



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

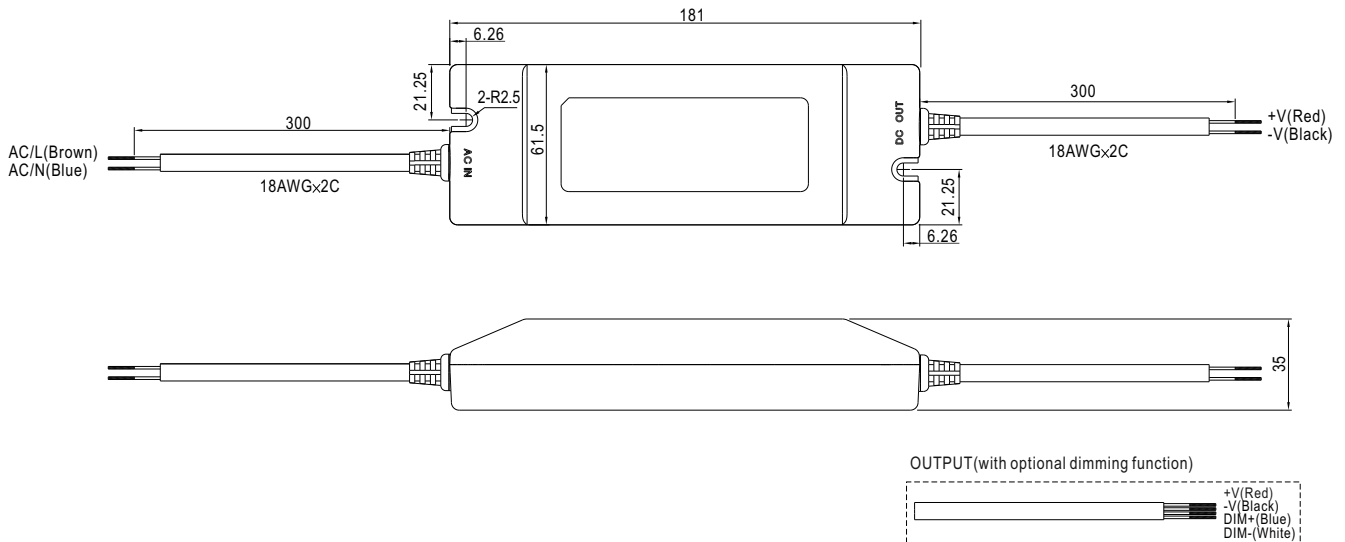
IP64 CE

SPECIFICATION

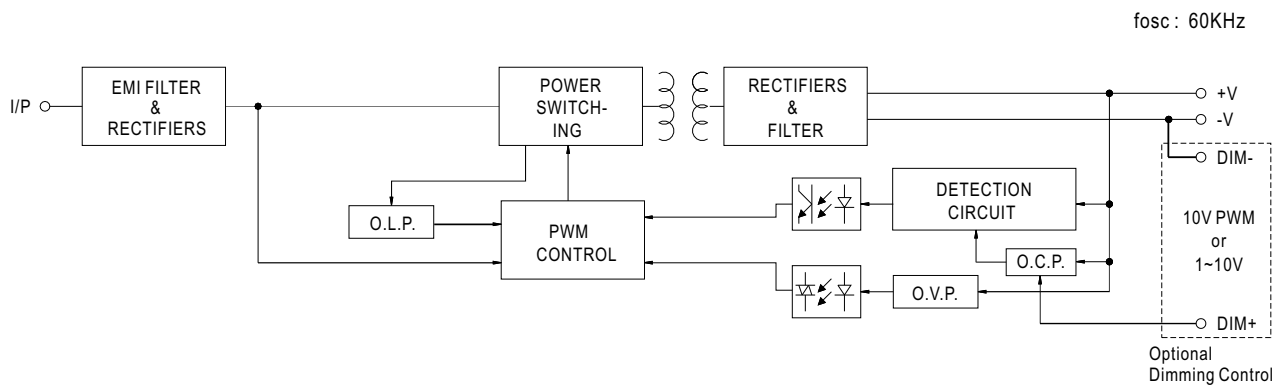
MODEL		ELN-60-9	ELN-60-12	ELN-60-15	ELN-60-24	ELN-60-27	ELN-60-48
OUTPUT	DC VOLTAGE	9V	12V	15V	24V	27V	48V
	RATED CURRENT	5A	5A	4A	2.5A	2.3A	1.3A
	CURRENT RANGE	0 ~ 5A	0 ~ 5A	0 ~ 4A	0 ~ 2.5A	0 ~ 2.3A	0 ~ 1.3A
	RATED POWER	45W	60W	60W	60W	62.1W	62.5W
	RIPPLE & NOISE (max.) <small>Note.2</small>	120mVp-p	120mVp-p	150mVp-p	150mVp-p	200mVp-p	250mVp-p
	VOLTAGE ADJ. RANGE <small>Note.7</small>	8.7 ~ 10.5V	10.8 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 26.4V	24.3 ~ 29.7V	43.2 ~ 52.8V
	CURRENT ADJ. RANGE <small>Note.7</small>	-25% ~ 3%					
	VOLTAGE TOLERANCE <small>Note.3</small>	±5.0%					
	LINE REGULATION	±1.0%					
	LOAD REGULATION	±2.0%					
	SETUP, RISE TIME <small>Note.6</small>	500ms, 30ms / 230VAC 1500ms, 30ms / 115VAC at full load					
HOLD UP TIME (Typ.)	50ms/230VAC 16ms/115VAC at full load						
INPUT	VOLTAGE RANGE <small>Note.5</small>	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 STAR 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	Design refer to UL1310 Class 2,TUV EN60950-1, CAN/CSA C22.2 No. 223-M91(except for 48V), EN61347-2-13; IP64 approved					
	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 a component which will be installed a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 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.						

