

Datasheet

Constant Voltage LED Driver 45.6W 48V 0.95A RS PLN-45-48

RS Stock number 721-1816



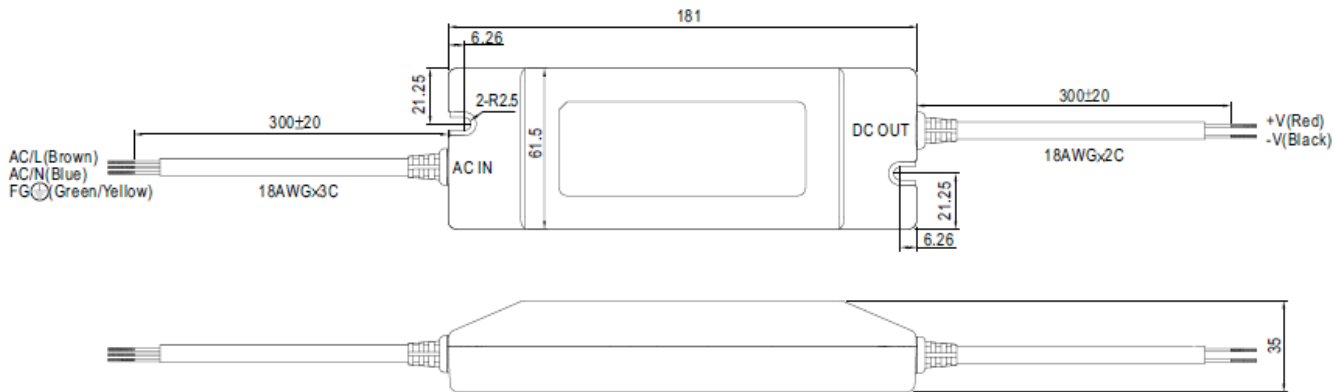
■ Features :

- Universal AC input / Full range (up to 295VAC)
- Fully isolated plastic case with IP64 level
- Built-in constant current limiting circuit with adjustable OCP level
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Built-in active PFC function
- IP64 design for indoor or outdoor installations
- UL1310 Class 2 power unit
- Pass LPS
- Cooling by free air convection
- 100% full load burn-in test
- High reliability
- Suitable for LED lighting and moving sign applications
- Compliance to worldwide safety regulations for lighting

