MEAN WELL PLN-30-9 Single Output LED Power Supply Owner's Manual

30W Single Output LED Power Supply

PLN-30 series

■ GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

User's Manual

■ Features :

- Universal AC input / Full range (up to 295VAC)
- Protections: Short circuit / Over current / Over voltage / Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit with adjustable OCP level
- Fully isolated plastic case with P64 level
- Built-in active PFC function
- Pass LPS
- Class II power unit, no FG
- Class 2 power unit
- 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		PLN-30-9	PLN-30-12	PLN-30-15	PLN-30-20
OUTPUT	DC VOLTAGE	9V	12V	15V	20V
	CONSTANT CURRENT REGION Note.6	6.3 ~ 9V	8.4 ~ 12V	10.5 ~ 15V	14 ~ 20V
	RATED CURRENT	3.3A	2.5A	2A	1.5A
	CURRENT RANGE	0 ~ 3.3A	0 ~ 2.5A	0 ~ 2A	0 ~ 1.5A
	RATED POWER	29.7W	30W	30W	30W
	RIPPLE & NOISE (max.) Note.2	2.6Vp-p	2Vp-p	2.6Vp-p	2.6Vp-p
	VOLTAGE ADJ. RANGE Note.5	-5% ~ 10%. Can be adjusted by internal potentiometer SVR1			
	CURRENT ADJ. RANGE Note.5	3% ~ -25%. Can be adjusted by internal potentiometer SVR2			
	VOLTAGE TOLERANCE Note.3	±10%			
	LINE REGULATION	±3.0%			
	LOAD REGULATION	±5.0%			
	SETUP TIME	500ms / 230VAC 3000ms / 115VAC at full load			

INPUT	**VOLTAGE RANGE** **Note.4**	90 ~ 295VAC 127 ~ 417VDC			
	FREQUENCY RANGE	47 ~ 63Hz			
	POWER FACTOR (Typ.)	PF>0.95/115VAC, PF>0.9/230VAC, PF>0.9/277VAC at full load (Please refer to “ Power Factor Characteristic” curve)			
	TOTAL HARMONIC DISTORTION	THD< 20% when output loading≧75% at 115VAC/230VAC input and output loading≧80% at 277VAC input			
	EFFICIENCY (Typ.)	80%	82.5%	83.5%	84%
	AC CURRENT (Typ.)	0.4A/115VAC 0.2A/230VAC 0.15A/277VAC			
	INRUSH CURRENT (Typ.)	COLD START 35A(twidth=25 s measured at 50% Ipeak) at 230VAC			
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	64 units (circuit breaker of type B) / 64 units (circuit breaker of type C) at 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 ~ 17V	17 ~ 22V	23 ~ 26V
		Protection type : Shut down o/p voltage, re-power on to recover			
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover			
ENVIRONMENT	**WORKING TEMP.**	-30 ~ +50℃ (Refer to “Derating Curve”)			
	WORKING HUMIDITY	20 ~ 95% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH			
	TEMP. COEFFICIENT	±0.06%/℃ (0 ~ 50℃)			
	VIBRATION	10 ~ 500Hz, 2G 12min./1cycle, period for 72min. each along X, Y, Z axes			
SAFETY & EMC	**SAFETY STANDARDS**	UL879, UL1310, CSA C22.2 No. 207-M89(except for 48V), TUV BS EN/EN61347-1, BS EN/EN61347-2-13, GB19510.1, GB19510.14, EAC TP TC 004, IP64 approved			
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC			
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH			
	EMC EMISSION	Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C (pin≧25W), Class D (>70% load) ; BS EN/EN61000-3-3; GB/T 17743, GB17625.1,EAC TP TC 020			

