



■ Features :

- Universal AC input / Full range (up to 305VAC)
- Built-in active PFC function
- High efficiency up to 90%
- Protections: Short circuit / Overload / 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 locations
- 3 years warranty

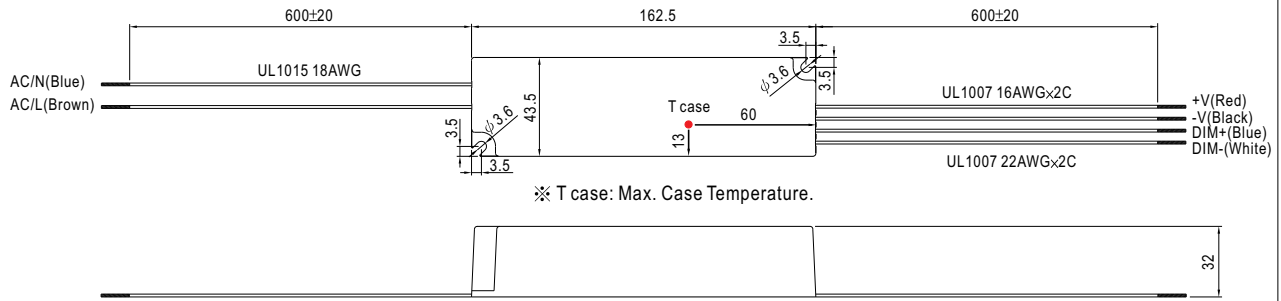


SPECIFICATION

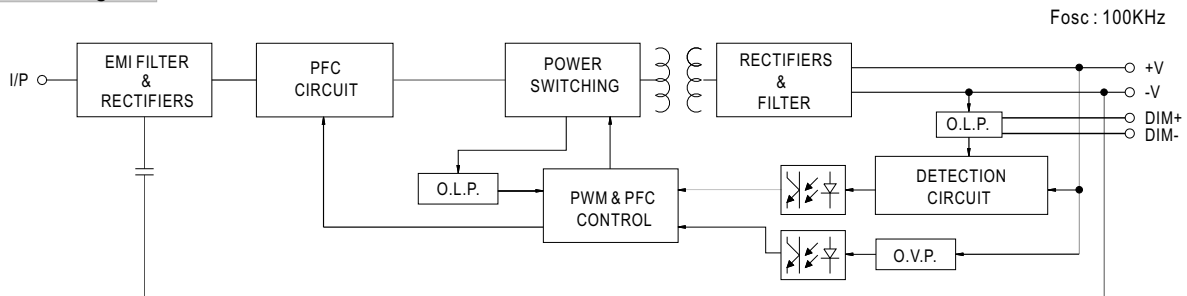
MODEL	LPF-60D-12	LPF-60D-15	LPF-60D-20	LPF-60D-24	LPF-60D-30	LPF-60D-36	LPF-60D-42	LPF-60D-48	LPF-60D-54	
OUTPUT	DC VOLTAGE	12V	15V	20V	24V	30V	36V	42V	48V	54V
	CONSTANT CURRENT REGION Note.4	7.2~12V	9~15V	12~20V	14.4~24V	18~30V	21.6~36V	25.2~42V	28.8~48V	32.4~54V
	RATED CURRENT	5A	4A	3A	2.5A	2A	1.67A	1.43A	1.25A	1.12A
	RATED POWER	60W	60W	60W	60W	60W	60.12W	60.06W	60W	60.48W
	RIPPLE & NOISE (max.) Note.2	150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	250mVp-p	250mVp-p	250mVp-p	350mVp-p
	VOLTAGE TOLERANCE Note.3	±4.0%	±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%	±0.5%
	LOAD REGULATION	±2.0%	±1.5%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
SETUP, RISE TIME Note.7	1000ms, 80ms / 115VAC at full load 1000ms, 80ms / 230VAC									
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>0.95/230VAC, PF>0.92/277VAC at full load (Please refer to "Power Factor Characteristic" curve)								
	EFFICIENCY (Typ.)	86%	87%	88%	89%	90%	90%	90%	90%	90%
	AC CURRENT (Typ.)	0.8A / 115VAC		0.4A / 230VAC						
	INRUSH CURRENT (Typ.)	COLD START 75A/230VAC								
LEAKAGE CURRENT	<0.75mA / 240VAC									
PROTECTION	OVER CURRENT Note.4	95~108%								
	SHORT CIRCUIT	Protection type : Constant current limiting, recovers automatically after fault condition is removed								
	OVER VOLTAGE	15~17V	17.5~21V	23~27V	28~35V	34~40V	41~49V	46~54V	54~63V	59~66V
	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)								
SAFETY & EMC	VIBRATION	10~500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes								
	SAFETY STANDARDS Note.6	UL8750, EN61347-1, EN61347-2-13 independent, 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								
	MTBF	396.7Khrs min. MIL-HDBK-217F (25°C)								
	DIMENSION	162.5*43.5*32mm (L*W*H)								
NOTE	PACKING	0.45Kg; 32pcs/15.4Kg/0.73CUFT								
		<p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</p> <p>3. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>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.</p> <p>5. Derating may be needed under low input voltages. Please check the static characteristics for more details.</p> <p>6. Suitable for indoor use or outdoor use without direct sunlight exposure. Please avoid immerse in the water over 30 minutes.</p> <p>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.</p> <p>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.</p>								

