

# PLN-20 Series

20 Watt Constant Current / Constant Voltage  
LED Power Supplies

**CLICK HERE TO REQUEST**  
PRICE | DELIVERY | SAMPLE | SUPPORT

Size: 5.79 x 1.46 x 1.10"



■ Features :

- Constant current and constant voltage mode power supply
- Universal AC input / Full range(up to 277VAC)
- Built-in constant current limiting circuit with adjustable OCP level
- Fully isolated plastic case
- Protections:Short circuit/Over load/Over voltage/Over temperature
- Built-in PFC (single stage) function
- IP64 design for indoor or outdoor installations
- Small and compact size
- Cooling by free air convection
- 100% full load burn-in test
- High reliability,low cost
- Suitable for LED lighting and moving sign applications
- 2 years warranty



**SPECIFICATION**

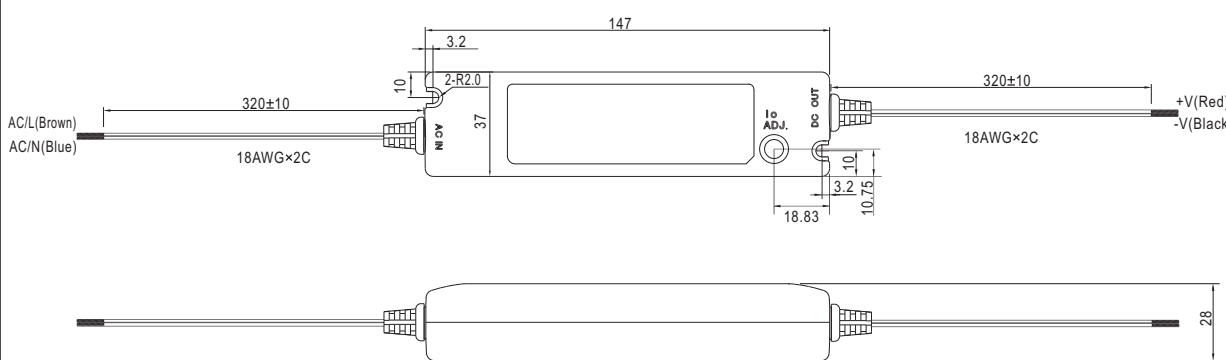
MODEL	PLN-20-12	PLN-20-18	PLN-20-24	PLN-20-36	PLN-20-48	
OUTPUT	DC VOLTAGE	12V	18V	24V	36V	48V
	LED OPERATION VOLTAGE Note.5	9 ~ 12V	13.5 ~ 18V	18 ~ 24V	27 ~ 36V	36 ~ 48V
	RATED CURRENT	1.6A	1.1A	0.8A	0.55A	0.42A
	CURRENT RANGE	0 ~ 1.6A	0 ~ 1.1A	0 ~ 0.8A	0 ~ 0.55A	0 ~ 0.42A
	CURRENT ADJ. RANGE	75% ~ 100%				
	RATED POWER	19.2W	19.8W	19.2W	19.8W	20.2W
	RIPPLE & NOISE (max.) Note.2	2.5Vp-p	3.0Vp-p	3.0Vp-p	3.0Vp-p	3.8Vp-p
	VOLTAGE TOLERANCE Note.3	±10%				
	LINE REGULATION	±3.0%				
	LOAD REGULATION	±10%				
SETUP TIME	2300ms / 230VAC 3000ms / 115VAC at full load					
INPUT	VOLTAGE RANGE Note.4	90 ~ 277VAC				
	FREQUENCY RANGE	47 ~ 63Hz				
	POWER FACTOR	PF ≧ 0.9 at 75~100% load, 115VAC/230VAC				
	EFFICIENCY(Typ.)	80%	81%	82%	83%	83.5%
	AC CURRENT	0.4A/115VAC 0.2A/230VAC				
	INRUSH CURRENT(max.)	40A/230VAC				
LEAKAGE CURRENT	0.5mA / 240VAC					
PROTECTION	OVER CURRENT Note.5	95 ~ 110%				
	SHORT CIRCUIT	Protection type : Hiccup current limiting, recovers automatically after fault condition is removed				
	OVER VOLTAGE	14 ~ 16V	19 ~ 22V	27 ~ 34V	41 ~ 46V	54 ~ 60V
	OVER TEMPERATURE	110°C±10°C (TSW1) Protection type : Shut down o/p voltage, recovers automatically after temperature goes down				
ENVIRONMENT	WORKING TEMP.	-30 ~ +60°C (Refer to output load derating curve)				
	WORKING HUMIDITY	20 ~ 90% RH non-condensing				
	STORAGE TEMP., HUMIDITY	-40 ~ +80°C, 10 ~ 95% RH				
	TEMP. COEFFICIENT	±0.06%/°C (0 ~ 50°C)				
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes				
SAFETY & EMC	SAFETY STANDARDS	IEC61347-1, IEC61347-2-13, TUV EN61347-1, EN61347-2-13, UL8750, IP64 approved				
	EMI CONDUCTION & RADIATION	Compliance to EN55015				
	HARMONIC CURRENT	Compliance to EN61000-3-2 Class C(≧75% load);EN61000-3-3				
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11;EN61547, light industry level, criteria A				
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC				
OTHERS	ISOLATION RESISTANCE	I/P-O/P:100M Ohms/500VDC / 25°C/ 70%RH				
	MTBF	643.6Khrs min. MIL-HDBK-217F (25°C)				
	DIMENSION	147*37*28mm (L*W*H)				
NOTE	PACKING 0.18Kg; 60pcs/12.8Kg/0.9CUFT					
NOTE	<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. Derating may be needed under low input voltage, please check the derating curve for more details.</p> <p>5. Constant current operation region is within 75% ~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>6. 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>					

