



60W LED Driver power supply < PLN-60



- Features :
- Universal AC input / Full range (up to 295VAC)
 - High efficiency 89%
 - Protections: Short circuit / Over current / Over voltage / Over temperature
 - Cooling by free air convection
 - Built-in constant current limiting circuit with adjustable OCP level
 - Fully isolated plastic case with IP64 level
 - Built-in active PFC function
 - Pass LPS
 - Class 2 power unit
 - 100% full load burn-in test
 - High reliability
 - Suitable for LED lighting and moving sign applications (Note.2)
 - Suitable for dry / damp locations
 - Compliance to worldwide safety regulations for lighting
 - 2 years warranty



SPECIFICATION

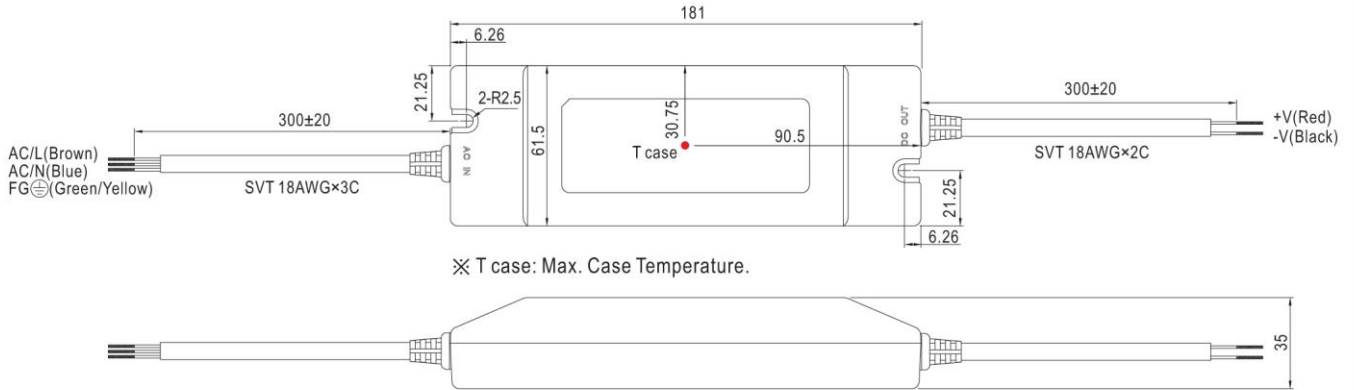
MODEL	PLN-60-12	PLN-60-15	PLN-60-20	PLN-60-24	PLN-60-27	PLN-60-36	PLN-60-48	
OUTPUT	DC VOLTAGE	12V	15V	20V	24V	27V	36V	48V
	CONSTANT CURRENT REGION Note.6	8.4 ~ 12V	10.5 ~ 15V	14 ~ 20V	16.8 ~ 24V	18.9 ~ 27V	25.2 ~ 36V	33.6 ~ 48V
	RATED CURRENT	5A	4A	3A	2.5A	2.3A	1.7A	1.3A
	CURRENT RANGE	0 ~ 5A	0 ~ 4A	0 ~ 3A	0 ~ 2.5A	0 ~ 2.3A	0 ~ 1.7A	0 ~ 1.3A
	RATED POWER	60W	60W	60W	60W	62.1W	61.2W	62.4W
	RIPPLE & NOISE (max.) Note.2	2Vp-p	2.4Vp-p	1.8Vp-p	2.7Vp-p	2.7Vp-p	3.6Vp-p	4.6Vp-p
	VOLTAGE ADJ. RANGE Note.5	11.5 ~ 13V	14.5 ~ 16.2V	19.5 ~ 22V	24 ~ 26V	25 ~ 30V	32.5 ~ 39V	43.6 ~ 51.8V
	Can be adjusted by internal potentiometer SVR1							
	CURRENT ADJ. RANGE Note.5	3% ~ -25%. Can be adjusted by internal potentiometer SVR2						
	VOLTAGE TOLERANCE Note.3	±10%						
LINE REGULATION	±3.0%							
LOAD REGULATION	±5.0%							
SETUP TIME	500ms / 230VAC 3000ms / 115VAC at full load							
INPUT	VOLTAGE RANGE Note.4	90 ~ 295VAC 127 ~ 417VDC						
	FREQUENCY RANGE	47 ~ 63Hz						
	POWER FACTOR (Typ.)	PF>0.92/115VAC, PF>0.9/230VAC, PF>0.9/277VAC at full load (Please refer to "Power Factor Characteristic" curve)						
	TOTAL HARMONIC DISTORTION	THD< 20% when output loading≥75% at 115VAC/230VAC input and output loading≥80% at 277VAC input						
	EFFICIENCY (Typ.)	85%	86%	87.5%	87%	88%	89%	89%
	AC CURRENT (Typ.)	0.8A/115VAC		0.4A/230VAC		0.3A/277VAC		
	INRUSH CURRENT (Typ.)	COLD START 35A(twidth=45μs measured at 50% Ipeak) at 230VAC						
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	32 units (circuit breaker of type B) / 32 units (circuit breaker of type C) at 230VAC						
LEAKAGE CURRENT	<0.75mA / 240VAC							
PROTECTION	OVER CURRENT	95 ~ 110%						
	SHORT CIRCUIT	Protection type : Constant current limiting, recovers automatically after fault condition is removed						
	OVER VOLTAGE	13.8 ~ 16V	17.5 ~ 21V	23 ~ 28V	28 ~ 32V	31 ~ 35V	41 ~ 46V	54 ~ 60V
	OVER TEMPERATURE	Protection type : Shut down o/p voltage, re-power on to recover						
ENVIRONMENT	WORKING TEMP.	Shut down o/p voltage, recovers automatically after temperature goes down						
	WORKING HUMIDITY	-30 ~ +50°C (Refer to "Derating Curve")						
	STORAGE TEMP., HUMIDITY	20 ~ 95% RH non-condensing						
	TEMP. COEFFICIENT	-40 ~ +80°C, 10 ~ 95% RH						
	VIBRATION	±0.03%/°C (0 ~ 50°C)						
SAFETY & EMC	SAFETY STANDARDS	10 ~ 500Hz, 2G 12min./1cycle, period for 72min. each along X, Y, Z axes						
	WITHSTAND VOLTAGE	UL879, UL1310, UL8750, CSA C22.2 No. 207-M89(except for 48V), TUV EN61347-1, EN61347-2-13 independent, CAN/CSA C22.2 No. 223-M91(except for 48V), CSA C22.2 No. 250.0-08(except for 48V), IP64, J61347-1, J61347-2-13 approved ; design refer to UL60950-1						
	ISOLATION RESISTANCE	I/P-O/P:3.75KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC						
	EMC EMISSION	I/P-O/P:100M Ohms / 500VDC / 25°C/ 70% RH						
	EMC IMMUNITY	Compliance to EN55015, EN55022 (CISPR22) Class B, EN61000-3-2 Class C (≥75% load) ; EN61000-3-3						
OTHERS	MTBF	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN61547, light industry level, criteria A						
	DIMENSION	497.8Khrs min. MIL-HDBK-217F (25°C)						
	PACKING	181*61.5*35mm (L*W*H)						
NOTE	0.5Kg; 24pcs/13Kg/0.75CUFT							
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. Derating may be needed under low input voltage. Please check the static characteristics for more details. 5. Output voltage can be adjusted through the SVR1 on the PCB ; limit of output constant current level can be adjusted through the SVR2 on the PCB. 6. Please refer to "DRIVING METHODS OF LED MODULE". 7. 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. 8. Direct connecting to LEDs is suggested, but is not suitable for using additional drivers. 9. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED power supply can only be used behind a switch without permanently connected to the mains.								



