

LPF-90D Series

90W Single Output Dimming LED Lighting Power Supplies



Features

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

LPF - 90D - 24
Series name Rated wattage Rated output voltage (12/15/20/24/30/36/42/48/54V)



Specification

INPUT	Voltage	90V ~ 305VAC 127 ~ 431VDC								
	Frequency	47 ~ 63 Hz								
	Power Factor	PF>0.97/115VAC PF>0.96/230VAC, PF>0.95/277VAC at full load (Please refer to 'Power Characteristic' curve)								
	Efficiency	89%	89.5%	90%	90.5%	90.5%	90.5%	90.5%	90.5%	
	Current	0.95A@115VAC 0.5A@230VAC 0.4A@277VAC								
	Inrush Current (Typ.)	Cold Start 70A(tw=4350µs measured at 50% Ipeak) @230VAC								
	Leakage Current	<0.75mA@240VAC								
OUTPUT	MODEL No.	LPF-90D-15	LPF-90D-20	LPF-90D-24	LPF-90D-30	LPF-90D-36	LPF-90D-42	LPF-90D-48	LPF-90D-54	
	Voltage	15V	20V	24V	30V	36V	42V	48V	54V	
	Rated Current	5A	4.5A	3.75A	3A	2.5A	2.15A	1.88A	1.67A	
	Current Range	9~15V	12~20V	14.4~24V	18~30V	21.6~36V	25.2~42V	28.8~48V	32.4~54V	
	Rated Power	75W	90W	90W	90W	90W	90.3W	90.24W	90.18W	
	Ripple Noise MAX.	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	200Vp-p	200mVp-p	200Vp-p	
	Voltage Tolerance	± 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	1200ms, 200ms / 115VAC at 95% load 500ms, 200ms / 230VAC at 95% load								
Holdup Time (Typ.)	16ms / 230VAC 16ms / 115VAC at full load									
PROTECTION	Over Current	95~108% Protection Type: Constant current limiting, recovers automatically after fault condition is removed								
	Over Voltage	18~21V	23~27V	28~34V	34~38V	41~46V	47~53V	54~60V	59~65V	
	Over Temperature	Protection Type: Shut down o/p voltage, re-power on to recover								
ENVIRONMENT	Working Temp.	-40 ~ +70°C (Refer to "Derating Curve")								
	Working Humidity	20~95% RH non-condensing								
	Storage Temp., Humidity	-40 ~ +80°C, 10~95%RH								
	Temp. Co-efficient	±0.03% / °C (0~50°C)								
	Vibration	10 ~ 500Hz, 5G 12min./1cycle, period for 72 min. each along X, Y, Z axes								
SAFETY & EMC	Withstand Voltage	I/P-O/P:3.75KVAC								
	Isolation Resistance	I/P-OP:100M Ohms / 500VDC / 25°C / 70% RH								
	Safety Standards	UL8750(type"HL"), CSA C22.2 No.250.13-12, TUV EN61347-1, EN61347-2-13, J61347-1, J61347-2-13, EAC TP TC 004, GB19510.1,GB19510.14,IP67 approved ; Design refer to UL60950-1, TUV EN60950-1								
	Withstand Voltage	I/P-O/P:3.75KVAC								
	Isolation Resistance	I/P-O/P:100M Ohms / 500VDC / 25°C / 70%RH								
	EMC Emission	Compliance to EN55015, EN61000-3-2 Class C (≥60% load); EN61000-3-3								
OTHERS	EMC Immunity	Compliance to EN61000-4-2,3,4,5,6,8,11, EN61547, EN55024, light industry level (surge 2KV), criteria A								
	M.T.B.F.	267.2K hrs min. MIL-HDBK-217F (25°C)								
	Packaging	0.7Kg; 20pcs/15Kg/0.73CUFT								

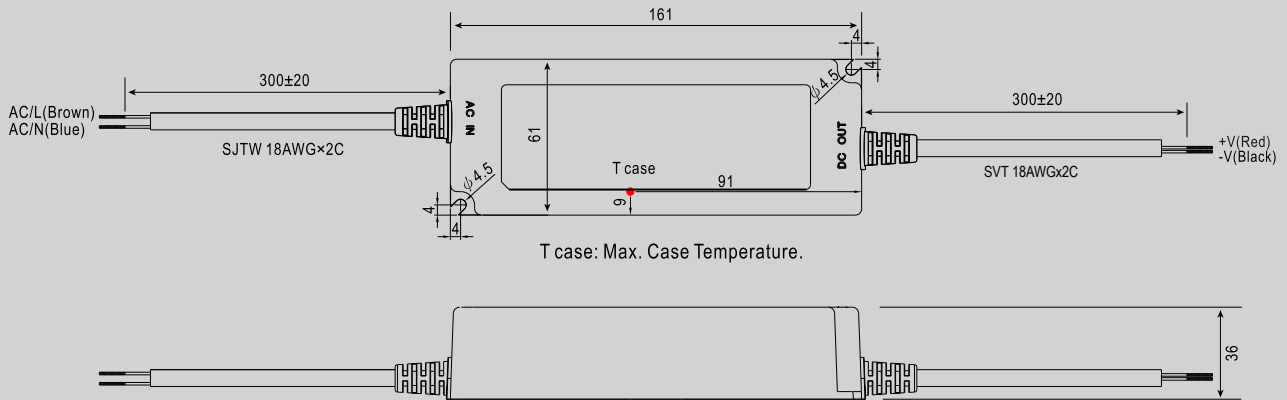
1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripple and noise are measured at 20Mhz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1µf & 47µf parallel capacitor.
3. Tolerance includes setup tolerance, line regulation and load regulation.
4. Derating may be needed under low input voltages. Please check the static characteristics for more details.
5. Length of setup time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the setup time.
6. The power supply 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. 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.
8. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly (C) point (or TMP, per DLC), is about 70°C or less.
9. The ambient temperature of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude of higher than 2000m (6500ft).

