



■ 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 (Note.6)
- Class II power unit, no FG
- Built-in 3 in 1 dimming function (1~10Vdc or PWM signal or resistance)
- Suitable for LED lighting and moving sign applications
- Compliance to worldwide safety regulations for lighting
- Suitable for dry / damp / wet locations
- 3 years warranty



**SPECIFICATION**

MODEL	LPF-90D-15	LPF-90D-20	LPF-90D-24	LPF-90D-30	LPF-90D-36	LPF-90D-42	LPF-90D-48	LPF-90D-54									
OUTPUT	DC VOLTAGE	15V	20V	24V	30V	36V	42V	48V	54V								
	CONSTANT CURRENT REGION Note.4	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	75W	90W	90W	90W	90W	90.3W	90.24W	90.18W								
	RIPPLE & NOISE (max.) Note.2	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	200mVp-p	200mVp-p	200mVp-p								
	VOLTAGE TOLERANCE Note.3	±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.7	2000ms, 200ms at 95% load 230VAC / 115VAC															
HOLD UP TIME (Typ.)	16ms/230VAC 16ms/115VAC at full load																
INPUT	VOLTAGE RANGE Note.5	90 ~ 305VAC 127 ~ 431VDC															
	FREQUENCY RANGE	47 ~ 63Hz															
	POWER FACTOR (Typ.)	PF>0.97/115VAC, PF>0.96/230VAC, PF>0.95/277VAC at full load (Please refer to "Power Factor Characteristic" curve)															
	EFFICIENCY (Typ.)	89%	89.5%	90%	90.5%	90.5%	90.5%	90.5%	90.5%								
	AC CURRENT (Typ.)	0.95A / 115VAC		0.5A / 230VAC		0.4A / 277VAC											
	INRUSH CURRENT(Typ.)	COLD START 70A/230VAC															
	LEAKAGE CURRENT	<0.75mA / 277VAC															
PROTECTION	OVER CURRENT Note.4	95 ~ 108%															
	OVER VOLTAGE	18 ~ 21V		23 ~ 27V		28 ~ 34V		34 ~ 38V		41 ~ 46V		47 ~ 53V		54 ~ 60V		59 ~ 65V	
		Protection type : Shut down o/p voltage, re-power on to recover															
	OVER TEMPERATURE	90°C ±10°C (RTH2)															
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. COEFFICIENT	±0.03%/°C (0 ~ 50°C)															
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes															
SAFETY & EMC	SAFETY STANDARDS	UL8750, EN61347-1, EN61347-2-13 independent, J61347-1, J61347-2-13, 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															
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN61547, EN55024, light industry level(surge 2KV), criteria A															
OTHERS	MTBF	267.2Khrs min. MIL-HDBK-217F (25°C)															
	DIMENSION	161*61*36mm (L*W*H)															
	PACKING	0.7Kg; 20pcs/15Kg/0.73CUFT															