File Name:PLN-20-SPEC 2010-02-22

Size: 5.79 x 1.46 x 1.10"

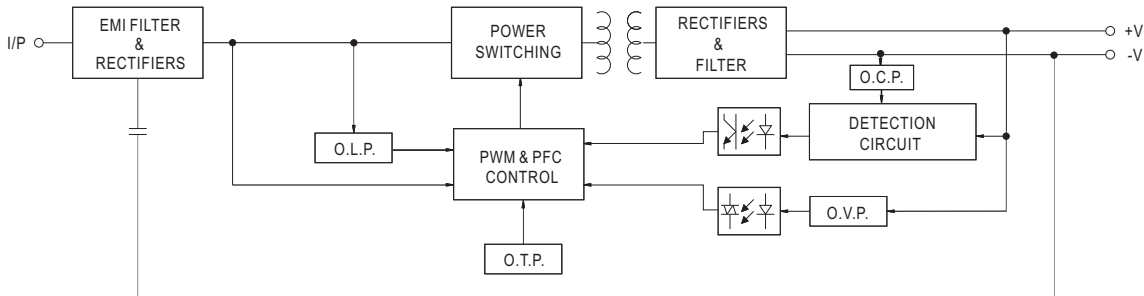
### Mechanical Specification

Case No.989A Unit:mm



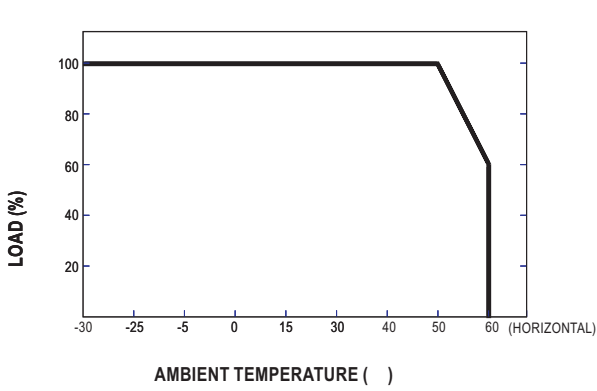
The mechanical drawing shows a cylindrical power supply with the following dimensions: total length 147mm, diameter 28mm, and a main body length of 107.5mm. Input terminals are located 320±10mm from the left end, and output terminals are 320±10mm from the right end. The input terminals are labeled AC/L (Brown) and AC/N (Blue), with a distance of 37mm between them. The output terminals are labeled +V (Red) and -V (Black), with a distance of 10.75mm between them. A 3.2mm diameter hole is located 10mm from the left end, and another 3.2mm diameter hole is located 18.83mm from the right end. The drawing also indicates a 2-R2.0 chamfer on the input terminals.

### Block Diagram



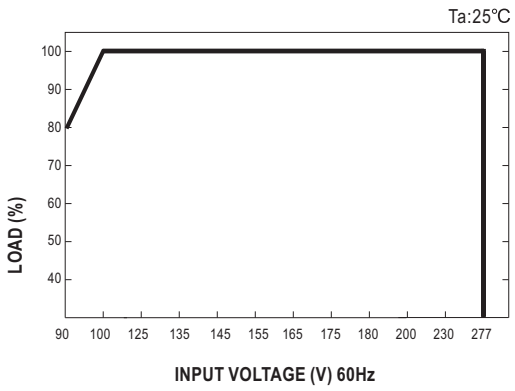
The block diagram illustrates the internal circuitry. It starts with an I/P (Input) connected to an EMI FILTER & RECTIFIERS block. The output of this block goes to a POWER SWITCHING block, which is controlled by a PWM & PFC CONTROL block. The PWM & PFC CONTROL block is also influenced by O.L.P. (Over Load Protection) and O.T.P. (Over Temperature Protection) feedback signals. The output of the POWER SWITCHING block goes through a TRANSFORMER to a RECTIFIERS & FILTER block. This block is also controlled by the PWM & PFC CONTROL block and includes O.C.P. (Over Current Protection) and O.V.P. (Over Voltage Protection) feedback signals. The final output is +V and -V.

### Derating Curve



The Derating Curve graph shows the relationship between Load (%) and Ambient Temperature (°C). The load is constant at 100% from -30°C to 50°C. At 50°C, the load begins to derate linearly, reaching 60% at 60°C. The x-axis is labeled 'AMBIENT TEMPERATURE ( °C )' and the y-axis is 'LOAD (%)'. The x-axis has a '(HORIZONTAL)' label at the 60°C mark.

### Static Characteristics



The Static Characteristics graph shows the relationship between Load (%) and Input Voltage (V) at Ta:25°C. The load is constant at 100% from 100V to 277V. At 90V, the load is approximately 80%. The x-axis is labeled 'INPUT VOLTAGE (V) 60Hz' and the y-axis is 'LOAD (%)'. The temperature is specified as Ta:25°C.