Mechanical Specification

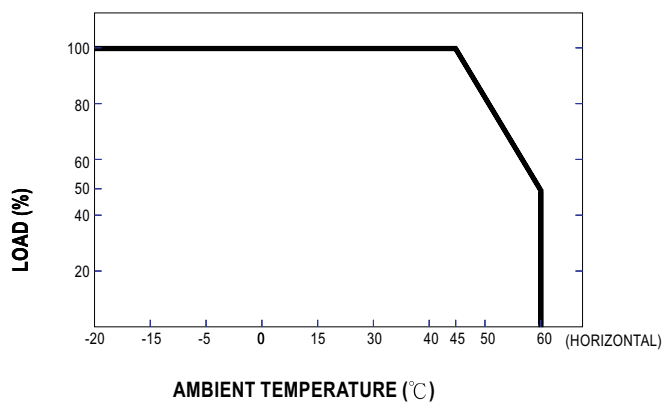
Case No.960A Unit:mm



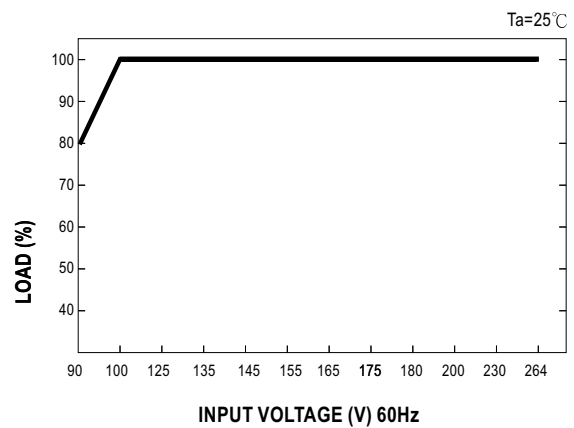
Block Diagram



Derating Curve



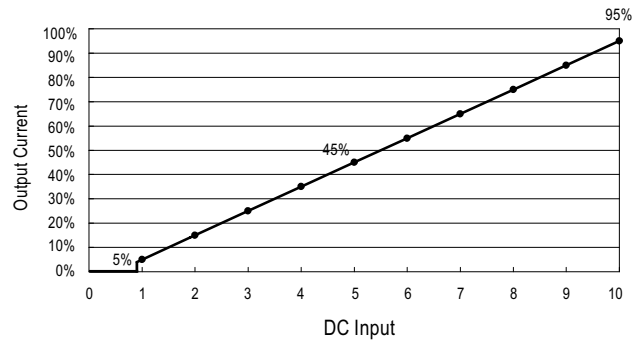
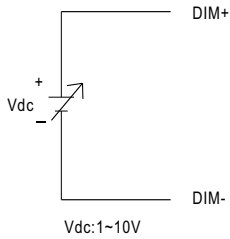
Static Characteristics



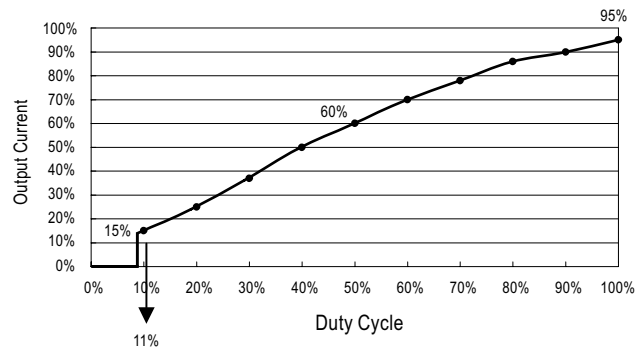
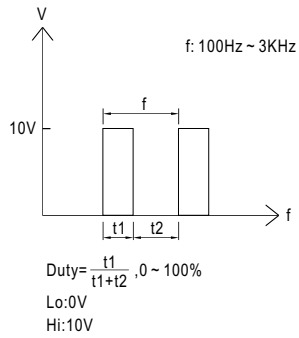
■ Dimming Control (Optional)

Level of output current can be adjusted through the dimming control function.

