



■ 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

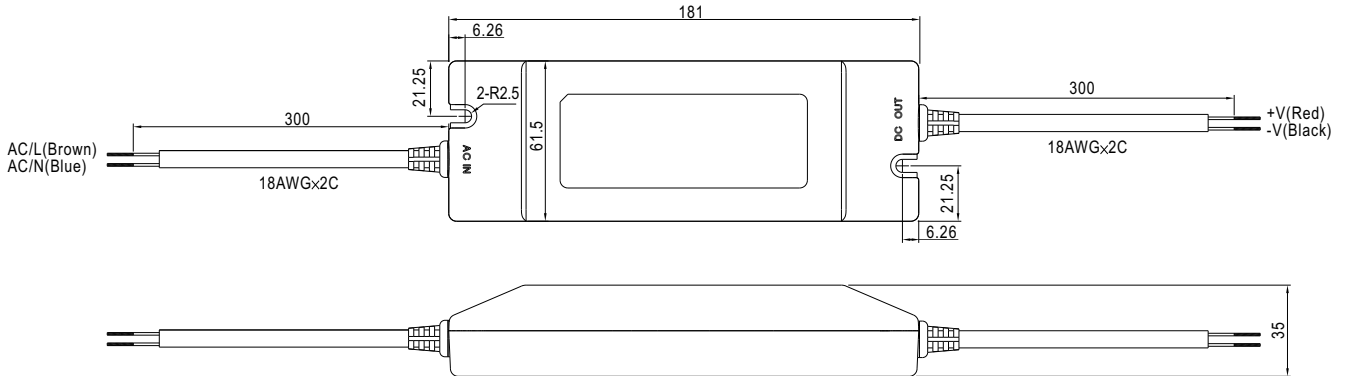


**SPECIFICATION**

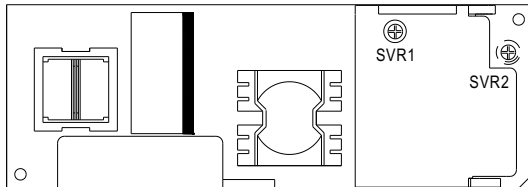
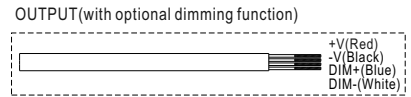
MODEL	ELN-60-9	ELN-60-12	ELN-60-15	ELN-60-24	ELN-60-27	ELN-60-48	
OUTPUT	DC VOLTAGE	9V	12V	15V	24V	27V	48V
	LED OPERATION VOLTAGE Note.8	3 ~ 9V	3 ~ 12V	3 ~ 15V	3 ~ 24V	3 ~ 27V	3 ~ 48V
	RATED CURRENT	5A	5A	4A	2.5A	2.3A	1.3A
	CURRENT RANGE	0 ~ 5A	0 ~ 5A	0 ~ 4A	0 ~ 2.5A	0 ~ 2.3A	0 ~ 1.3A
	RATED POWER	45W	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					
	CURRENT ADJ. RANGE Note.7	Can be adjusted by internal potential meter SVR1					
	VOLTAGE TOLERANCE Note.3	-25% ~ 3%. Can be adjusted by internal potential meter SVR2					
	LINE REGULATION	±5.0%					
	LOAD REGULATION	±1.0%					
	INPUT	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					
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					
PROTECTION	INRUSH CURRENT(max.)	COLD START 60A/230VAC					
	LEAKAGE CURRENT	0.25mA / 240VAC					
	OVER CURRENT	95 ~ 110%			130% max.		
FUNCTION	OVER VOLTAGE	11 ~ 13.5V    13.8 ~ 16V    17.5 ~ 21V    28 ~ 32V    31 ~ 35V    54 ~ 60V		Protection type : Constant current limiting, recovers automatically after fault condition is removed			
	DIMMING CONTROL (OPTIONAL)	1 ~ 10VDC or PWM signal : 100Hz ~ 3KHz					
ENVIRONMENT	WORKING TEMP.	-20 ~ +60°C (Refer to output load derating curve)					
	WORKING HUMIDITY	20 ~ 90% RH non-condensing					
	STORAGE TEMP., HUMIDITY	-40 ~ +80°C, 10 ~ 95% RH					
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)					
	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°C / 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°C)					
	DIMENSION	181*61.5*35mm (L*W*H)					
	PACKING	0.4Kg; 24pcs/11Kg/0.75CUFT					
NOTE	<ol style="list-style-type: none"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uF &amp; 47uF parallel capacitor.</li> <li>3. Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>4. Derating may be needed under low input voltage. Please check the derating curve for more details.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>8. Constant current operation region is within the specified output voltage range above. This is the suitable operation region for LED related applications.</li> </ol>						

