

SELV IP67

Features

- Universal AC input / Full range (up to 305VAC)
- Built-in active PFC function
- High efficiency up to 90.5%
- Protections: Short circuit / Over current / Over voltage / Over temperature
- Cooling by free air convection
- Fully isolated plastic case
- Fully encapsulated with IP67 level
- Class Ⅱ power unit, no FG
- Built-in 3 in 1 dimming function (0~10Vdc or PWM signal or resistance)
- Suitable for dry / damp / wet locations
- No load power consumption<0.5W
- 5 years warranty

Applications

- Indoor LED lighting
- LED decorative lighting
- LED architecture lighting
- Moving sign
- Tunnel lighting

Description

NPF-90D is one 90W waterproof single-output LED power supply series. In addition to the fundamental LED driving function, NPF-90D is equipped with built-in 3 in 1 dimming function (0~10Vdc, PWM signal or resistance) that simplifies the brightness adjustment for system designers so as to achieve light reduction and energy saving. The entire series adopts the universal input range from 90VAC to 305VAC and incorporates a built-in PFC function. The enclosure design is a 94V-0 flame retardant plastic case. The interior is fully potted with silicone that enhances the heat dissipation and allows the power supply to meet the anti-vibration demand up to 5G; it also thus conforms to IP67 level, enabling NPF-90D to be used in a highly dusty and highly humid harsh environment.

Providing a high efficiency up to 90.5% and a low no load power consumption below 0.5W, NPF-90D can meet the energy saving demand for the new generation LED lighting. The class Ⅱ design (without FG pin) and the double insulation weather-resistant cable (SJTW) make it convenient for users to flexibly install on various types of lighting systems. The entire series can operate under the temperature between -40~+70℃ and comply with the relevant global lighting safety certification.

Model Encoding

NPF - 90 D - 12

- 12 — Output voltage
- D — Built-in 3 in 1 dimming function
- 90 — Output wattage
- NPF — Series name

