

## Datasheet

# Constant Voltage LED Driver 45.9W 27V 1.7A RS PLN-45-27

RS Stock number 721-1819



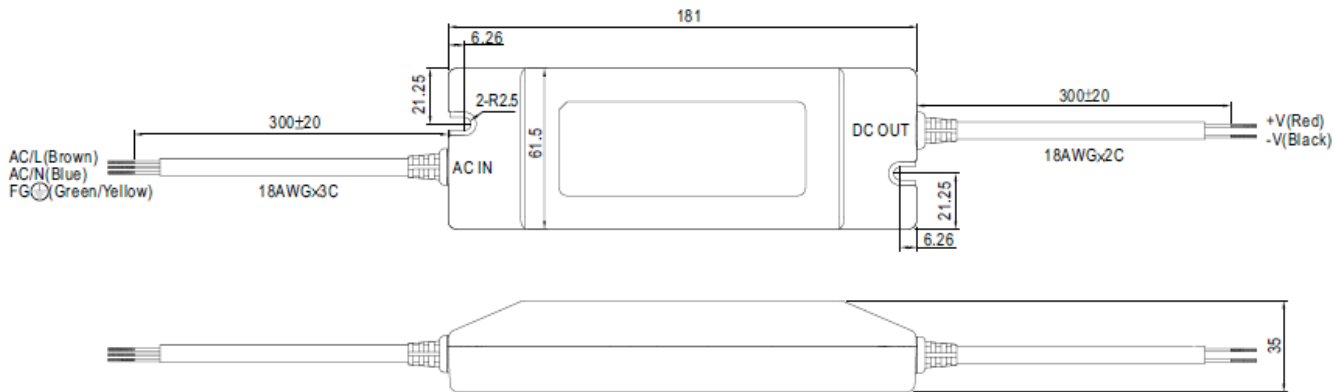
### ■ Features :

- 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

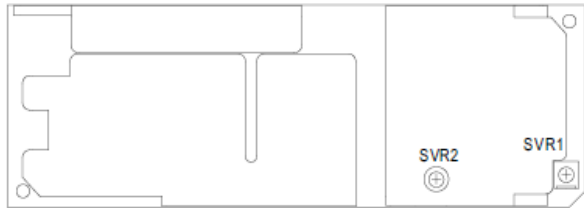
MODEL		PLN-45-12	PLN-45-15	PLN-45-20	PLN-45-24	PLN-45-27	PLN-45-36	PLN-45-48	
OUTPUT	DC VOLTAGE	12V	15V	20V	24V	27V	36V	48V	
	CONSTANT CURRENT OPERATION VOLTAGE <small>Note.6</small>	9 ~ 12V	11.25 ~ 15V	15 ~ 20V	18 ~ 24V	20.25 ~ 27V	27 ~ 36V	36 ~ 48V	
	RATED CURRENT	3.8A	3A	2.3A	1.9A	1.7A	1.25A	0.95A	
	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, recovers automatically after temperature goes down							
	STORAGE TEMP., HUMIDITY	-30 ~ +50°C (Refer to output load derating curve)							
	TEMP. COEFFICIENT	20 ~ 95% RH non-condensing							
	VIBRATION	-40 ~ +80°C, 10 ~ 95% RH							
SAFETY & EMC	SAFETY STANDARDS	±0.03%/°C (0 ~ 50°C)							
	WITHSTAND VOLTAGE	10 ~ 500Hz, 2G 12min./1 cycle, period for 72min. each along X, Y, Z axes							
	ISOLATION RESISTANCE	I/P-O/P: 3.75KVAC I/P-F/G: 1.88KVAC O/P-F/G: 0.5KVAC							
	EMI CONDUCTION & RADIATION	I/P-O/P: 100M Ohms / 500VDC / 25°C / 70% RH							
	HARMONIC CURRENT	Compliance to EN55015							
	EMS IMMUNITY	Compliance to EN61000-3-2 Class C (≥ 75% load); EN61000-3-3							
OTHERS	MTBF	Compliance to EN61000-4-2,3,4,5,6,8,11; EN61547, light industry level, criteria A							
	DIMENSION	497.8Khrs min. MIL-HDBK-217F (25°C)							
	PACKING	181*61.5*35mm (L*W*H)							
		0.5Kg; 24pcs/13Kg/0.75CUFT							

**Mechanical Specification**

Case No. 960A Unit:mm

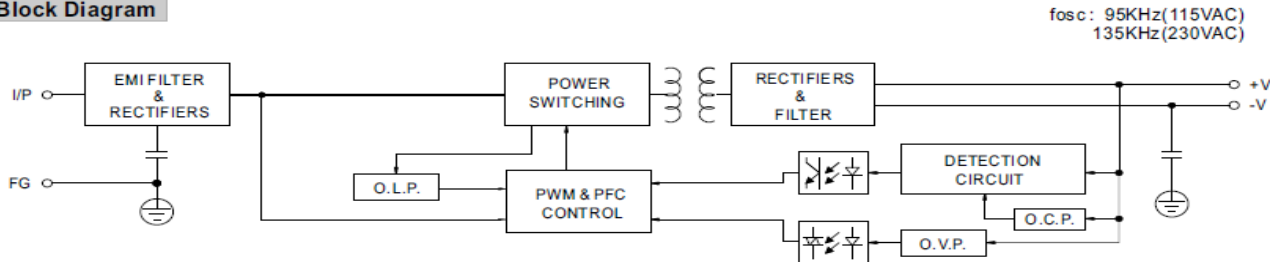


Output voltage and current adjustment : remove the upper case and adjust through SVR1 & SVR2 shown in the diagram.

