



12W Single Output LED Power Supply

**PLM-12 series**



### ■ Features

- 230VAC only or Full range (up to 295VAC) models available
- Built-in active PFC function
- Constant current design
- Protections: Short circuit
- Cooling by free air convection
- Fully isolated plastic case
- Class II power unit, no FG
- Class 2 power unit (Blank type only)
- No load power consumption <0.5W
- High reliability, low cost
- 2 years warranty

### ■ Applications

- Indoor LED lighting
- LED office lighting
- LED commercial lighting
- LED decorative lighting

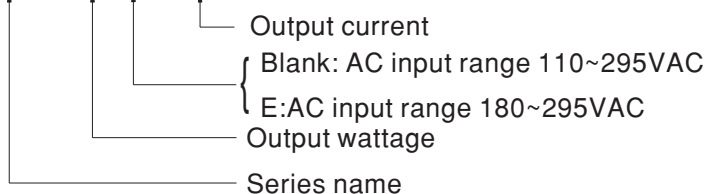
### ■ Description

PLM-12 is a 12W economical AC/DC LED power supply series. Incorporating a built-in active PFC design, PLM-12 provides a high Power Factor value greater than 0.9. In addition, with the low no load power consumption below 0.5W, and the setup time less than 500ms, PLM-12 is complied with the ErP regulation required by European Union for lighting fixtures.

PLM-12 is a class II (without FG pin) power unit housed with the UL 94V-0 rated flame retardant plastic case. The I/O terminals are designed with screw-less clamp style terminal block that greatly simplifies the wiring installation. Two types of models with different input voltage range are offered: PLM-12 series, which operates from 110~295VAC, and PLM-12E series, which operates from 180~295VAC. These two series are both constant current output design, supplying models with the current of 350mA, 500mA, 700mA and 1050mA, respectively.

### ■ Model Encoding

**PLM - 12 E - 350**





## 12W Single Output LED Power Supply

## PLM-12 series

## SPECIFICATION

MODEL		PLM-12 □ -350	PLM-12 □ -500	PLM-12 □ -700	PLM-12 □ -1050	
OUTPUT	CONSTANT CURRENT REGION <small>Note.5</small>	22 ~ 36V	15 ~ 24V	11 ~ 18V	7 ~ 12V	
	RATED CURRENT	0.35A	0.5A	0.7A	1.05A	
	NO LOAD OUTPUT VOLTAGE <sub>(max.)</sub>	42V	30V	22V	16V	
	RATED POWER	12.6W	12W	12.6W	12.6W	
	RIPPLE & NOISE <small>(max.) Note.2</small>	Blank type	3.6Vp-p	2.4Vp-p	2.4Vp-p	1.8Vp-p
		E type	5.5Vp-p	3.6Vp-p	3.6Vp-p	2.7Vp-p
	CURRENT ACCURACY <sub>Note.3</sub>	±5.0%				
SETUP TIME	Blank type: 500ms / 115VAC, 230VAC at full load; E type: 500ms / 230VAC at full load					
INPUT	VOLTAGE RANGE <small>Note.4</small>	Blank type: 110 ~ 295VAC 156 ~ 417VDC; E type: 180 ~ 295VAC 254 ~ 417VDC				