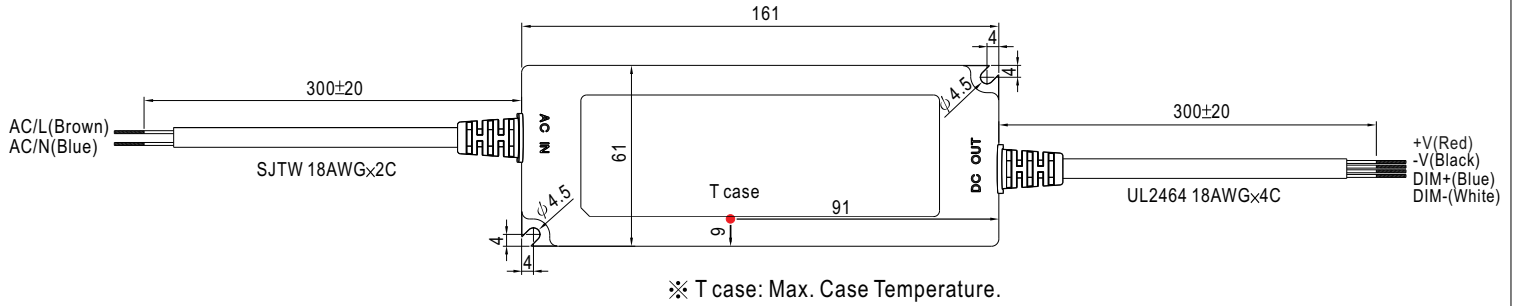
**NOTE**

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C 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. Constant current operation region is within 60% ~100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.
5. Derating may be needed under low input voltages. Please check the static characteristics for more details.
6. Suitable for indoor use or outdoor use without direct sunlight exposure. Please avoid immerse in the water over 30 minutes.
7. 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.
8. 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.
9. Direct connecting to LEDs is suggested, but is not suitable for using additional drivers.

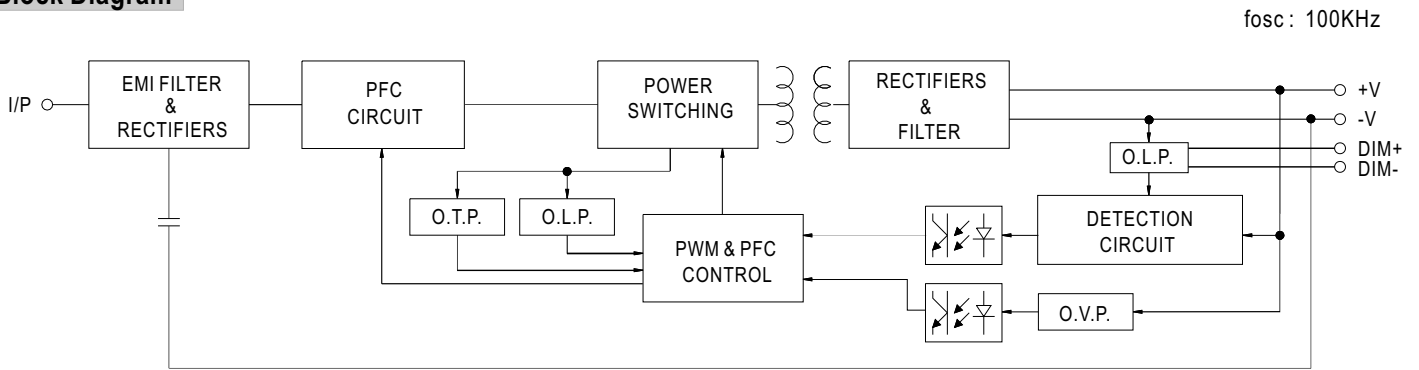
**Mechanical Specification**

Case No.LPF-90A

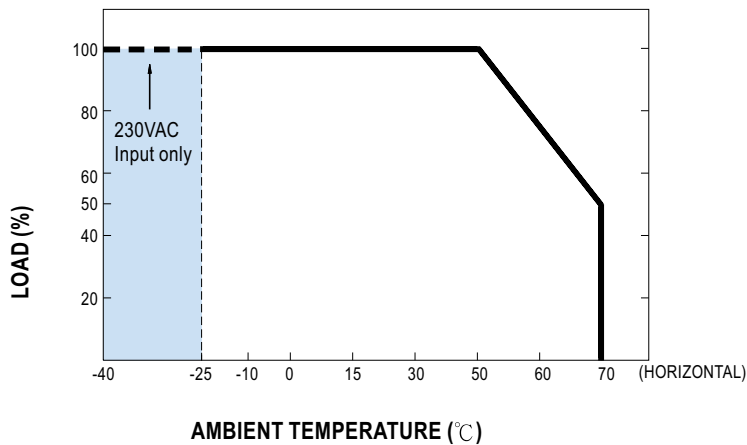
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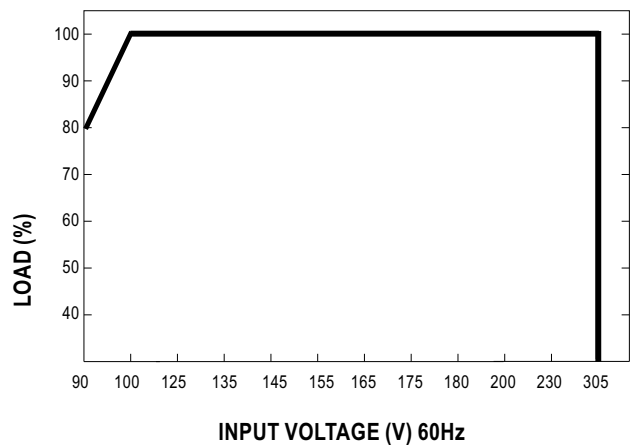
**Block Diagram**



