

## 30W Single Output LED Power Supply

# PLC-30 series



#### Features :

- Universal AC input / Full range
- 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 (Pin ${\geq}25W)$
- Class  ${\rm I\hspace{-1.5pt}I}$  power unit, no FG
- 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

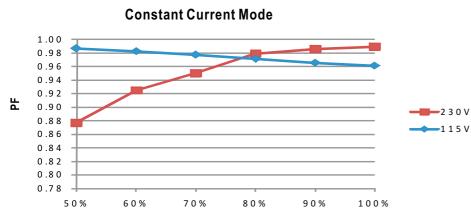
MODEL		PLC-30-9	PLC-30-12	PLC-30-15	PLC-30-20	PLC-30-24	PLC-30-27	PLC-30-36	PLC-30-48
OUTPUT	DC VOLTAGE	9V	12V	15V	20V	24V	27V	36V	48V
	CONSTANT CURRENT REGION Note.6		8.4 ~ 12V	10.5 ~ 15V	14~20V	16.8 ~ 24V	18.9~27V	25.2 ~ 36V	33.6 ~ 48V
	RATED CURRENT	3.3A	2.5A	2A	1.5A	1.25A	1.12A	0.84A	0.63A
	CURRENT RANGE	0~3.3A	0~2.5A	0~2A	0~1.5A	0~1.25A	0~1.12A	0~0.84A	0~0.63A
	RATED POWER	29.7W	30W	30W	30W	30W	30.24W	30.24W	30.24W
	RIPPLE & NOISE (max.) Note.2	2.6Vp-p	2Vp-p	2.6Vp-p	2.6Vp-p	2.4Vp-p	2.3Vp-p	3.6Vp-p	3.7Vp-p
	VOLTAGE ADJ. RANGE Note.5		11.4 ~ 13.2V	14.5 ~ 16.5V	19~22V	22.8~26.4V	25.65 ~ 29.7V	34.2~39.6V	45.6 ~ 52.8V
	CURRENT ADJ. RANGE Note.5	2.475~3.399A	1.875 ~ 2.575A	1.5~2.06A	1.125 ~ 1.545A	0.938 ~ 1.288A	0.84~1.1536A	0.63 ~ 0.865A	0.473 ~ 0.649
	VOLTAGE TOLERANCE Note.3								
	LINE REGULATION	±3.0%							
	LOAD REGULATION	±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>0.95/115VAC, PF>0.9/230VAC at full load (Please refer to "Power Factor Characteristic" curve)							
	EFFICIENCY (Typ.)	80%	82.5%	83.5%	84%	84%	84.5%	85%	85.5%
	AC CURRENT (Typ.)	0.4A/115VAC	0.2A/230VAC					1	
	INRUSH CURRENT (max.)	40A/230VAC							
	LEAKAGE CURRENT	<0.5mA / 240VAC							
PROTECTION	OVER CURRENT	100 ~ 110%							
		Protection type : Constant current limiting, recovers automatically after fault condition is removed							
	SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed.							
	OVER VOLTAGE	10~14V	14 ~ 16V	17~22V	23 ~ 26V	27 ~ 34V	31 ~ 35V	40 ~ 50V	53~63V
		Protection type	: Shut down o/p	voltage, re-pov	ver on to recover				
		95°C ±10°C (TSW1)							
	OVER TEMPERATURE	Protection type : Shut down o/p voltage, re-power on to recover							
ENVIRONMENT	WORKING TEMP.	-30 ~ +50 $^\circ\mathrm{C}$ (Refer to "Derating Curve")							
	WORKING HUMIDITY	20 ~ 95% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-40 ~ +80°C, 10 ~ 95% RH							
	TEMP. COEFFICIENT	±0.06%/°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							
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25°C/ 70% RH							
	EMC EMISSION	Compliance to EN55015, EN61000-3-2 Class C (Pin ≥ 25W), Class D (>70% load) ; EN61000-3-3							
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN61547, light industry level, criteria A							
OTHERS	MTBF	625.5Khrs min	MIL-HDBK-2	217F (25°C)		• •			
	DIMENSION	160*46*30mm		( - )					
	PACKING	0.2Kg; 70pcs/1	5Kg/0.96CUFT						
NOTE	<ol> <li>Ripple &amp; noise are measure</li> <li>Tolerance : includes set up</li> <li>Derating may be needed up</li> <li>Output voltage can be adjuine</li> <li>Constant current operation reconfirm special electrical</li> <li>The power supply is considing complete installation, the firm</li> </ol>	ically mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. sured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. up tolerance, line regulation and load regulation. d under low input voltage. Please check the static characteristics for more details. djusted through the SVR1 on the PCB; limit of output constant current level can be adjusted through the SVR2 on the PCB. on region is within 70% ~100% rated output voltage. This is the suitable operation region for LED related applications, but please cal requirements for some specific system design. Isidered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the final equipment manufacturers must re-qualify EMC Directive on the complete installation again. Is is usitable for using additional drivers.							



Mechanical Specification Case No. 990A Unit:mm 160 3.2 2-R2 σ 2-R6.5 OUT 23  $\square$ 00 T case 80 46 ٢ 1 AC 0 lo ADJ 2 Vo ADJ Z Œ ი ۲ 3.2 1 ※ T case: Max. Case Temperature. 2.3 0 2 E 30 Terminal Pin No. Assignment (TB1) : Terminal Pin No. Assignment (TB2) : SWITCHLAB MB310-75002 SWITCHLAB MB310-75002 Assignment Pin No. Pin No. Assignment AC/N 1 1 +V AC/L -V 2 2 Block Diagram fosc: 39KHz(115VAC) 53KHz(230VAC) EMI FILTER RECTIFIERS POWFR -0 +V I/P ↔ & RECTIFIERS & SWITCHING -0 -V FILTER DETECTION ¥ CIRCUIT O.L.P. PWM & PFC CONTROL 0.C.P. 0.V.P. Derating Curve Static Characteristics 100 100 90 80 80 70 60 LOAD (%) LOAD (%) 60 40 50 20 40 -30 -25 -5 0 15 30 40 50 60 90 100 125 135 145 155 165 175 180 200 230 264 AMBIENT TEMPERATURE (°C) **INPUT VOLTAGE (V) 60Hz** 



#### Power Factor Characteristic

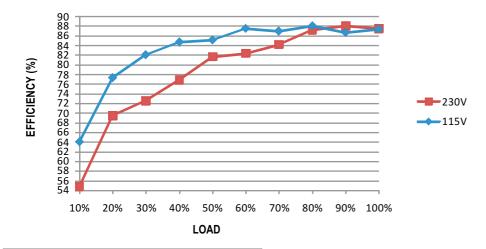


LOAD

### ■ EFFICIENCY vs LOAD (48V Model)

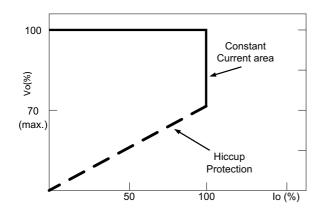
PLC-30 series possess superior working efficiency that up to 85.5% can be reached in field applications.

(30W)



#### 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