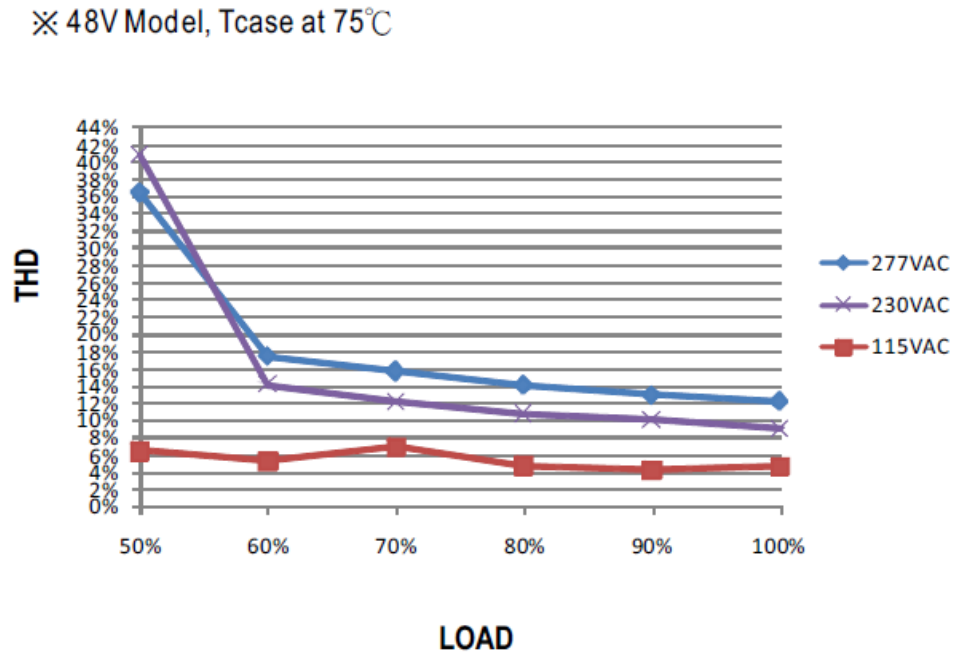


POWER FACTOR (PF) CHARACTERISTIC



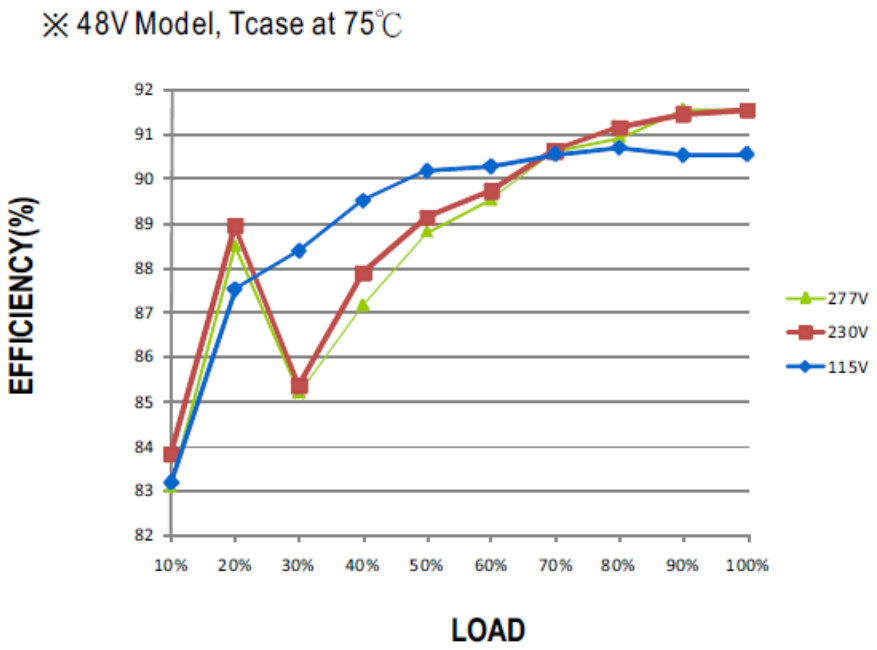
De-rating is needed under low input voltage,

TOTAL HARMONIC DISTORTION (THD)