	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55024, BS EN/EN61547, light industry level, criteria B;EAC TP TC 020
OTHERS	**MTBF**	4296.9K hrs min. Telcordia SR-332 (Bellcore) ; 621.4Khrs min. MIL-HDBK-217F (25°C)
	DIMENSION	145*47*30mm (L*W*H)
	PACKING	0.22Kg; 60pcs/14.2Kg/1.25CUFT
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated Joad and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12″ twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. Derating may be needed under low input voltage. Please check the static characteristics for more details. 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. 6. Please refer to “DRIVING METHODS OF LED MODULE”. 7. The power supply is considered as a component that will be operated in combination with final equipment. Since EMG performance will be affected by the complete installation, the final equipment manufacturers must re-quality EMC Directive on the complete installation again. (as available on **https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf**) 8. Direct connecting to LEDS is suggested, but is not suitable for using additional drivers. 9. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED power Supply can only be used behind a switch without permanently connected to the mains. 10. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan modes for operating altitude higher than 2000m(8500ft). 11. For any application note and IP water proof function installation caution, please refer our user manual before using. **https://www.meanwell.com/Upload/PDF/LED_EN.pdf** 12. PLN-30-9 s used for any light source that exempt from the ErP-Directive (EU) 2019/2020 requirement, for example this model could be use for signaling products (including, but not limited to road-, railway.-, marineorair traffic-signaling-, traffic control or airfield lamps). ※ Product Liability Disclaimer : For detailed information, please refer to **https://www.meanwell.com/serviceDisclaimer.aspx**	

MODEL	**PLN-30-24**	**PLN-30-27**	**PLN-30-36**	**PLN-30-48**
DC VOLTAGE	24V	27V	36V	48V
CONSTANT CURRENT REGION **Note.6**	16.8 ~ 24V	18.9 ~ 27V	25.2 ~ 36V	33.6 ~ 48V

OUTPUT	**RATED CURRENT**	1.25A	1.12A	0.84A	0.63A
	CURRENT RANGE	0 ~ 1.25A	0 ~ 1.12A	0 ~ 0.84A	0 ~ 0.63A
	RATED POWER	30W	30.24W	30.24W	30.24W
	RIPPLE & NOISE (max.) **Note.2**	2.6Vp-p	2.3Vp-p	4.5Vp-p	3.7Vp-p
	VOLTAGE ADJ. RANGE **Note.5**	-5% ~ 10%. Can be adjusted by internal potentiometer SVR1			
	CURRENT ADJ. RANGE **Note.5**	3% ~ -25%. Can be adjusted by internal potentiometer SVR2			
	VOLTAGE TOLERANCE **Note.3**	±10%			
	LINE REGULATION	±3.0%			
	LOAD REGULATION	±5.0%			
	SETUP TIME	500ms / 230VAC 3000ms / 115VAC at full load			
INPUT	**VOLTAGE RANGE** **Note.4**	90 ~ 295VAC 127 ~ 417VDC			
	FREQUENCY RANGE	47 ~ 63Hz			
	POWER FACTOR (Typ.)	PF>0.95/115VAC, PF>0.9/230VAC, PF>0.9/277VAC at full load (Please refer to “ Power Factor Characteristic” curve)			
	TOTAL HARMONIC DISTORTION	THD< 20% when output loading≧75% at 115VAC/230VAC input and output loading≧80% at 277VAC input			
	EFFICIENCY (Typ.)	84%	84.5%	85%	85.5%
	AC CURRENT (Typ.)	0.4A/115VAC 0.2A/230VAC 0.15A/277VAC			
	INRUSH CURRENT (Typ.)	COLD START 35A(twidth=25 s measured at 50% Ipeak) at 230VAC			
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	64 units (circuit breaker of type B) / 64 units (circuit breaker of type C) at 230VAC			
	LEAKAGE CURRENT	<0.5mA / 240VAC			
	OVER CURRENT	100 ~ 110%			

