

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

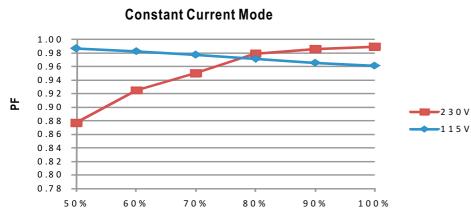
MODEL		PLC-30-9	PLC-30-12	PLC-30-15	PLC-30-20	PLC-30-24	PLC-30-27	PLC-30-36	PLC-30-48
OUTPUT	DC VOLTAGE	9V	12V	15V	20V	24V	27V	36V	48V
	CONSTANT CURRENT REGION Note.6		8.4 ~ 12V	10.5 ~ 15V	14~20V	16.8 ~ 24V	18.9~27V	25.2 ~ 36V	33.6 ~ 48V
	RATED CURRENT	3.3A	2.5A	2A	1.5A	1.25A	1.12A	0.84A	0.63A
	CURRENT 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	 Ripple & noise are measure Tolerance : includes set up Derating may be needed up Output voltage can be adjuine Constant current operation reconfirm special electrical The power supply is considing complete installation, the firm 	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

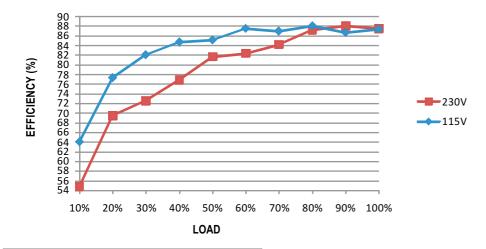


LOAD

■ EFFICIENCY vs LOAD (48V Model)

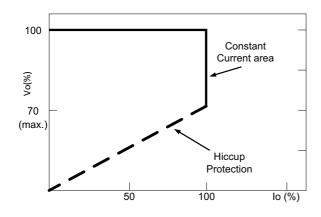
PLC-30 series possess superior working efficiency that up to 85.5% can be reached in field applications.

(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