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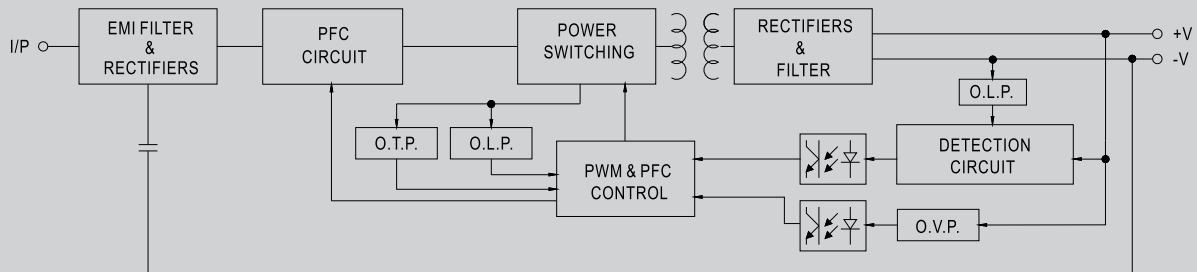
Mechanical Specification



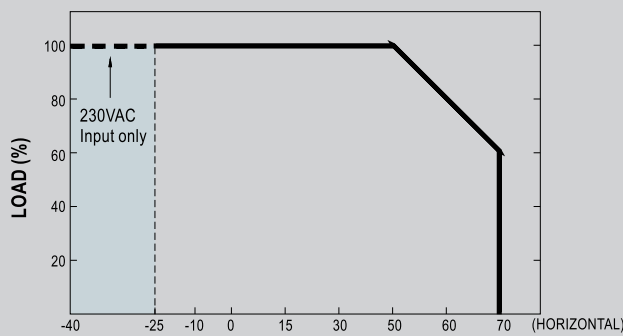
Recommended Mount Direction



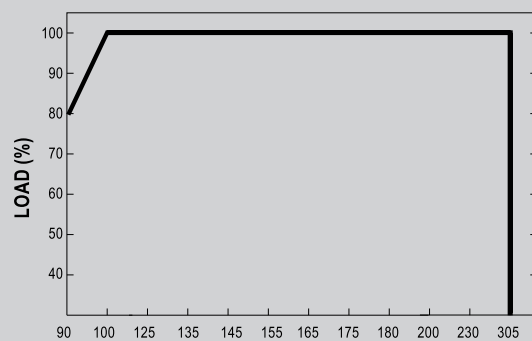
Block Diagram



Derating Curve



Static Characteristics

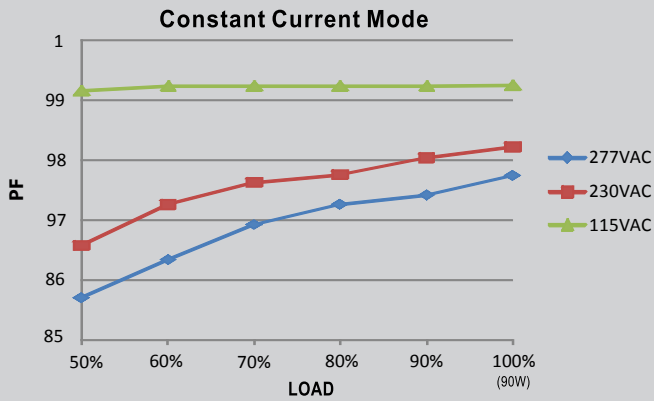


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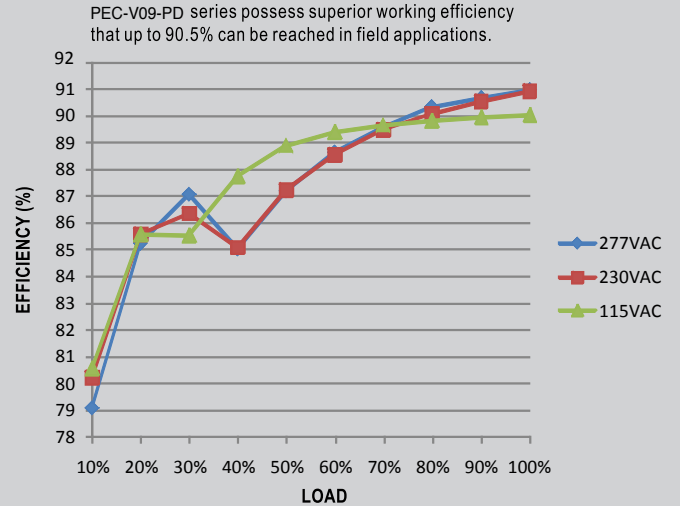
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Power Factor Characteristic

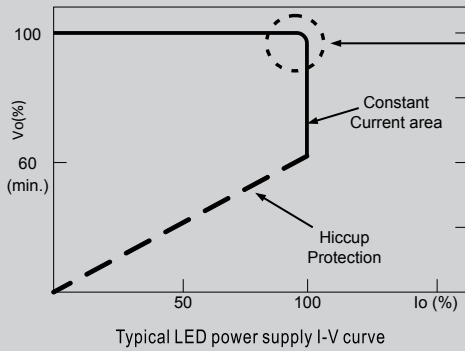


Efficiency vs Load (48 Model)



Driving Methods of LED Module

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



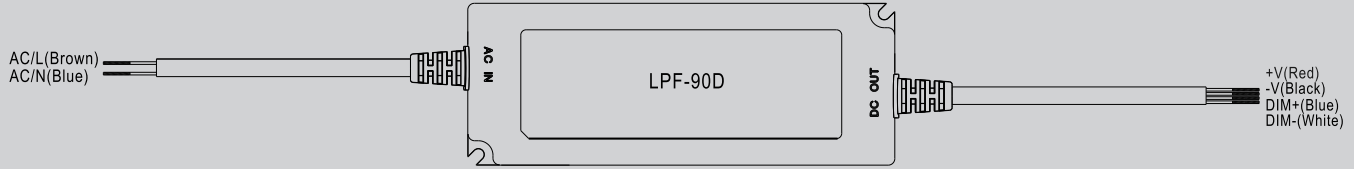
In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.

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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 1 ~ 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	10KΩ	20KΩ	30KΩ	40KΩ	50KΩ	60KΩ	70KΩ	80KΩ	90KΩ	100KΩ	OPEN
	Multiple drivers (N=driver quantity for synchronized dimming operation)	10KΩ/N	20KΩ/N	30KΩ/N	40KΩ/N	50KΩ/N	60KΩ/N	70KΩ/N	80KΩ/N	90KΩ/N	100KΩ/N	-----