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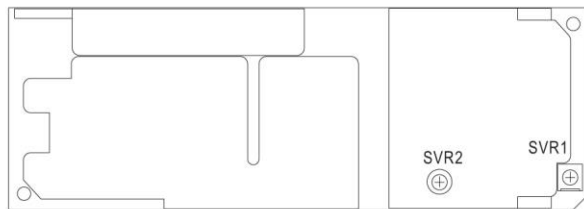
Mechanical Specification

Case No.960A Unit:mm



※ T case: Max. Case Temperature.

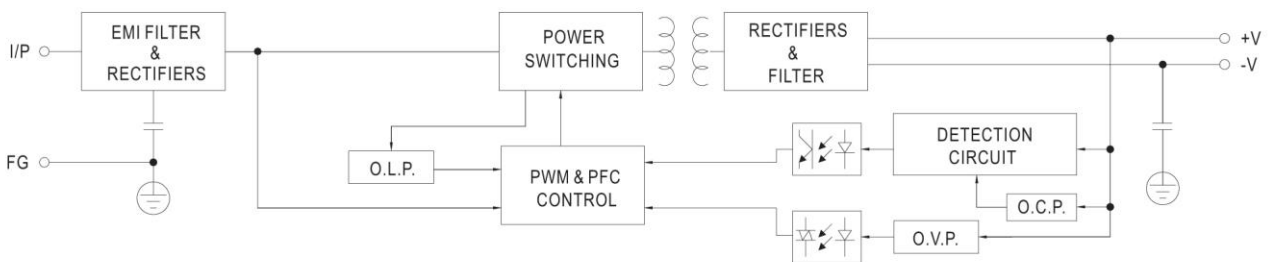
Output voltage and current adjustment : remove the upper case and adjust through SVR1 & SVR2 shown in the diagram.



