60W Single Output Class 2 Switching Power Supply ELN-60 series

Features :

- Universal AC input / Full range
- Built-in constant current limiting circuit with adjustable OCP level
- Protections: Short circuit / Overload / Over voltage
- Fully isolated plastic case with IP64 level
- IP64 design for indoor or outdoor installations
- Optional dimming function : 1~10VDC(D type) or PWM controlled(P type)
- UL1310 Class 2 power unit
- Cooling by free air convection
- 100% full load burn-in test
- Low cost, high reliability
- Suitable for LED lighting and moving sign applications
- 2 years warranty

IP64 (for 48V only) (except for 48V)

SPECIFICATION

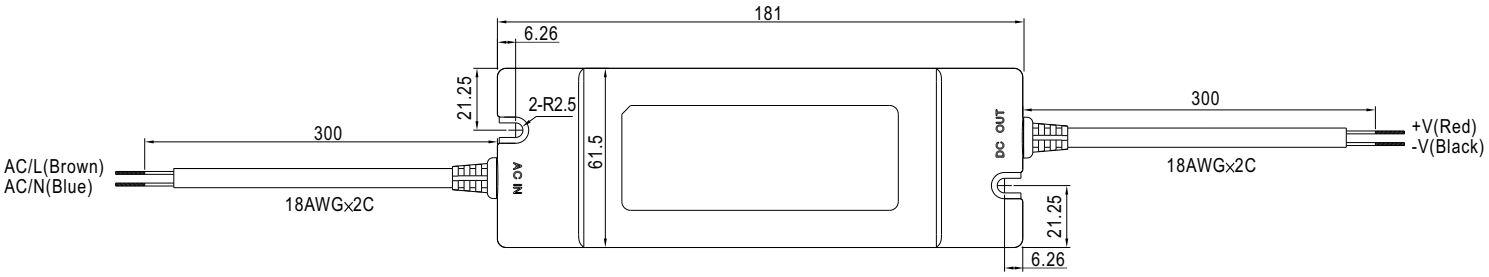
MODEL		ELN-60-9	ELN-60-12	ELN-60-15	ELN-60-24	ELN-60-27	ELN-60-48
OUTPUT	DC VOLTAGE	9V	12V	15V	24V	27V	48V
	LED OPERATION VOLTAGE Note.8	3 ~ 9V	6 ~ 12V	7.5 ~ 15V	12 ~ 24V	13.5 ~ 27V	24 ~ 48V
	RATED CURRENT	5A	5A	4A	2.5A	2.3A	1.3A
	CURRENT RANGE	0 ~ 5A	0 ~ 5A	0 ~ 4A	0 ~ 2.5A	0 ~ 2.3A	0 ~ 1.3A
	RATED POWER	45W	60W	60W	60W	62.1W	62.5W
	RIPPLE & NOISE (max.) Note.2	120mVp-p	120mVp-p	150mVp-p	150mVp-p	200mVp-p	250mVp-p
	VOLTAGE ADJ. RANGE Note.7	8.7 ~ 10.5V	10.8 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 26.4V	24.3 ~ 29.7V	43.2 ~ 52.8V
		Can be adjusted by internal potential meter SVR1					
	CURRENT ADJ. RANGE Note.7	-25% ~ 3%. Can be adjusted by internal potential meter SVR2					
	VOLTAGE TOLERANCE Note.3	±5.0%					
	LINE REGULATION	±1.0%					
	LOAD REGULATION	±2.0%					
	SETUP, RISE TIME Note.6	500ms, 30ms / 230VAC 1500ms, 30ms / 115VAC at full load					
	HOLD UP TIME (Typ.)	50ms/230VAC 16ms/115VAC at full load					
INPUT	VOLTAGE RANGE Note.5	90 ~ 264VAC					
	FREQUENCY RANGE	47 ~ 63Hz					
	EFFICIENCY (Typ.)	82%	85%	86%	87%	87%	88%
	AC CURRENT (Typ.)	1.2A/115VAC 0.7A/230VAC					
	INRUSH CURRENT(max.)	COLD START 60A/230VAC					
	LEAKAGE CURRENT	0.25mA / 240VAC					
PROTECTION	OVER CURRENT	95 ~ 110%		130% max.			
		Protection type : Constant current limiting, recovers automatically after fault condition is removed					
	OVER VOLTAGE	11 ~ 13.5V	13.8 ~ 16V	17.5 ~ 21V	28 ~ 32V	31 ~ 35V	54 ~ 60V
		Protection type : Shut down o/p voltage, re-power on to recover					
FUNCTION	DIMMING CONTROL (OPTIONAL)	1 ~ 10VDC or PWM signal : 100Hz ~ 3KHz					
ENVIRONMENT	WORKING TEMP.	-20 ~ +60℃ (Refer to output load derating curve)					
	WORKING HUMIDITY	20 ~ 90% RH non-condensing					
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH					
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)					
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes					
SAFETY & EMC	SAFETY STANDARDS	UL1310 Class 2, CAN/CSA C22.2 No. 223-M91(except for 48V), IP64 approved, design refer to TUV EN60950-1, EN61347-2-13					
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC					
	ISOLATION RESISTANCE	I/P-O/P:>100M Ohms / 500VDC / 25℃/ 70% RH					
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B					
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3					
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, light industry level, criteria A					
OTHERS	MTBF	603Khrs min. MIL-HDBK-217F (25℃)					
	DIMENSION	181*61.5*35mm (L*W*H)					
	PACKING	0.4Kg; 24pcs/11Kg/0.75CUFT					