Percentage of rated current		10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

1 ~ 10V dimming function for output current adjustment (Typical)

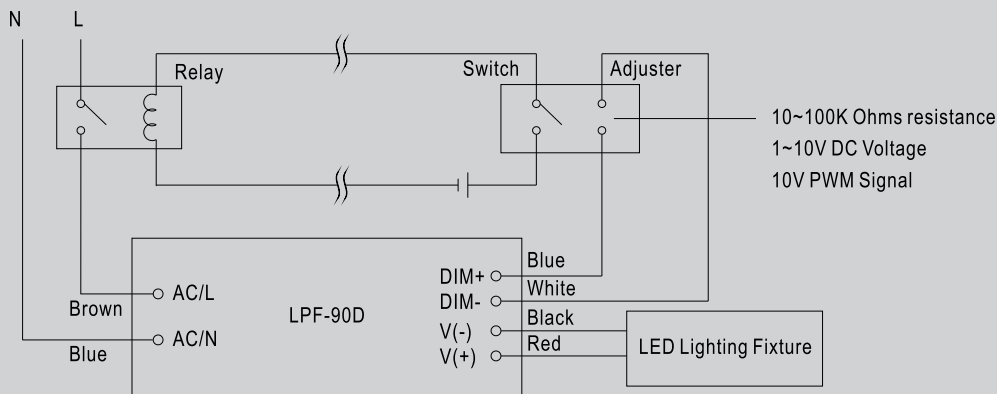
Dimming value	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
Percentage of rated current	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

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

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

Using the built-in dimming function on LPF-90D can't turn the lighting fixture totally dark. Please refer to the connection method below to achieve 0% brightness of the lighting fixture connecting to the LED power supply unit.

Dimming connection diagram for turning the lighting fixture ON/OFF :



Using a switch and relay can turn ON/OFF the lighting fixture.

1. Output constant current level can be adjusted through output cable by connecting a resistor or 1~10Vdc or 10V PWM signal between DIM+ and DIM-.
2. The LED lighting fixture can be turned ON/OFF by the switch.