90W Single Output Switching Power Supply

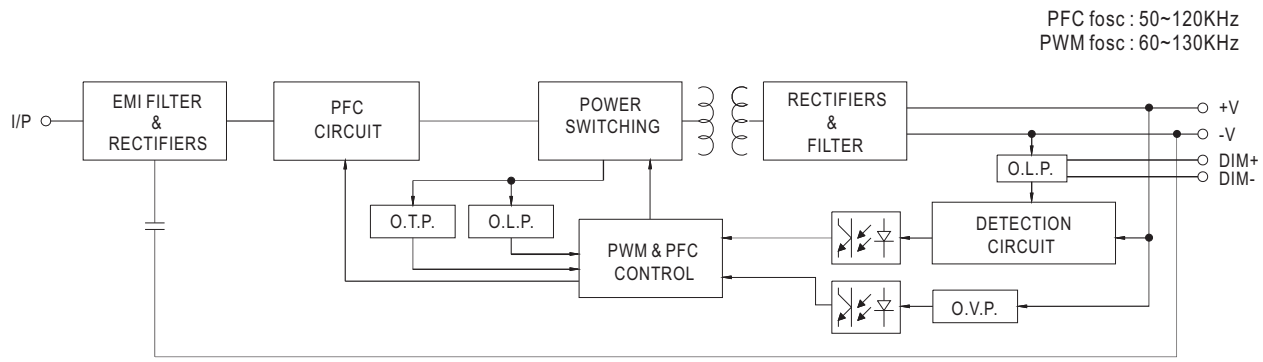
NPF-90D series

SPECIFICATION

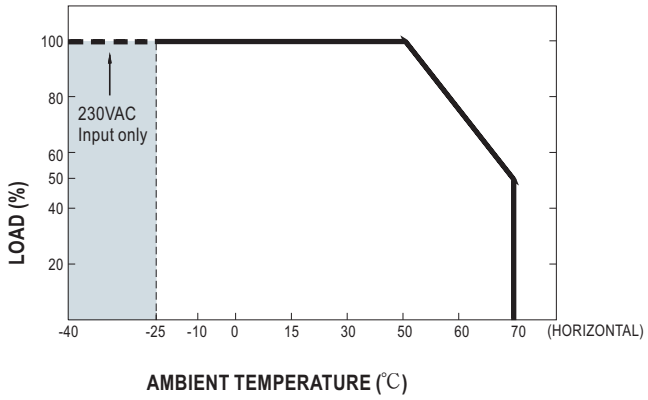
MODEL		NPF-90D-12	NPF-90D-15	NPF-90D-20	NPF-90D-24	NPF-90D-30	NPF-90D-36	NPF-90D-42	NPF-90D-48	NPF-90D-54
OUTPUT	DC VOLTAGE	12V	15V	20V	24V	30V	36V	42V	48V	54V
	CONSTANT CURRENT REGION	7.2 ~ 12V	9 ~ 15V	12 ~ 20V	14.4 ~ 24V	18 ~ 30V	21.6 ~ 36V	25.2 ~ 42V	28.8 ~ 48V	32.4 ~ 54V
	RATED CURRENT	7.5A	6A	4.5A	3.75A	3A	2.5A	2.15A	1.88A	1.67A
	RATED POWER	90W	90W	90W	90W	90W	90W	90.3W	90.24W	90.18W
	RIPPLE & NOISE (max.) Note.2	150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	250mVp-p	250mVp-p	350mVp-p
	VOLTAGE TOLERANCE Note.3	±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.4	500ms, 80ms at 95% load 115VAC / 230VAC								
	HOLD UP TIME (Typ.)	16ms/230VAC 16ms/115VAC at full load								
INPUT	VOLTAGE RANGE	90 ~ 305VAC 127 ~ 431VDC								
	FREQUENCY RANGE	47 ~ 63Hz								
	POWER FACTOR (Typ.)	PF>0.98/115VAC, PF>0.96/230VAC, PF>0.94/277VAC at full load (Please refer to "Power Factor Characteristic" curve)								
	TOTAL HARMONIC DISTORTION	THD< 20% when output loading≧60% at 115VAC/230VAC input and output loading≧75% at 277VAC input								
	EFFICIENCY (Typ.)	88%	89%	90%	90%	89%	90%	90%	90%	90%
	AC CURRENT (Typ.)	0.95A / 115VAC 0.5A / 230VAC 0.4A / 277VAC								
	INRUSH CURRENT(Typ.)	COLD START 60A(twidth=550μs measured at 50% Ipeak) at 230VAC								
	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								
PROTECTION	OVER CURRENT	95 ~ 108%								
		Protection type : 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 ~ 21V	23 ~ 27V	28 ~ 34V	34 ~ 40V	41 ~ 46V	46 ~ 54V	54 ~ 60V	59 ~ 66V
		Protection type : 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.	-40 ~ +70℃ (Refer to "Derating Curve")								
	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	UL8750, CSA C22.2 No. 250.13-12, ENEC EN61347-1, EN61347-2-13, EN62384 independent, IP67 approved ; Design refer to EN60335-1								
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC								
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH								
	EMC EMISSION	Compliance to EN55015, EN55022 (CISPR22) Class B, EN61000-3-2 Class C (≧60% load) ; EN61000-3-3								
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN61547, EN55024, light industry level(surge L- N : 2KV), criteria A								
OTHERS	MTBF	231.2K hrs 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 load and 25℃ of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.									

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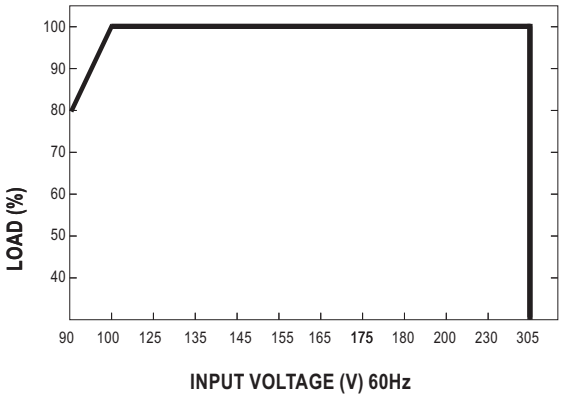
■ Block Diagram