**Mechanical Specification**

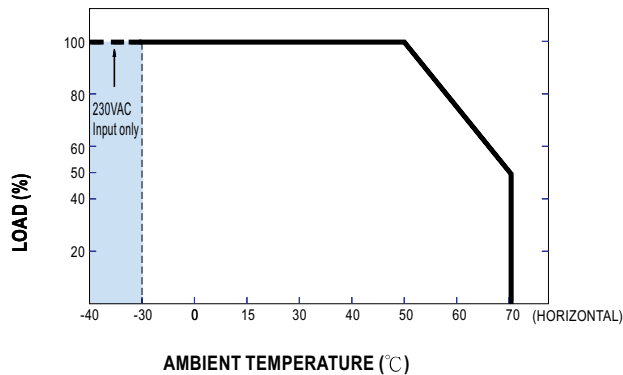
Case No. LPF60A Unit:mm



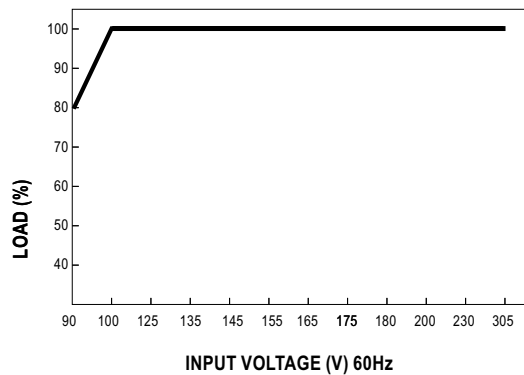
**Block Diagram**



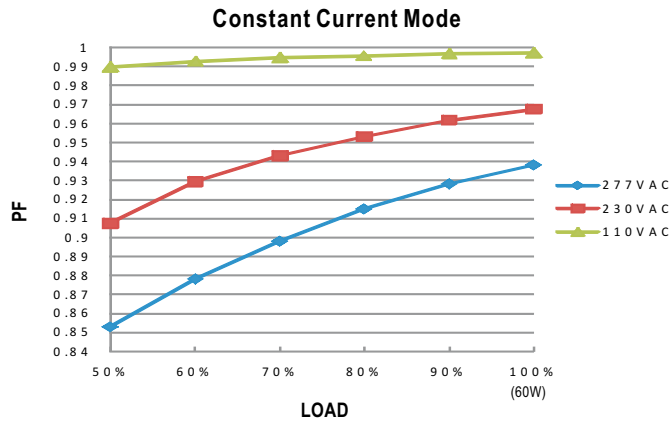
**Derating Curve**



**Static Characteristics**

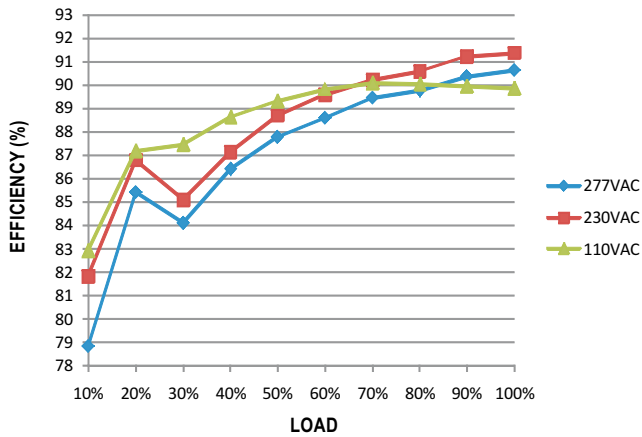


**Power Factor Characteristic**



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

LPF-60D series possess superior working efficiency that up to 90% can be reached in field applications.

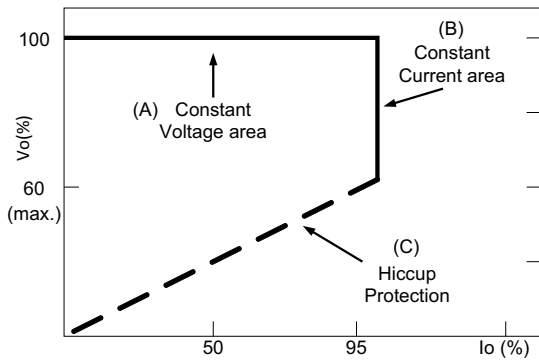


**DRIVING METHODS OF LED MODULE**

There are two major kinds of LED drive method "direct drive" and "with LED driver".

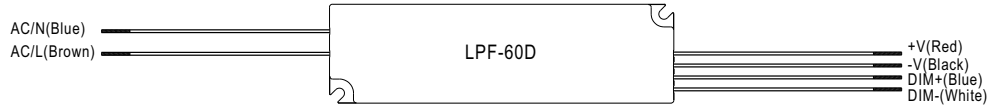
A typical LED power supply may either work in "constant voltage mode (CV) or constant current mode (CC)" to drive the LEDs.

Mean Well's LED power supply with CV+ CC characteristic can be operated at both CV mode (with LED driver, at area (A) and CC mode (direct drive, at area (B).