	FREQUENCY RANGE	47 ~ 63Hz				
	POWER FACTOR	Blank type	PF ≥ 0.97/115VAC, PF ≥ 0.95/230VAC, PF > 0.9/277VAC (at full load) (Please refer to "Power Factor Characteristic" curve)			
		E type	PF ≥ 0.95/230VAC, PF ≥ 0.9/277VAC (at full load) (Please refer to "Power Factor Characteristic" curve)			
	TOTAL HARMONIC DISTORTION	Blank type	THD < 20% when output loading ≥ 60% at 115VAC/230VAC input and output loading ≥ 75% at 277VAC input			
		E type	THD < 20% when output loading ≥ 60% at 230VAC input and output loading ≥ 75% at 277VAC input			
	EFFICIENCY (Typ.)	Blank type	85%	84%	83%	81%
		E type	84%	83%	82%	78%
	AC CURRENT	Blank type: 0.15A/115VAC 0.08A/230VAC 0.07A/277VAC; E type: 0.08A/230VAC 0.07A/277VAC				
	INRUSH CURRENT(Typ.)	COLD START 15A (twid=50μs measured at 50% Ipeak) at 230VAC				
MAX. No. of PSUs on 16A CIRCUIT BREAKER	160 units (circuit breaker of type B) / 160 units (circuit breaker of type C) at 230VAC					
LEAKAGE CURRENT	0.25mA / 240VAC					
PROTECTION	SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed.				
ENVIRONMENT	WORKING TEMP.	-30 ~ +50°C				
	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	UL8750, CSA C22.2 No. 250.13-12 (for Blank type only); ENEC EN61347-1, EN61347-2-13, EN62384, GB19510.14, GB19510.1 (for E type only), EAC TP TC 004, IP30 approved				
	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, GB17743, GB17625.1 (for E type only), EN61000-3-2 Class C (≥60% load); EN61000-3-3, EAC TP TC 020				
	EMC IMMUNITY	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11; EN61547, light industry level, criteria B (surge 2KV), EAC TP TC 020				
OTHERS	MTBF	808.162Khrs min. MIL-HDBK-217F (25°C)				
	DIMENSION	145*38*22mm (L*W*H)				
	PACKING	0.126Kg; 60pcs/8.6 Kg/0.48CUFT				
NOTE	<ol style="list-style-type: none"> <li>All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μf &amp; 47μf parallel capacitor.</li> <li>Please see "AC input voltage drop vs. output current characteristics" table.</li> <li>Derating may be needed under low input voltage, please check the static characteristic for more details.</li> <li>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.</li> <li>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.</li> <li>Direct connecting to LEDs is suggested, but is not suitable for using additional drivers.</li> </ol>					

