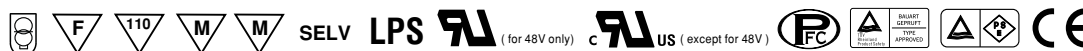




- Features :
- Universal AC input / Full range
  - High efficiency 89%
  - Adjustable output voltage and current level
  - Protections: Short circuit / Over current / Over voltage / Over temperature
  - Cooling by free air convection
  - Built-in constant current limiting circuit
  - Fully isolated plastic case with terminal block style of I/O
  - Built-in active PFC function, comply with EN61000-3-2 class C ( $\geq 75\%$  load)
  - UL1310 class 2 power unit
  - Pass LPS
  - 100% full load burn-in test
  - High reliability
  - Suitable for LED lighting and moving sign applications (Note.2)
  - Compliance to worldwide safety regulations for lighting
  - 2 years warranty

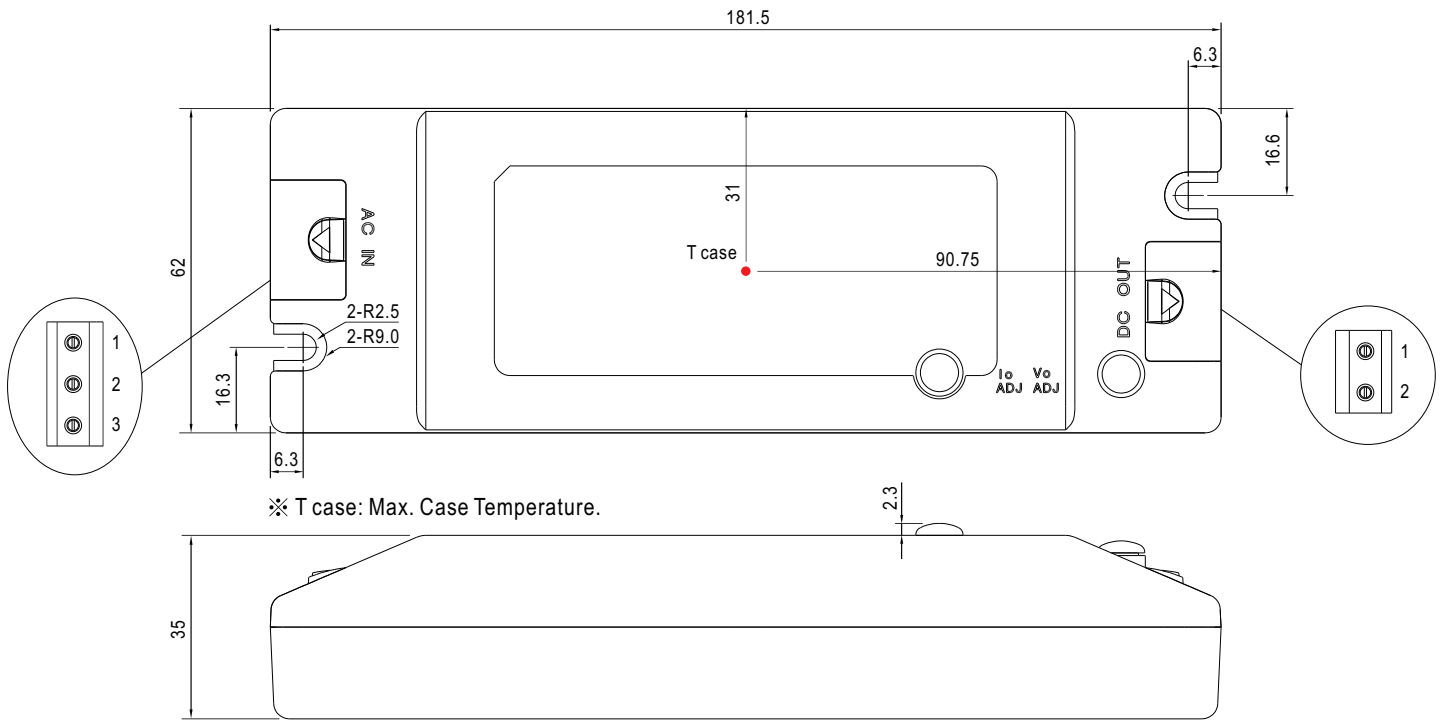


## SPECIFICATION

MODEL	PLC-60-12	PLC-60-15	PLC-60-20	PLC-60-24	PLC-60-27	PLC-60-36	PLC-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	61W	62.5W
	RIPPLE & NOISE (max.) Note.2	2Vp-p	2.4Vp-p	1.8Vp-p	2.4Vp-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
	CURRENT ADJ. RANGE Note.5	3.75 ~ 5.15A	3 ~ 4.12A	2.25 ~ 3.09A	1.875 ~ 2.575A	1.725 ~ 2.369A	1.275 ~ 1.751A	0.975 ~ 1.339A
	VOLTAGE TOLERANCE Note.3	$\pm 10\%$						
	LINE REGULATION	$\pm 3.0\%$						
LOAD REGULATION	$\pm 5.0\%$							
SETUP TIME	1500ms / 230VAC 3000ms / 115VAC at full load							
INPUT	VOLTAGE RANGE Note.4	90 ~ 264VAC	127 ~ 370VDC					
	FREQUENCY RANGE	47 ~ 63Hz						
	POWER FACTOR (Typ.)	PF>0.98/115VAC, PF>0.9/230VAC at full load (Please refer to "Power Factor Characteristic" curve)						
	EFFICIENCY (Typ.)	85%	86%	87.5%	87%	88%	89%	89%
	AC CURRENT (Typ.)	0.8A/115VAC 0.4A/230VAC						
	INRUSH CURRENT (max.)	40A/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 ~ 26V	28 ~ 32V	31 ~ 35V	41 ~ 46V	54 ~ 60V