PROTECTION		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	27 ~ 34V	31 ~ 35V	40 ~ 50V	53 ~ 63V
		Protection type : Shut down o/p voltage, re-power on to recover			
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover			
ENVIRONMENT	**WORKING TEMP.**	-30 ~ +50℃ (Refer to “Derating Curve”)			
	WORKING HUMIDITY	20 ~ 95% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH			
	TEMP. COEFFICIENT	±0.06%/℃ (0 ~ 50℃)			
	VIBRATION	10 ~ 500Hz, 2G 12min./1cycle, period for 72min. each along X, Y, Z axes			
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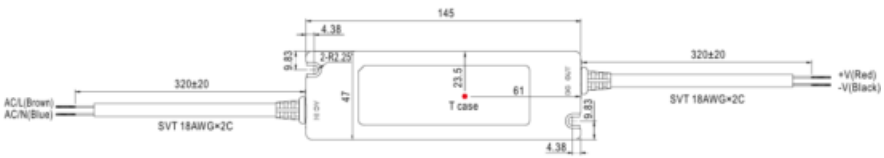
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC			
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH			
	EMC EMISSION	Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C (pin≧25W), Class D (>70% load) ; BS EN/EN61000-3-3; GB/T 17743, GB17625.1,EAC TP TC 020			
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55024, BS EN/EN61547, light industry level, criteria B;EAC TP TC 020			
OTHERS	**MTBF**	4296.9K hrs min. Telcordia SR-332 (Bellcore) ; 621.4Khrs min. MIL-HDBK-217F (25℃)			
	DIMENSION	145*47*30mm (L*W*H)			
	PACKING	0.22Kg; 60pcs/14.2Kg/1.25CUFT			

NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated Joad and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12″ twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. Derating may be needed under low input voltage. Please check the static characteristics for more details. 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. 6. Please refer to “DRIVING METHODS OF LED MODULE”. 7. The power supply is considered as a component that will be operated in combination with final equipment. Since EMG performance will be affected by the complete installation, the final equipment manufacturers must re-quality EMC Directive on the complete installation again. (as available on **https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf**) 8. Direct connecting to LEDS is suggested, but is not suitable for using additional drivers. 9. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED power Supply can only be used behind a switch without permanently connected to the mains. 10. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan modes for operating altitude higher than 2000m(8500ft). 11. For any application note and IP water proof function installation caution, please refer our user manual before using. **https://www.meanwell.com/Upload/PDF/LED_EN.pdf** 12. PLN-30-9 s used for any light source that exempt from the ErP-Directive (EU) 2019/2020 requirement, for example this model could be use for signaling products (including, but not limited to road-, railway.-, marineorair traffic-signaling-, traffic control or airfield lamps). ※ Product Liability Disclaimer : For detailed information, please refer to **https://www.meanwell.com/serviceDisclaimer.aspx**

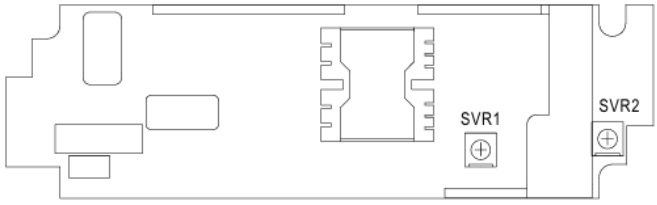
■ Mechanical Specification

Case No.964A Unit: mm



※ T case: Max. Case Temperature.

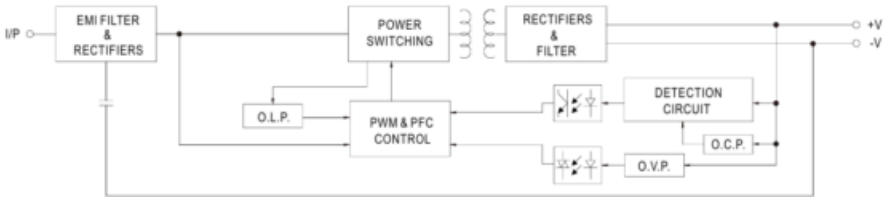
Output voltage and current adjustment : remove the upper case and adjust through SVR1 & SVR2 shown in the diagram.