**Mechanical Specification**

Case No.960A Unit:mm



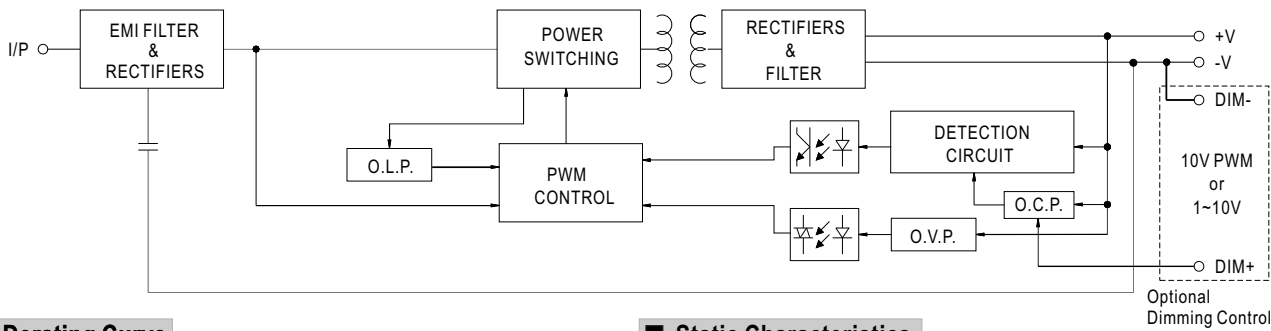
Output voltage and current adjustment : remove the upper case and adjust through SVR1 & SVR2 shown in the diagram.



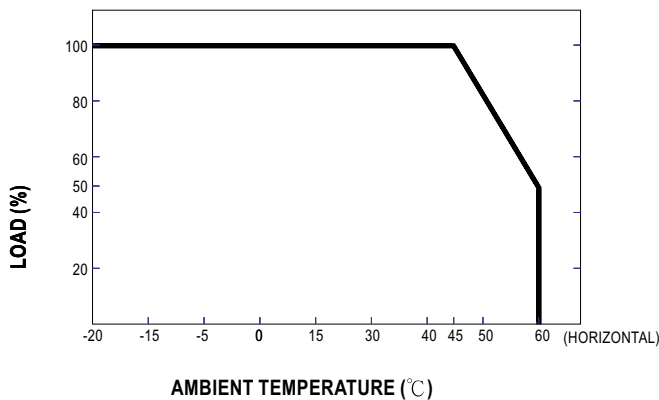
SVR1	Output voltage adjustment
SVR2	Output current adjustment

**Block Diagram**

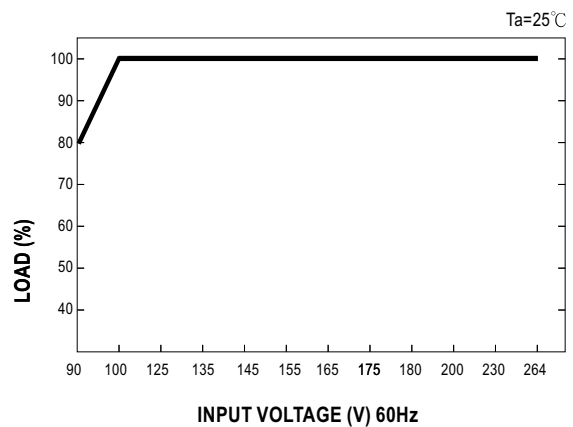
fosc : 60KHz



**Derating Curve**



**Static Characteristics**

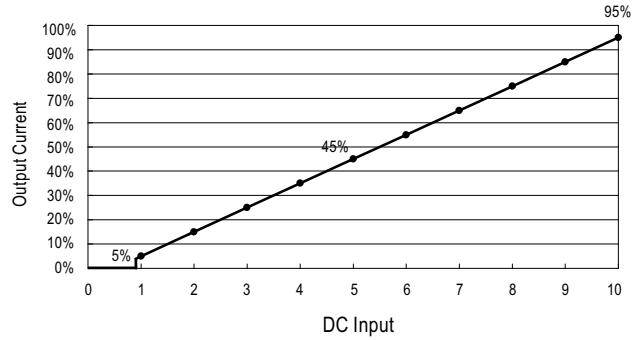
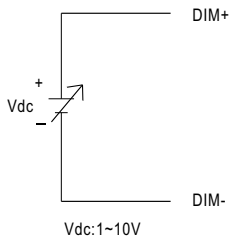