	OVER TEMPERATURE	95°C $\pm 10^\circ\text{C}$ (TSW1) detect on heatsink of power transistor						
ENVIRONMENT	WORKING TEMP.	-30 ~ +50°C (Refer to "Derating Curve")						
	WORKING HUMIDITY	20 ~ 95% RH non-condensing						
	STORAGE TEMP., HUMIDITY	-40 ~ +80°C, 10 ~ 95% RH						
	TEMP. COEFFICIENT	$\pm 0.03\%/^\circ\text{C}$ (0 ~ 50°C)						
	VIBRATION	10 ~ 500Hz, 2G 12min./1cycle, period for 72min. each along X, Y, Z axes						
SAFETY & EMC	SAFETY STANDARDS	UL1310 Class 2, TUV EN61347-1, EN61347-2-13, CAN/CSA C22.2 No. 223-M91(except for 48V) ; J61347-1, J61347-2-13 approved						
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC I/P-FG:1.88KVAC O/P-FG:0.5KVAC						
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH						
	EMC EMISSION	Compliance to EN55015, EN55022 (CISPR22) Class B, EN61000-3-2 Class C ( $\geq 75\%$ load) ; EN61000-3-3						
OTHERS	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024,EN61547, light industry level, criteria A						
	MTBF	515Khrs min. MIL-HDBK-217F (25°C)						
	DIMENSION	181.5*62*35mm (L*W*H)						
NOTE	PACKING	0.41Kg; 30pcs/13.3Kg/0.67CUFT						
		<ol style="list-style-type: none"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>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.</li> <li>3. Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>4. Derating may be needed under low input voltage. Please check the static characteristics for more details.</li> <li>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.</li> <li>6. Constant current operation region is within 70% ~ 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>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.</li> <li>8. Direct connecting to LEDs is suggested, but is not suitable for using additional drivers.</li> </ol>						