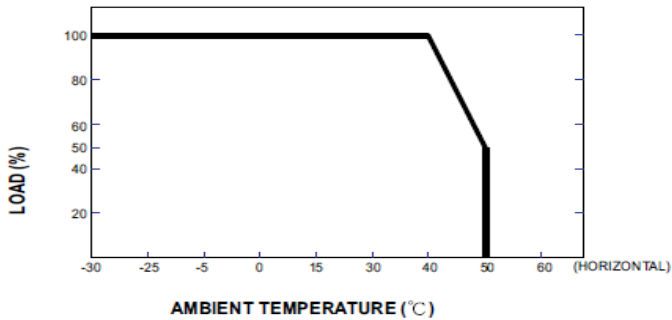


SVR1	Output voltage adjustment
SVR2	Output current adjustment

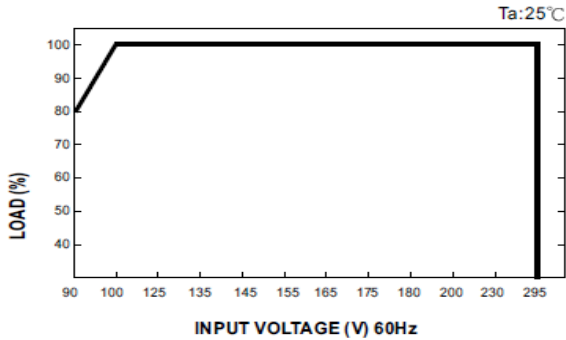
**Block Diagram**



**Derating Curve**

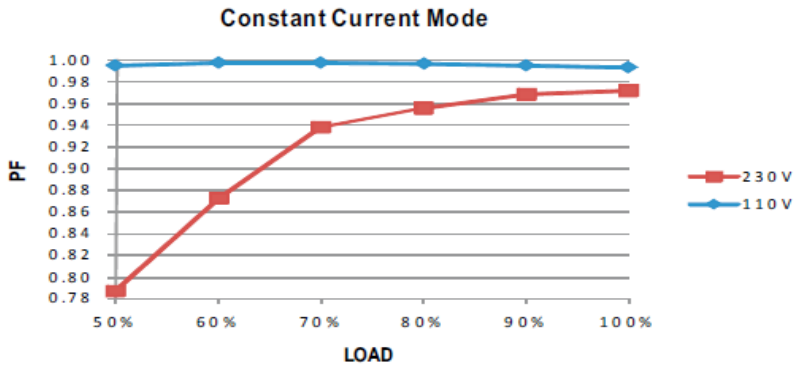


**Static Characteristics**



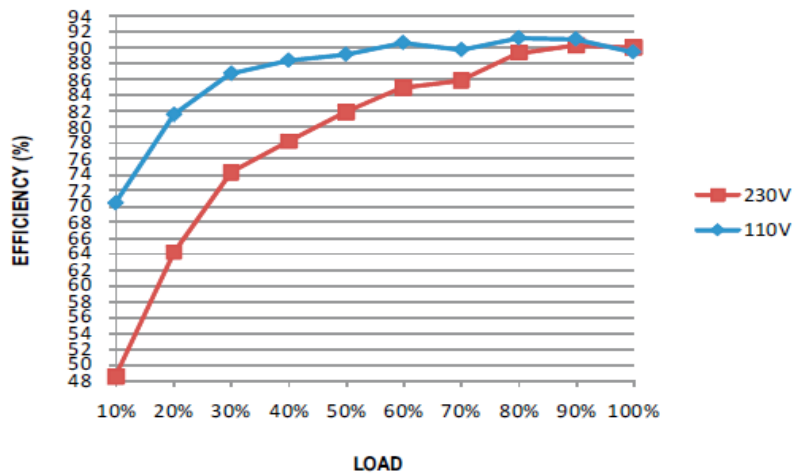
**Power Factor Characteristic**

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

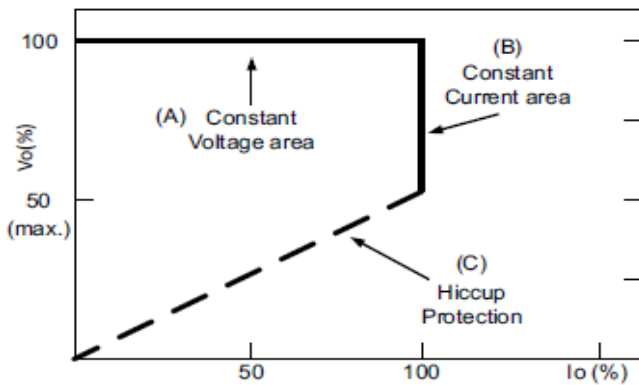


**EFFICIENCY vs LOAD (48V Model)**

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