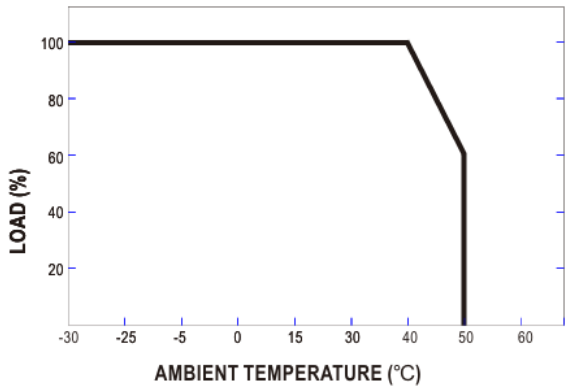
SVR1	Output voltage adjustment
SVR2	Output current adjustment

■ Block Diagram

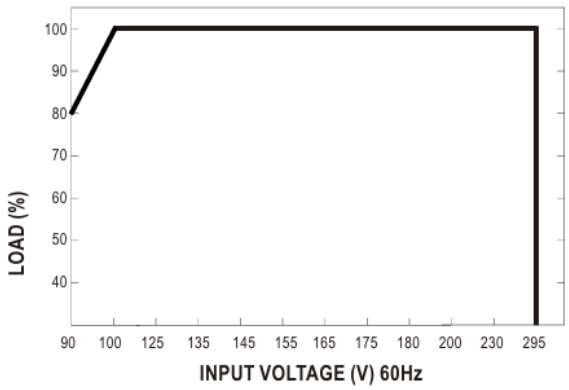
fosc : 39KHz(115VAC)
53KHz(230VAC)



■ Derating Curve

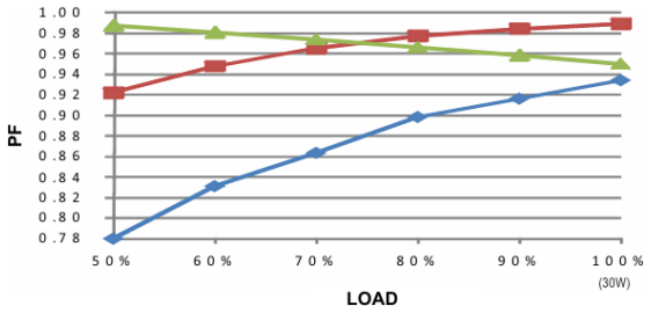


■ Static Characteristics



■ Power Factor Characteristic

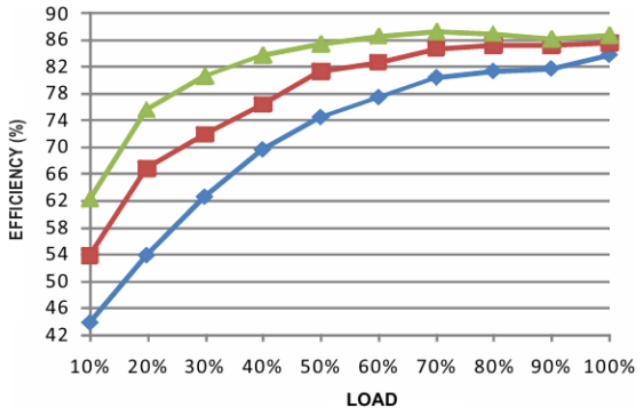
Constant Current Mode



277Vac
230Vac
115Vac

■ EFFICIENCY vs LOAD (48V Model)

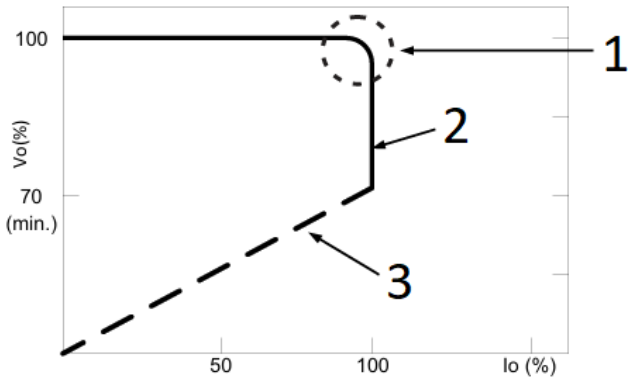
PLN-30 series possess superior working efficiency that up to 85.5% can be reached in field applications.



277Vac
230Vac
115Vac

■ 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

1. In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.
   Should there be any compatibility issues, please contact MEAN WELL.
2. Constant Current area
3. Hiccup Protection

File Name:PLN-30-SPEC 2024-03-12

Contents

Documents / Resources

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References

- User Manual