■ Mechanical Specification

Case No.991A Unit:mm



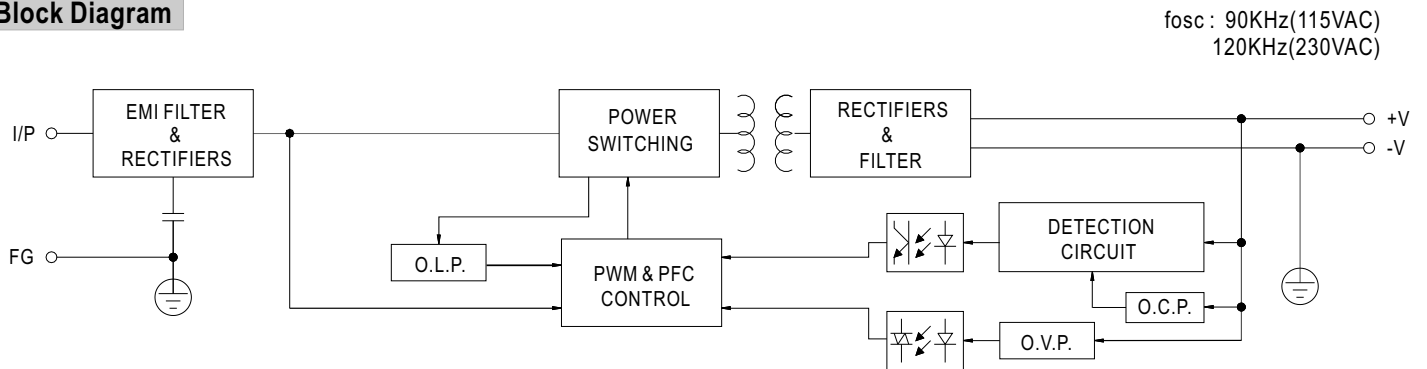
Terminal Pin No. Assignment (TB1):  
SWITCLAB MB310-75003

Pin No.	Assignment
1	AC/L
2	AC/N
3	FG ⊕

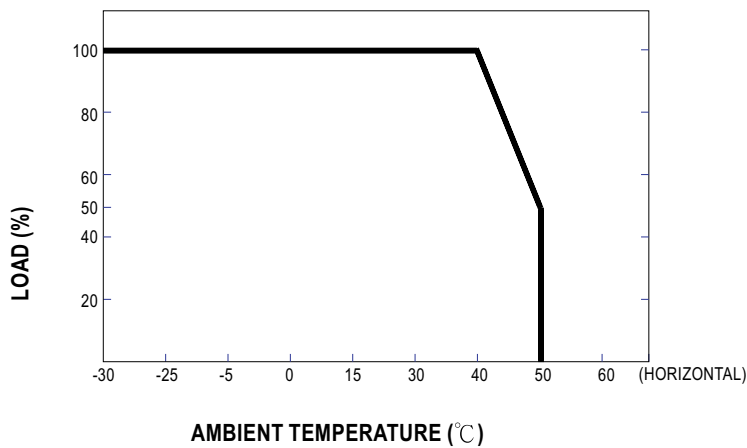
Terminal Pin No. Assignment (TB2):  
SWITCLAB MB310-75002