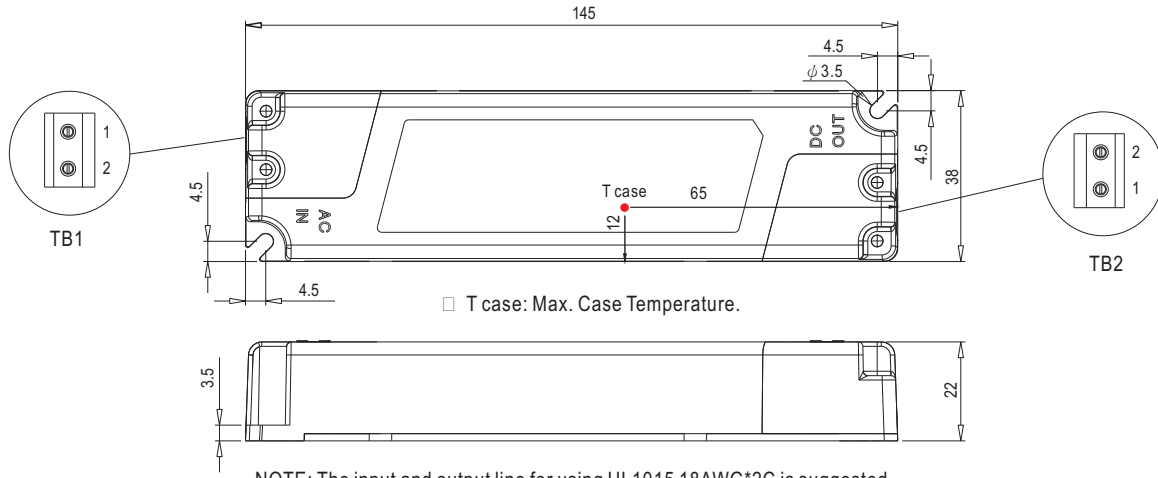


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# PLM-12 series

## Mechanical Specification

Case No. PLM-25 Unit: mm



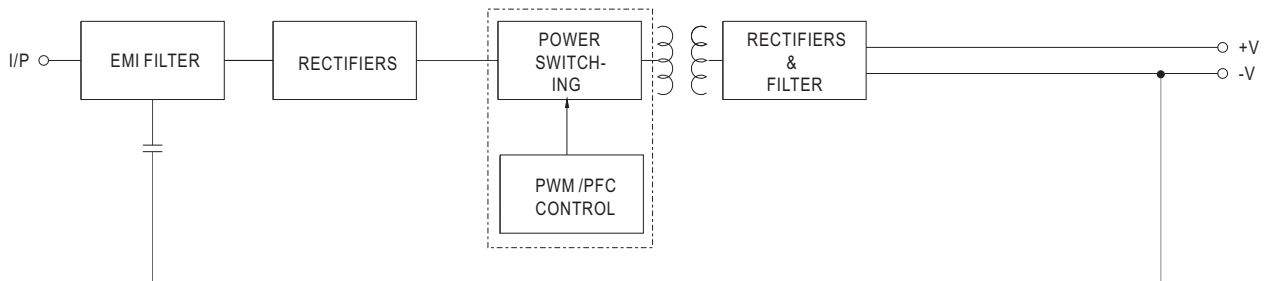
Terminal Pin No. Assignment (TB1):  
SWITCHLAB MWX201-75002EB (GRAY)

Pin No.	Assignment
1	AC/L
2	AC/N

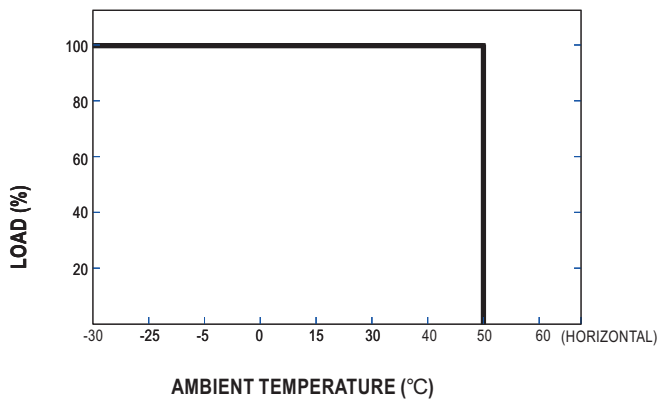
Terminal Pin No. Assignment (TB2):  
SWITCHLAB MWX201-75002B (BLUE)