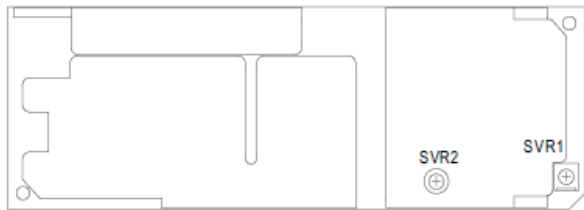
MODEL		PLN-45-12	PLN-45-15	PLN-45-20	PLN-45-24	PLN-45-27	PLN-45-36	PLN-45-48	
OUTPUT	DC VOLTAGE	12V	15V	20V	24V	27V	36V	48V	
	CONSTANT CURRENT OPERATION VOLTAGE <small>Note.6</small>	9 ~ 12V	11.25 ~ 15V	15 ~ 20V	18 ~ 24V	20.25 ~ 27V	27 ~ 36V	36 ~ 48V	
	RATED CURRENT	3.8A	3A	2.3A	1.9A	1.7A	1.25A	0.95A	
	CURRENT RANGE	0 ~ 3.8A	0 ~ 3A	0 ~ 2.3A	0 ~ 1.9A	0 ~ 1.7A	0 ~ 1.25A	0 ~ 0.95A	
	RATED POWER	45.6W	45W	46W	45.6W	45.9W	45W	45.6W	
	RIPPLE & NOISE (max.) <small>Note.2</small>	2Vp-p	2.4Vp-p	1.8Vp-p	2.7Vp-p	2.7Vp-p	3.6Vp-p	4.6Vp-p	
	VOLTAGE ADJ. RANGE <small>Note.5</small>	11.5 ~ 13V	14.5 ~ 16.2V	19.5 ~ 22V	24 ~ 26V	25 ~ 30V	32.5 ~ 39V	43.6 ~ 51.8V	
	CURRENT ADJ. RANGE <small>Note.5</small>	Can be adjusted by internal potential meter SVR1							
	VOLTAGE TOLERANCE <small>Note.3</small>	3% ~ -25%. Can be adjusted by internal potential meter SVR2							
	LINE REGULATION	±10%							
	LOAD REGULATION	±3.0%							
SETUP TIME	±5.0%								
INPUT	VOLTAGE RANGE <small>Note.4</small>	1500ms / 230VAC 3000ms / 115VAC at full load							
	FREQUENCY RANGE	90 ~ 295VAC 127 ~ 417VDC							
	POWER FACTOR	47 ~ 63Hz							
	EFFICIENCY (Typ.)	PF ≥ 0.9 at 75 ~ 100% load, 115VAC / 230VAC							
	AC CURRENT	83.5%	85%	86.5%	86.5%	86.5%	87.5%	87.5%	
	INRUSH CURRENT (max.)	0.55A/115VAC 0.25A/230VAC							
	LEAKAGE CURRENT	40A/230VAC							
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	22.8 ~ 25V	28 ~ 32V	31 ~ 35V	41 ~ 46V	54 ~ 60V	
	OVER TEMPERATURE	Hiccup mode, recovers automatically after fault condition is removed.							
ENVIRONMENT	WORKING TEMP.	95°C ± 10°C (TSW 1) detect on heatsink of power transistor							
	WORKING HUMIDITY	Protection type : Shut down o/p voltage, re-power on to recover							
	STORAGE TEMP., HUMIDITY	95°C ± 10°C (TSW 1) detect on heatsink of power transistor							
	TEMP. COEFFICIENT	Protection type : Shut down o/p voltage, recovers automatically after temperature goes down							
	VIBRATION	-30 ~ +50°C (Refer to output load derating curve)							
SAFETY & EMC	SAFETY STANDARDS	20 ~ 95% RH non-condensing							
	WITHSTAND VOLTAGE	-40 ~ +80°C, 10 ~ 95% RH							
	ISOLATION RESISTANCE	±0.03%/°C (0 ~ 50°C)							
	EMI CONDUCTION & RADIATION	10 ~ 500Hz, 2G 12min./1 cycle, period for 72min. each along X, Y, Z axes							
	HARMONIC CURRENT	UL879, UL8750, UL1310 Class 2, TUV EN61347-1, EN61347-2-13 independent, CAN/CSA C22.2 No. 223-M91(except for 48V), IP64 approved							
	EMS IMMUNITY	I/P-O/P: 3.75KVAC I/P-F/G: 1.88KVAC O/P-F/G: 0.5KVAC							
OTHERS	MTBF	I/P-O/P: 100M Ohms / 500VDC / 25°C / 70% RH							
	DIMENSION	Compliance to EN55015							
	PACKING	Compliance to EN61000-3-2 Class C (≥ 75% load); EN61000-3-3							

Mechanical Specification

Case No. 960A Unit:mm

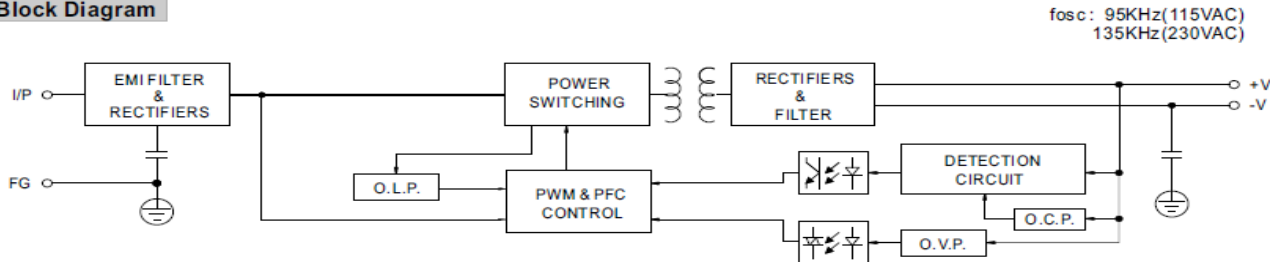


Output voltage and current adjustment : remove the upper case and adjust through SVR1 & SVR2 shown in the diagram.