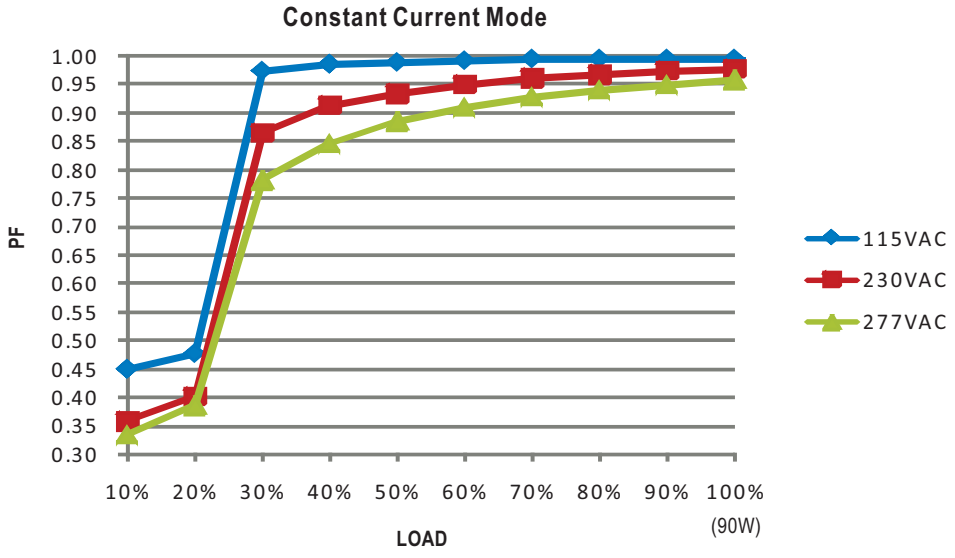
■ Derating Curve



■ Static Characteristics



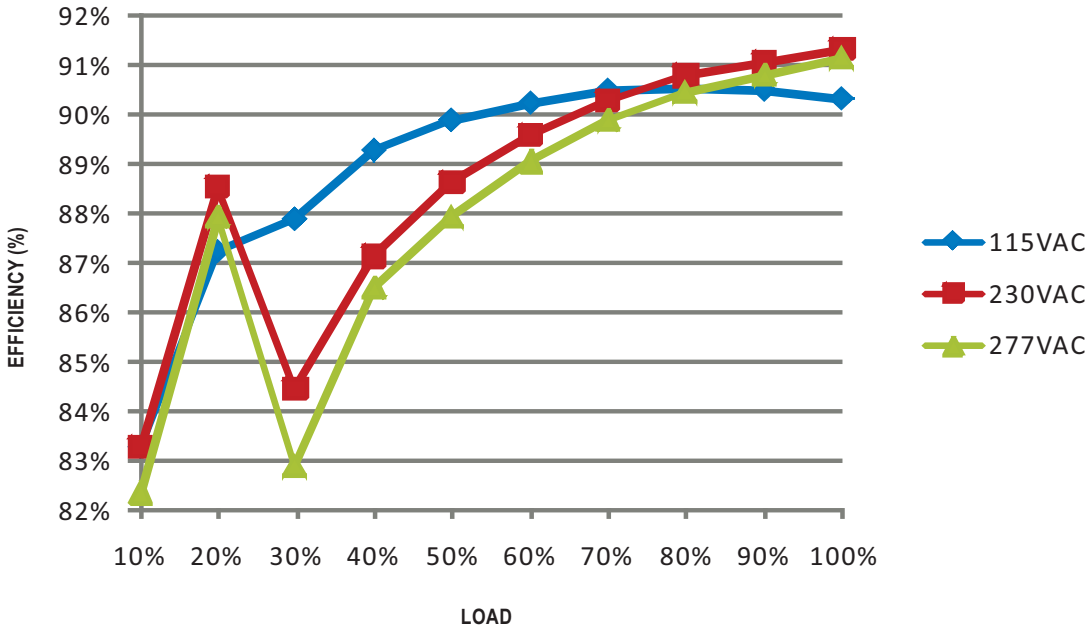
■ Power Factor Characteristic



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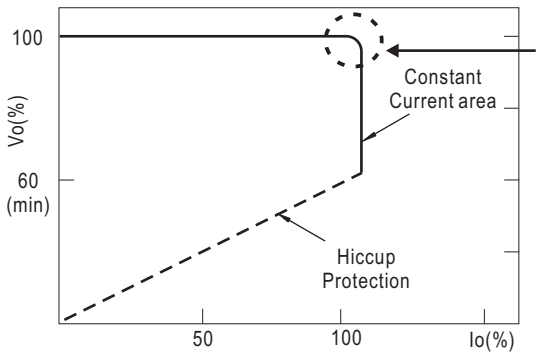
■ EFFICIENCY vs LOAD (48V Model)

NPF-90D series possess superior working efficiency that up to 90.5% can be reached in field applications.



■ DRIVING METHODS OF LED MODULE

This LED power supply is suggested to work in constant current mode area (CC) to drive the LEDs.



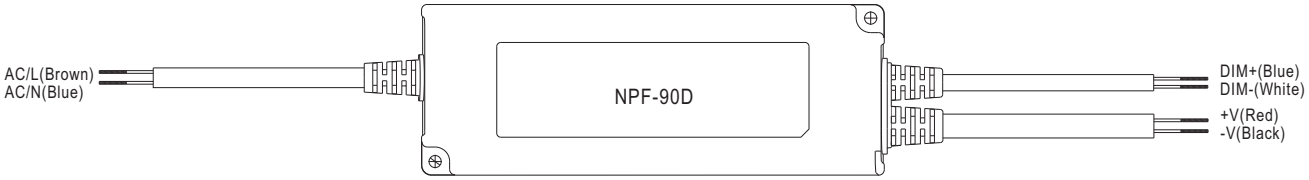
Typical LED power supply I-V curve

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.

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■ DIMMING OPERATION