Pin No.	Assignment
1	+V
2	-V

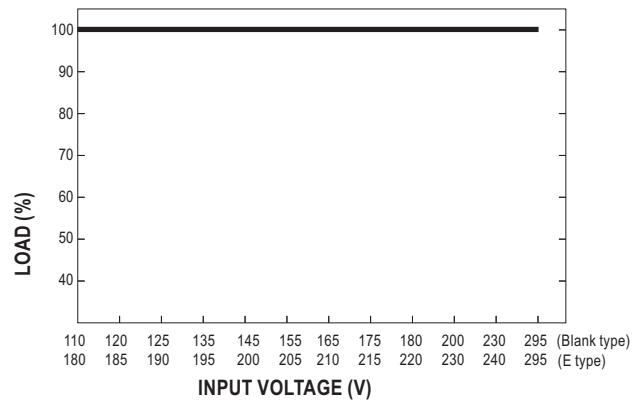
## Block Diagram



## Derating Curve

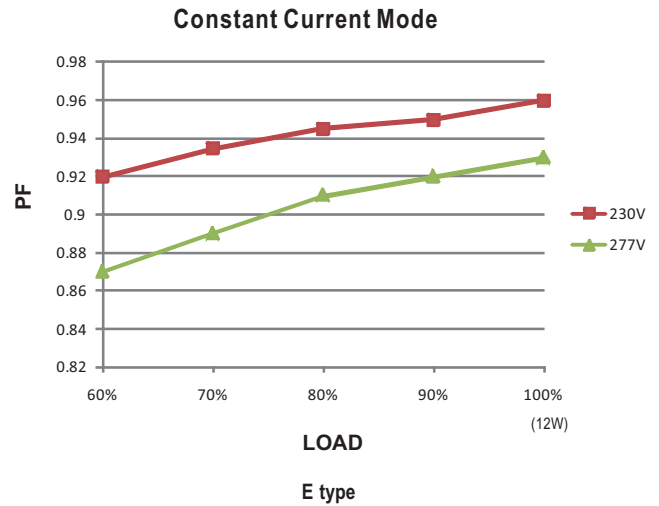
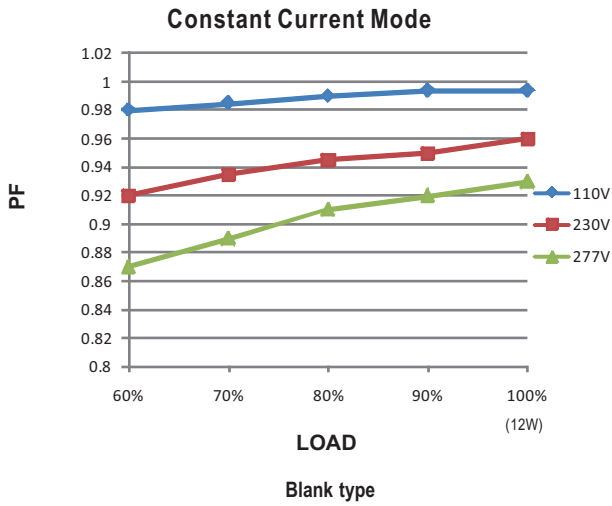


## Static Characteristics

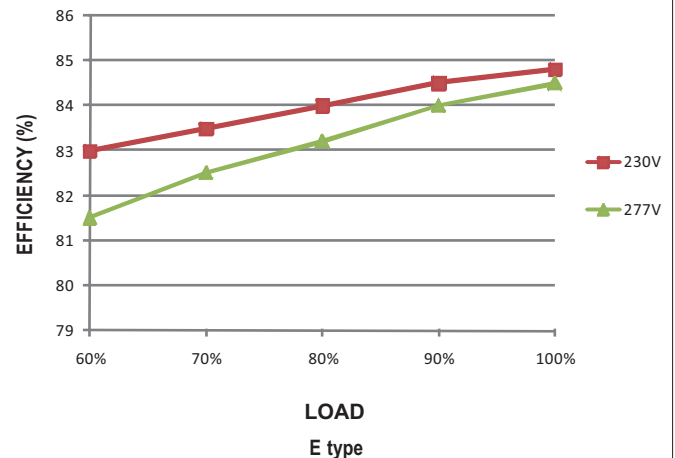
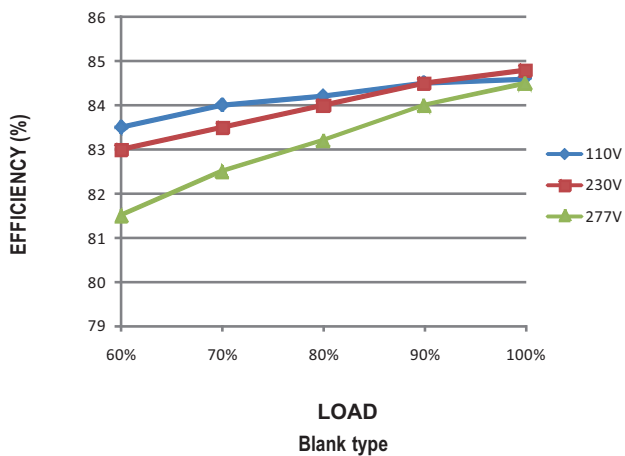




Power Factor Characteristic



EFFICIENCY vs LOAD (500mA Model)



AC input voltage drop vs. output current characteristics

AC input drop	10%	8%	5%	3%
Io drop	<15%	<11%	<7%	<6%

NOTE: Output current will return to the rated value within 50ms