Pin No.	Assignment
1	+V
2	-V

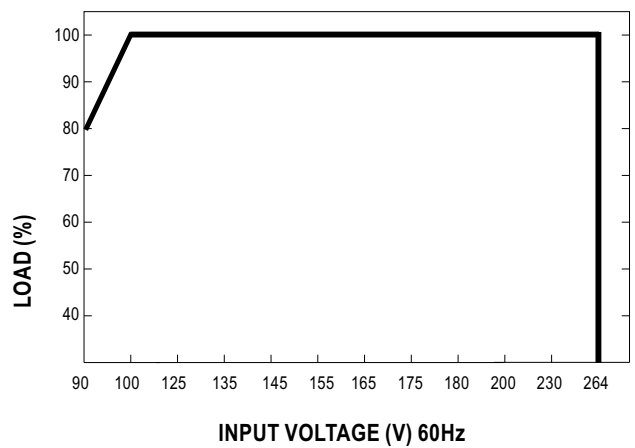
■ Block Diagram



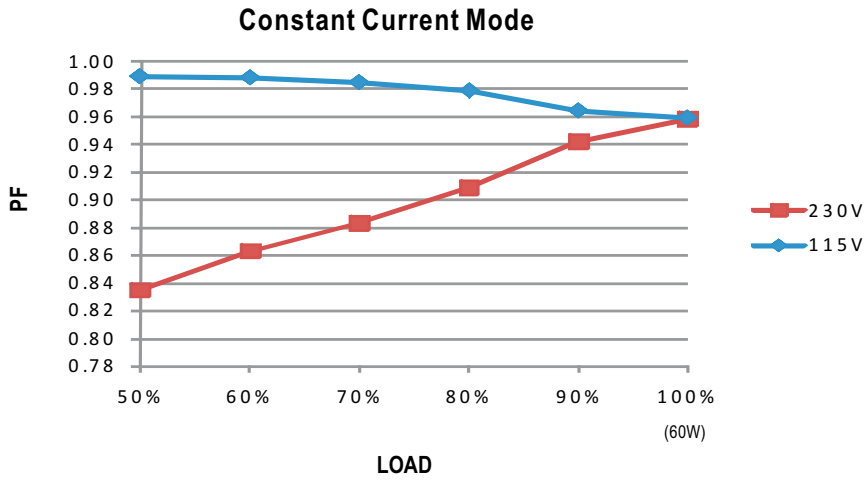
■ Derating Curve



■ Static Characteristics

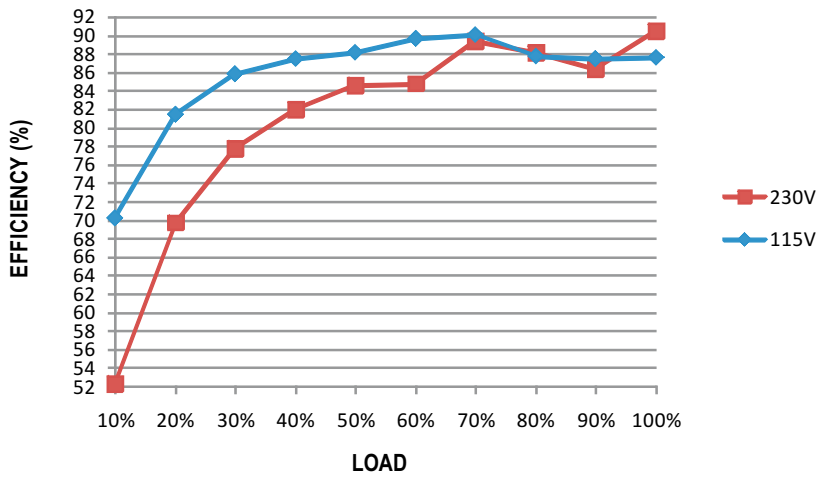


**Power Factor Characteristic**



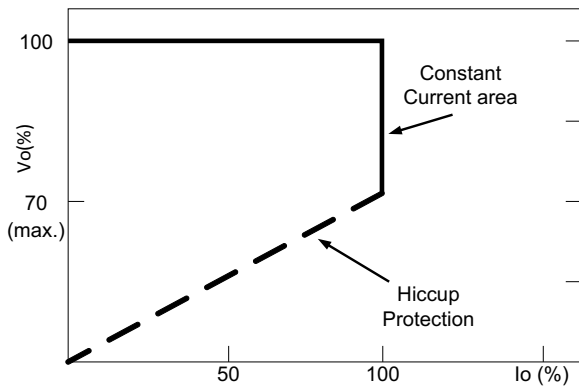
**EFFICIENCY vs LOAD (48V Model)**

PLC-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.



Typical LED power supply I-V curve