※ Built-in 3 in 1 dimming function, IP67 rated. Output constant current level can be adjusted through output cable by connecting a resistance or 0 ~ 10Vdc or 10V PWM signal between DIM+ and DIM-.

※ Please DO NOT connect "DIM-" to "-V".

※ Reference resistance value for output current adjustment (Typical)

Resistance value	Single driver	Short	10KΩ	20KΩ	30KΩ	40KΩ	50KΩ	60KΩ	70KΩ	80KΩ	90KΩ	100KΩ	OPEN
	Multiple drivers (N=driver quantity for synchronized dimming operation)	Short	10KΩ /N	20KΩ /N	30KΩ /N	40KΩ /N	50KΩ /N	60KΩ /N	70KΩ /N	80KΩ /N	90KΩ /N	100KΩ /N	-----
Percentage of rated current		0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

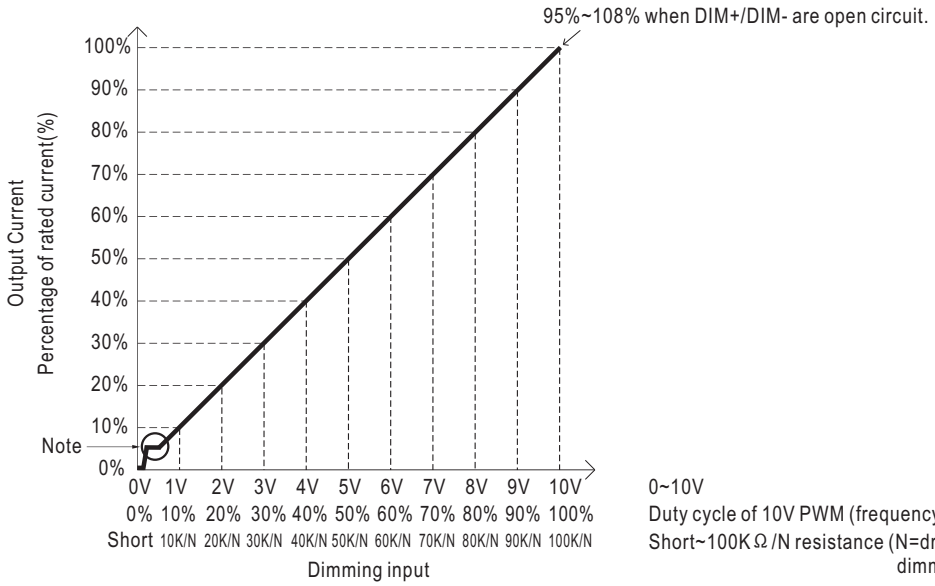
※ 0 ~ 10V dimming function for output current adjustment (Typical)

Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
Percentage of rated current	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

※ 10V PWM signal for output current adjustment (Typical): Frequency range:100Hz ~ 3KHz

Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN
Percentage of rated current	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

◎ Dimming Characteristic



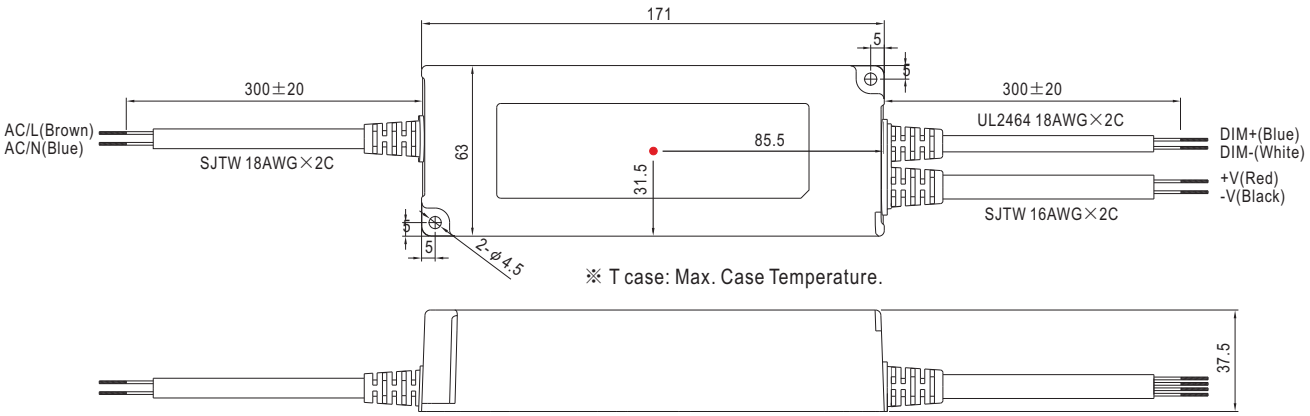
0~10V
Duty cycle of 10V PWM (frequency range = 100~3KHz)
Short~100KΩ /N resistance (N=driver quantity for synchronized dimming operation)

※ Note : 1. Min. dimming level is about 6%
2. The output current is not defined when 0%<Iout<6%
3. The output current could drop down to 0% when dimming input is about 0KΩ or 0Vdc, or 10V PWM signal with 0% duty cycle

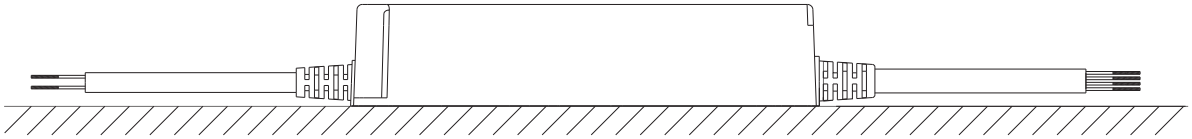
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■ Mechanical Specification

Case No.PWM-90P Unit:mm



■ Recommend Mounting Direction



■ Installation Manual

Please refer to : http://www.meanwell.com/webnet/search/InstallationSearch.html

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