Typical LED power supply I-V curve

**■ DIMMING OPERATION**



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

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

※ Reference resistance value for output current adjustment (Typical)

Resistance value	10KΩ	20KΩ	30KΩ	40KΩ	50KΩ	60KΩ	70KΩ	80KΩ	90KΩ	100KΩ	OPEN
Output current	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	100%~108%

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

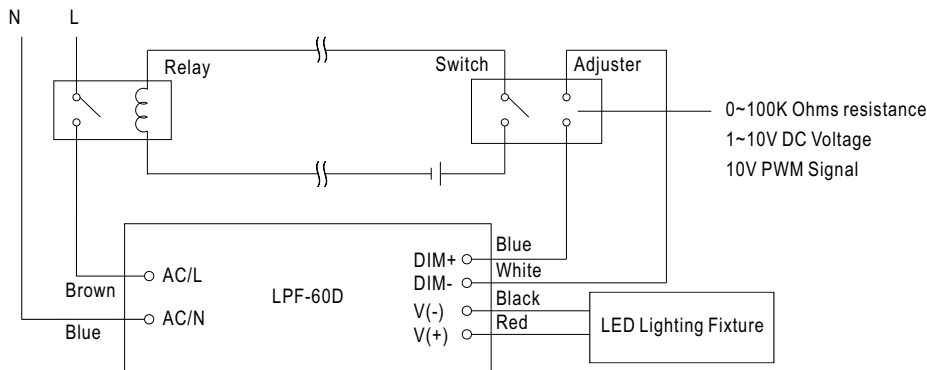
Dimming value	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
Output current	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	100%~108%

※ 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
Output current	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	100%~108%

※ Using the built-in dimming function on LPF-60D 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.