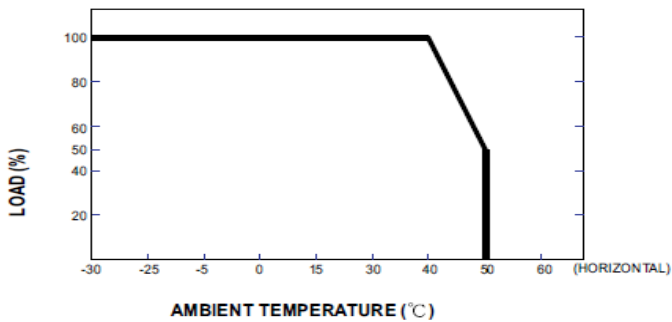


SVR1	Output voltage adjustment
SVR2	Output current adjustment

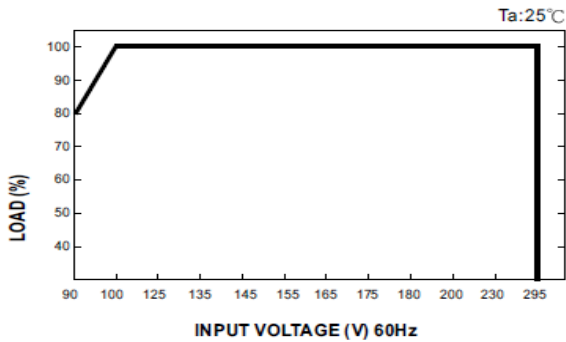
Block Diagram



Derating Curve

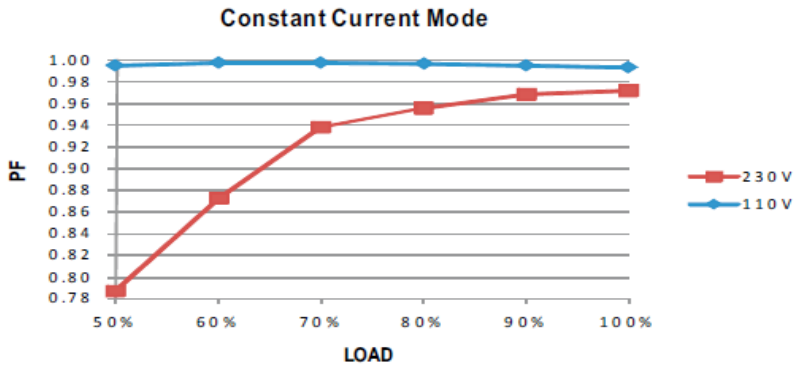


Static Characteristics



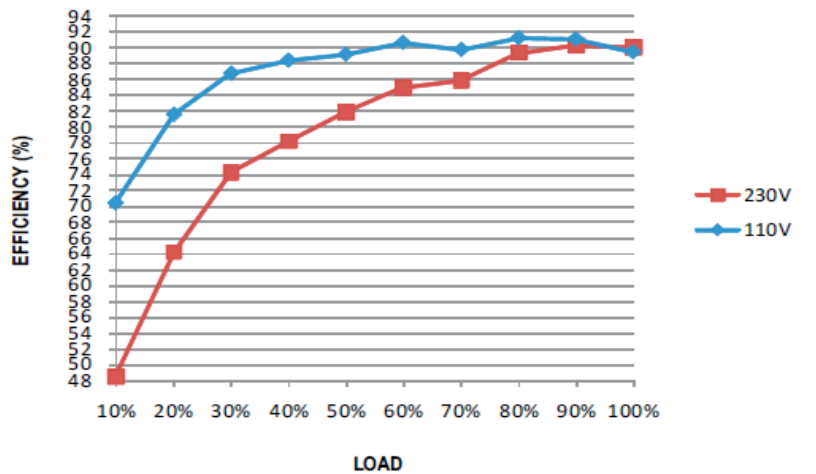
Power Factor Characteristic

Power factor will be higher than 0.9 when output loading is 75% or higher.

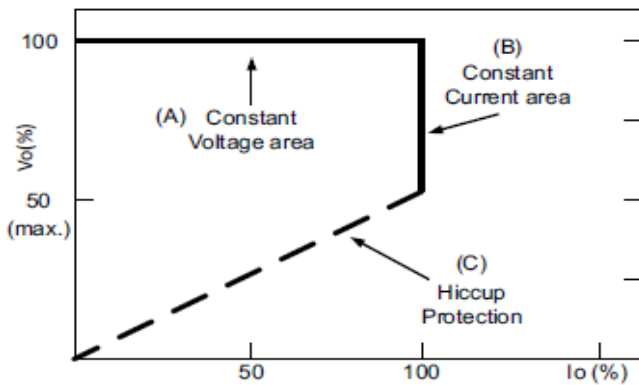


EFFICIENCY vs LOAD (48V Model)

PLN-45 series possess superior working efficiency that up to 87.5% can be reached in field applications.



DRIVING METHODS OF LED MODULE



Typical LED power supply I-V curve