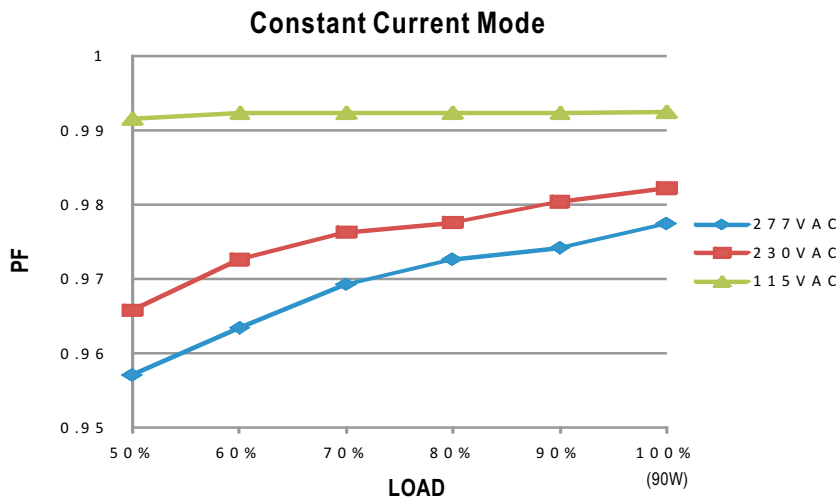
**Derating Curve**



**Static Characteristics**

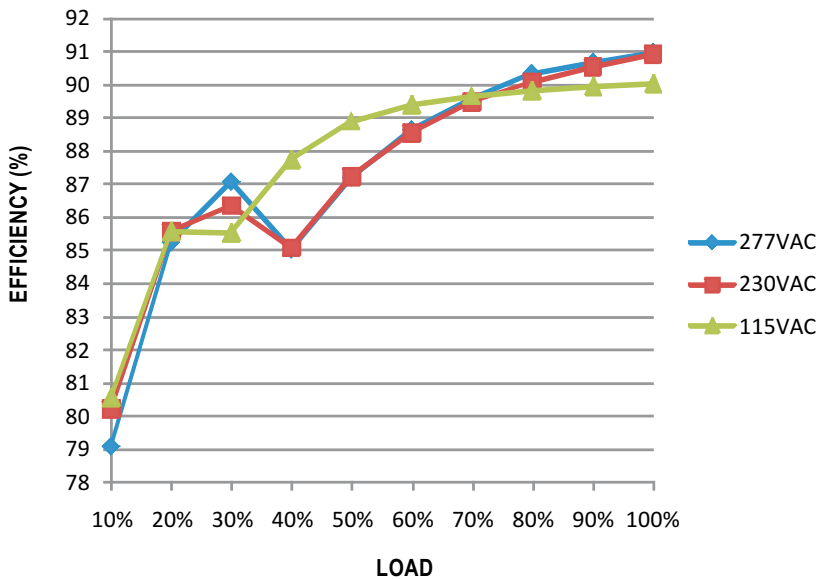


**Power Factor Characteristic**



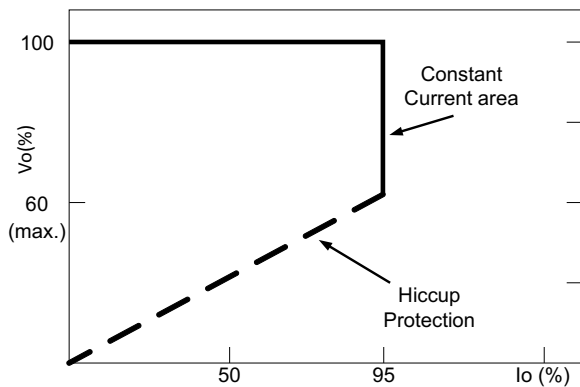
**EFFICIENCY vs LOAD (48V Model)**

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



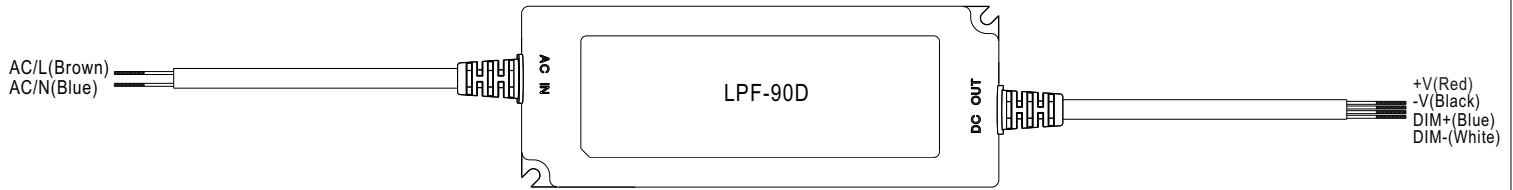
**DRIVING METHODS OF LED MODULE**

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

**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 <small>(N=driver quantity for synchronized dimming operation)</small>	