NOTE

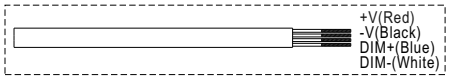
1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. Derating may be needed under low input voltage. Please check the derating curve for more details.
5. 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.
6. Length of set up time is measured at first cold start. Turning ON/OFF the power supply may lead to increase of the set up time.
7. 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.
8. Constant current operation region is within the specified output voltage range above. This is the suitable operation region for LED related applications.

■ Mechanical Specification

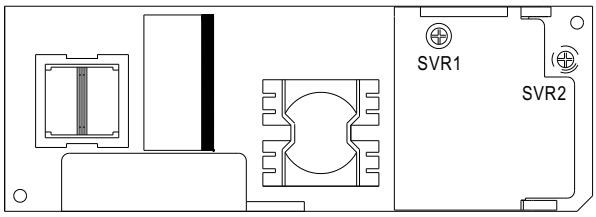
Case No.960A Unit:mm



OUTPUT(with optional dimming function)



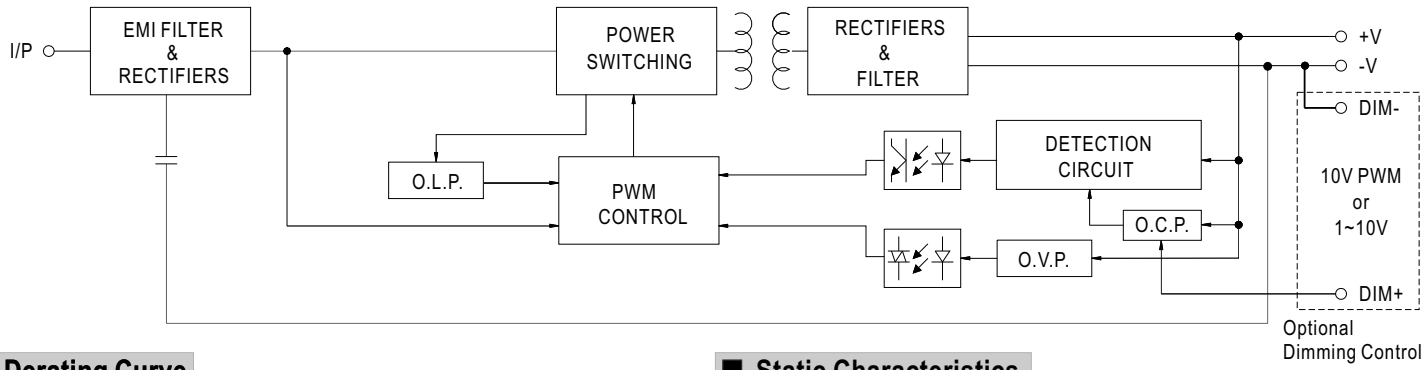
Output voltage and current adjustment : remove the upper case and adjust through SVR1 & SVR2 shown in the diagram.