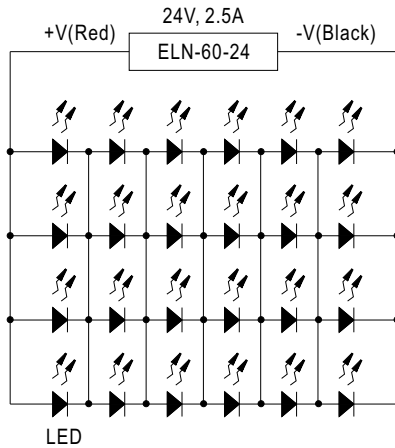
(1) 1~10V



(2) PWM



Recommend Application Schematics (24V)

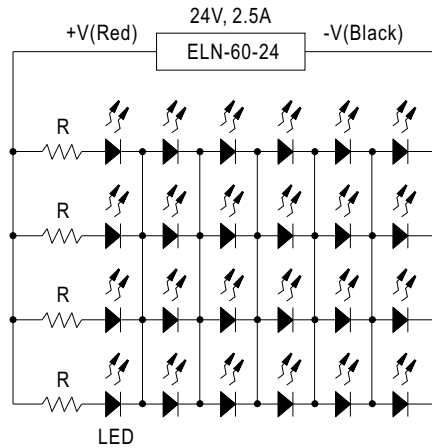


1 to 6 LEDs // 4 strips

This configuration is based on LED with the following parameters :

$V_F = 3.0 \sim 3.5V$

$I_F = 600 \sim 700mA$



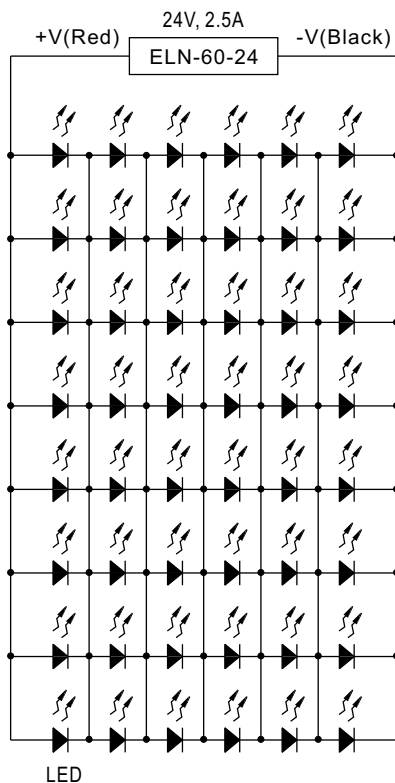
6 LEDs // 1 to 4 strips

This configuration is based on LED with the following parameters :

$V_F = 3.0 \sim 3.5V$

$I_F = 600 \sim 700mA$

$R = 10 \text{ ohm}, 10W$

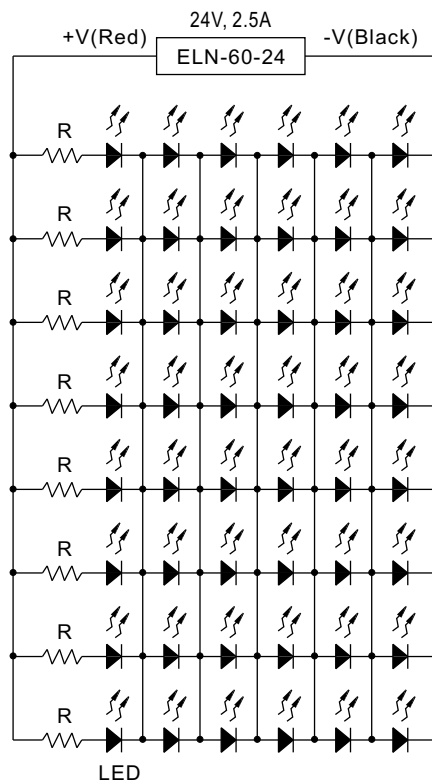


1 to 6 LEDs // 8 strips

This configuration is based on LED with the following parameters :

$V_F = 3.0 \sim 3.5V$

$I_F = 300 \sim 350mA$



6 LEDs // 1 to 8 strips

This configuration is based on LED with the following parameters :

$V_F = 3.0 \sim 3.5V$

$I_F = 300 \sim 350mA$

$R = 20 \text{ ohm}, 3W$