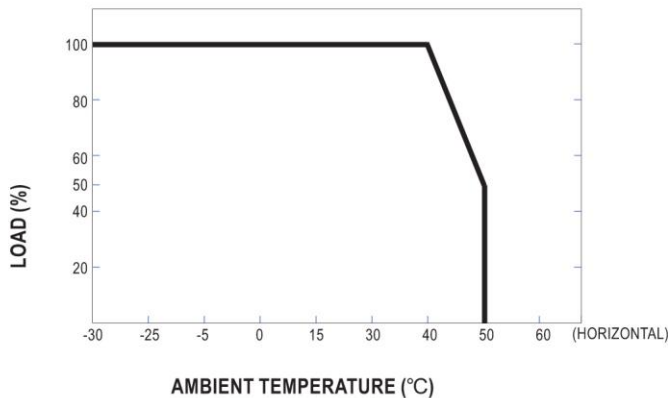
SVR1	Output voltage adjustment
SVR2	Output current adjustment

Block Diagram

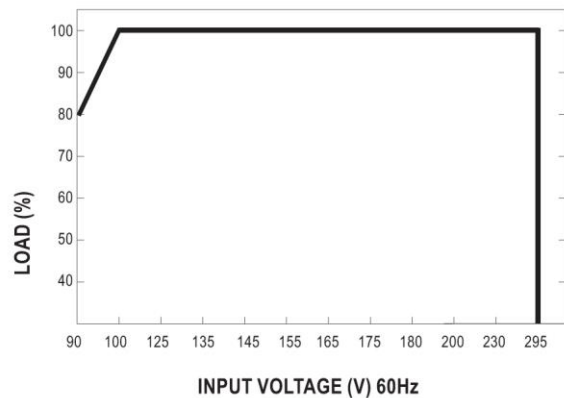
fosc : 90KHz(115VAC)
 120KHz(230VAC)



Derating Curve



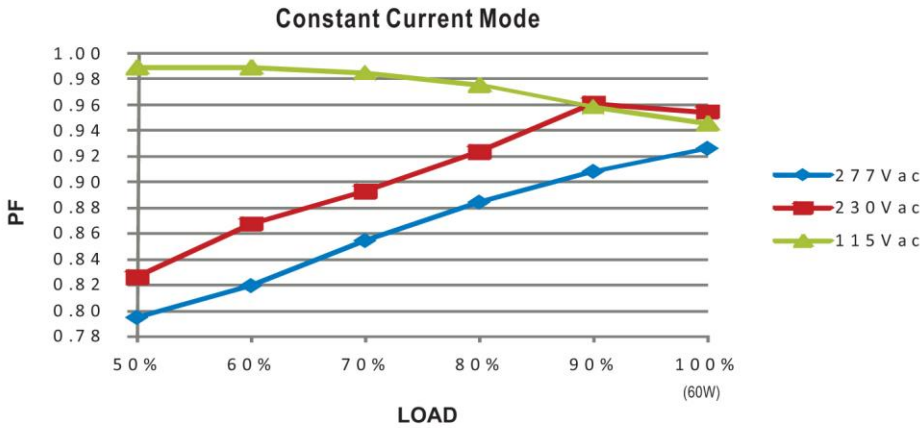
Static Characteristics





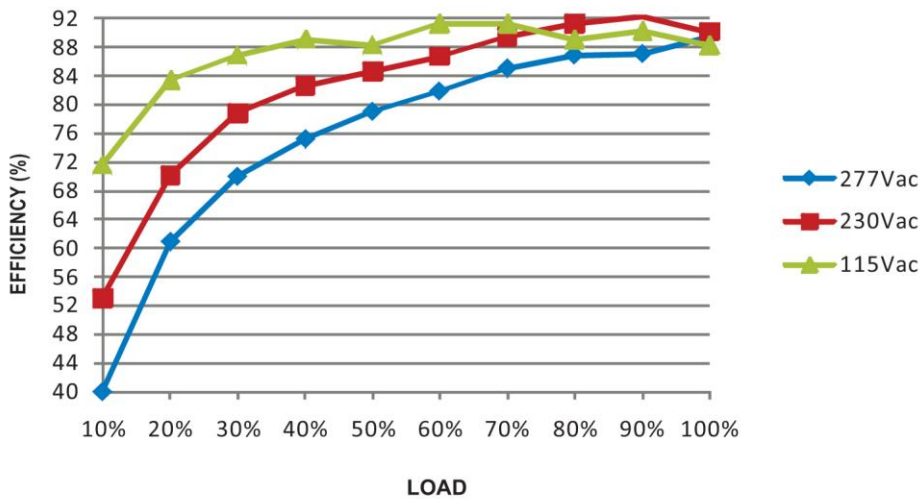
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Power Factor Characteristic



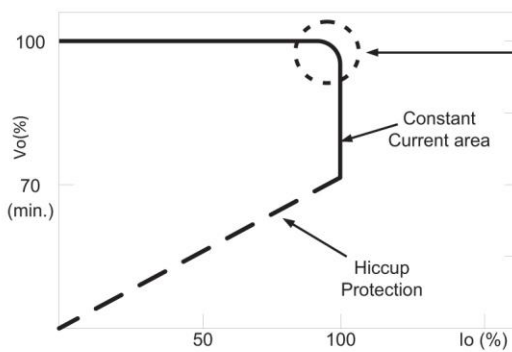
EFFICIENCY vs LOAD (48V Model)

PLN-60 series possess superior working efficiency that up to 89% 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.



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

Typical LED power supply I-V curve