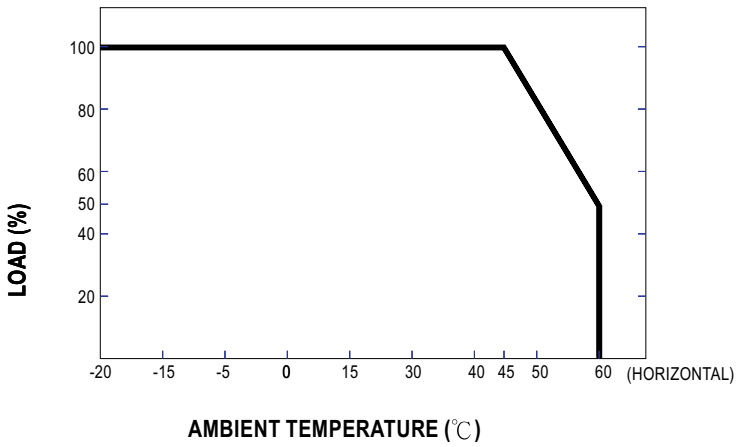
SVR1	Output voltage adjustment
SVR2	Output current adjustment

■ Block Diagram

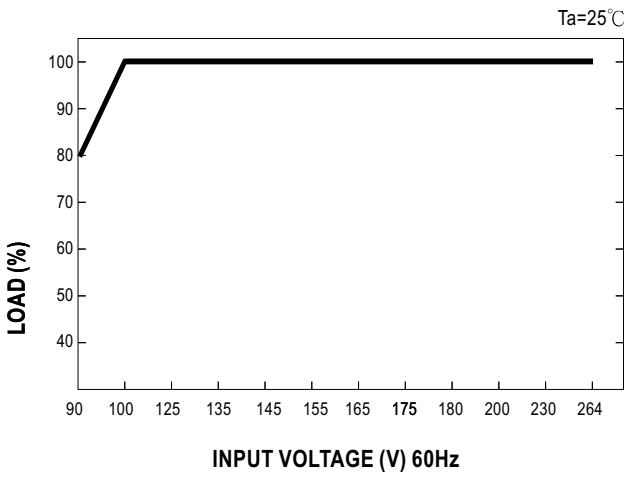
fosc : 60KHz



■ Derating Curve



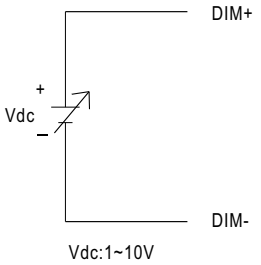
■ Static Characteristics

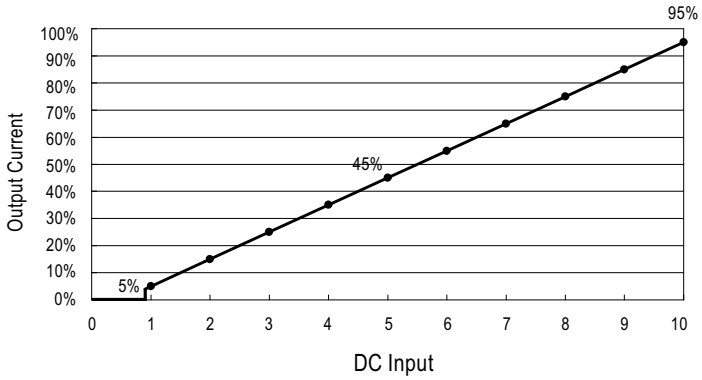


■ Dimming Control (Optional)

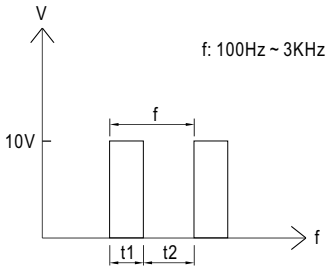
Level of output current can be adjusted through the dimming control function.
When there is no signal sending to the control wires (open circuit between the two control wires), the power supply unit will operate as 0V (D-type) or 0% duty (P-type) of input signal and hence the output current will be zero.

(1)1~10V (D type, & : ELN-60-12D)





(2)PWM (P type, & : ELN-60-12P)



$$Duty=\frac{t1}{t1+t2}\times 100\%$$

Lo:0V
Hi:10V