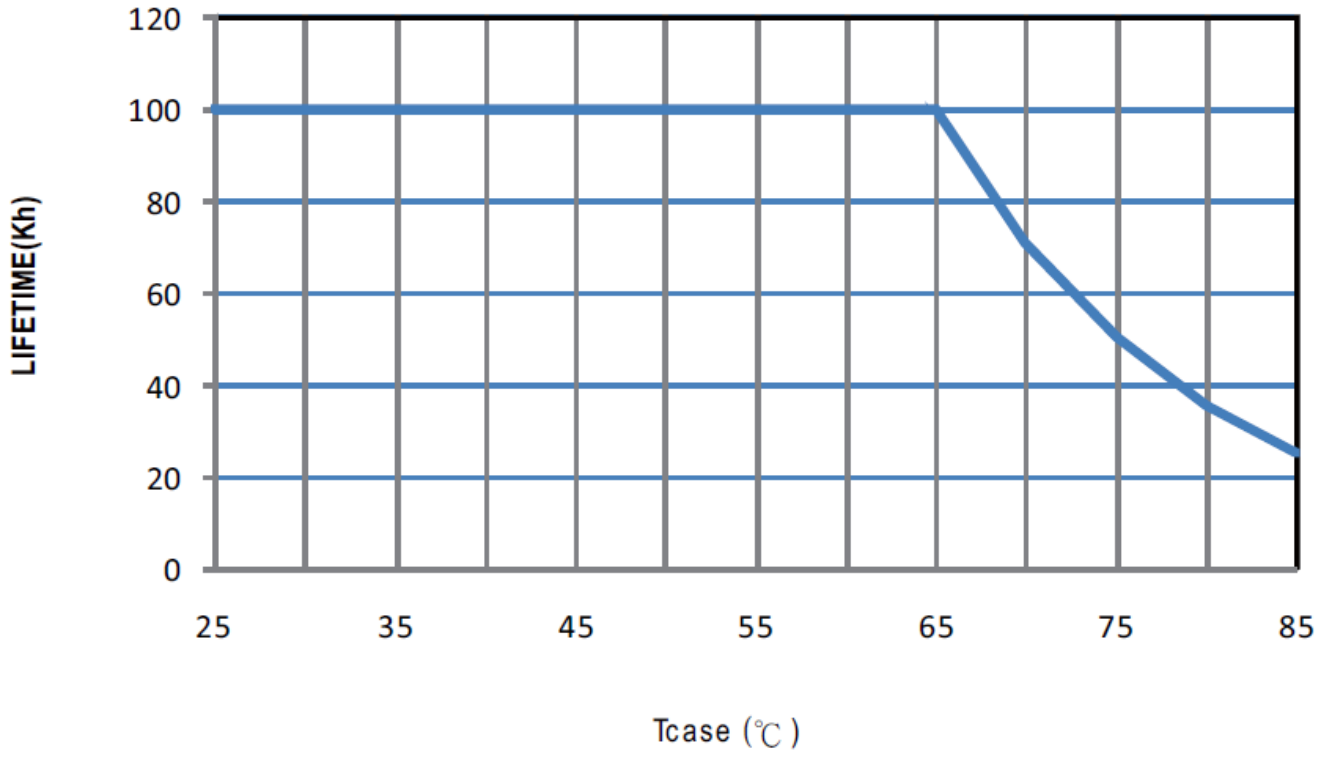


EFFICIENCY vs LOAD

NPF-90 series possess superior working efficiency that up to 90.5% can be reached in field applications.
48V Model, Tcase at 75°C

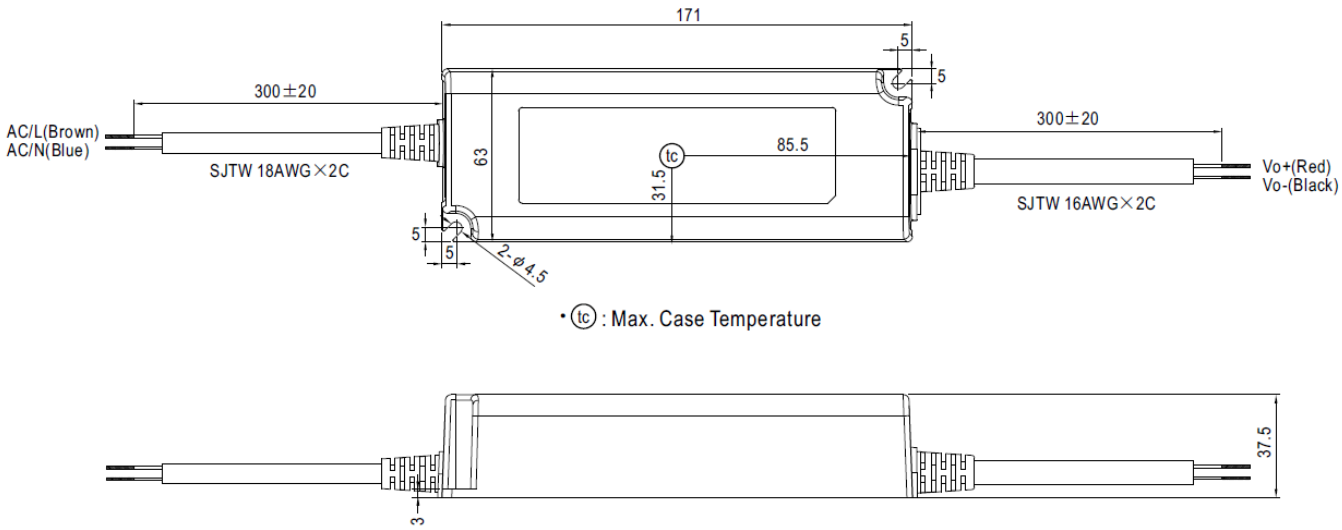


IFE TIME

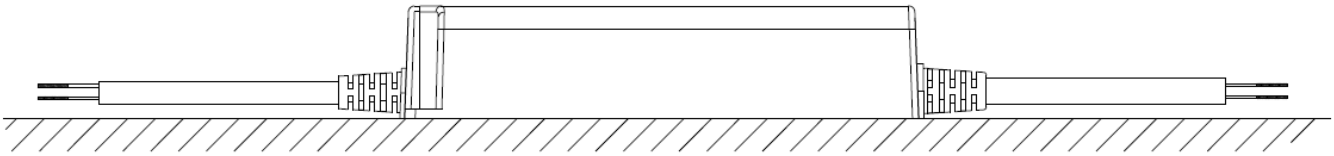


MECHANICAL SPECIFICATION

CASE NO.: PWM-90P Unit:mm Tolerance:±1



Recommend Mounting Direction



INSTALLATION MANUAL

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

Documents / Resources

	MEAN WELL NPF-90 Series Constant Current LED Driver [pdf] Installation Guide NPF-90-12, NPF-90-15, NPF-90-20, NPF-90-24, NPF-90-30, NPF-90 Series Constant Current L ED Driver, NPF-90 Series, Constant Current LED Driver, Current LED Driver, LED Driver, Driver

References

- User Manual