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%	102%~108%

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

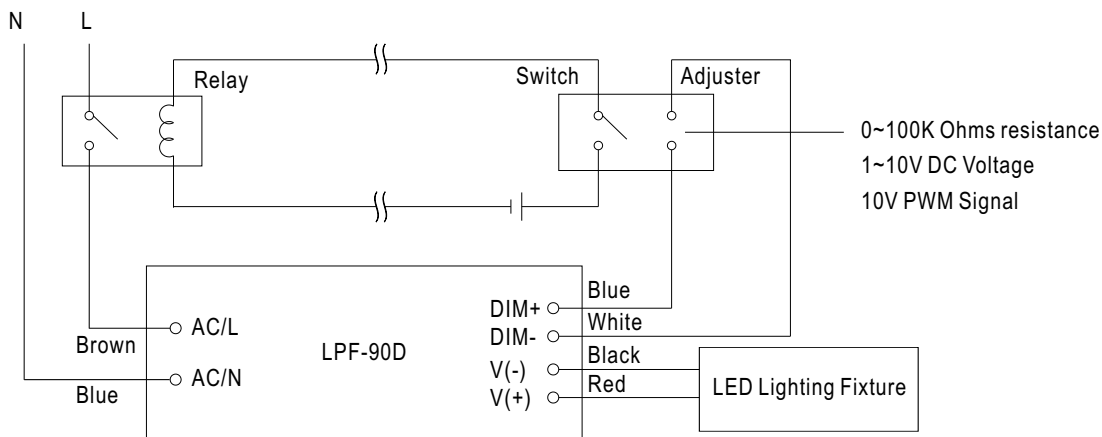
Dimming value	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
Percentage of rated current	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	102%~108%

※ 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%	102%~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 resistance or 1~10Vdc or 10V PWM signal between DIM+ and DIM-.
2. The LED lighting fixture can be turned ON/OFF by the switch.