**■ Dimming Control (Optional)**

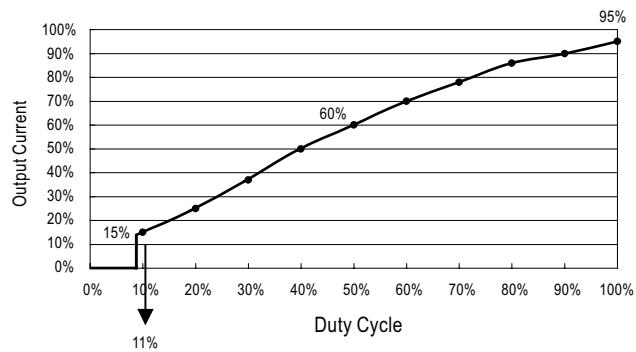
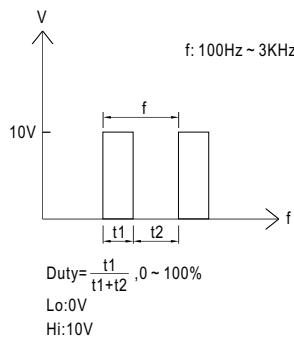
Level of output current can be adjusted through the dimming control function.

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.

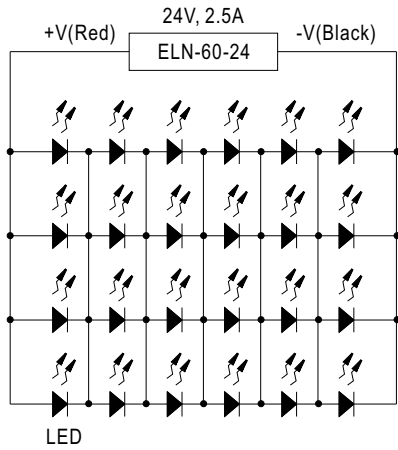
(1) 1~10V (D type, & : ELN-60-12D)



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



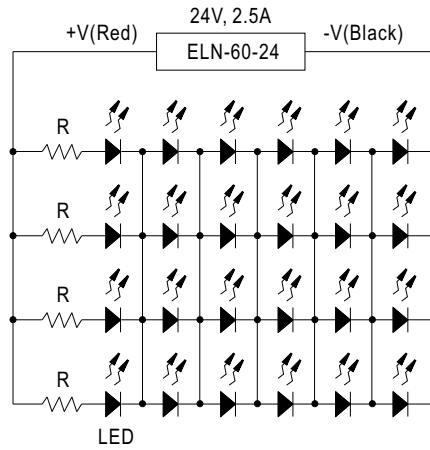
■ Recommend Application Deployment (24V)



1 to 6 LEDs // 4 strips

This configuration is based on LED with the following parameters :

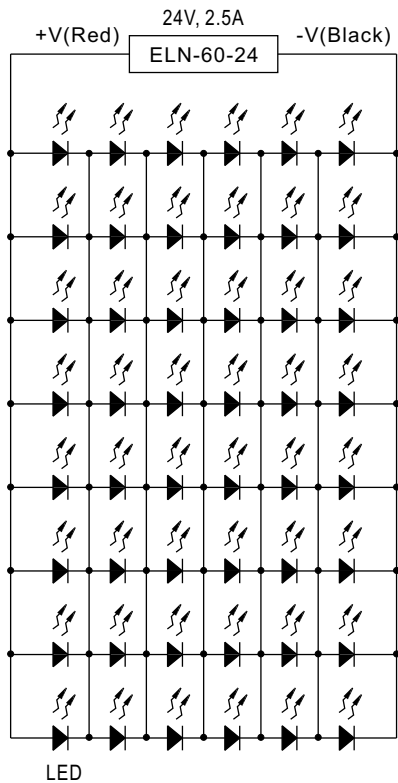
$V_f = 3.0 \sim 3.5V$        $I_f = 600 \sim 700mA$



6 LEDs // 1 to 4 strips

This configuration is based on LED with the following parameters :

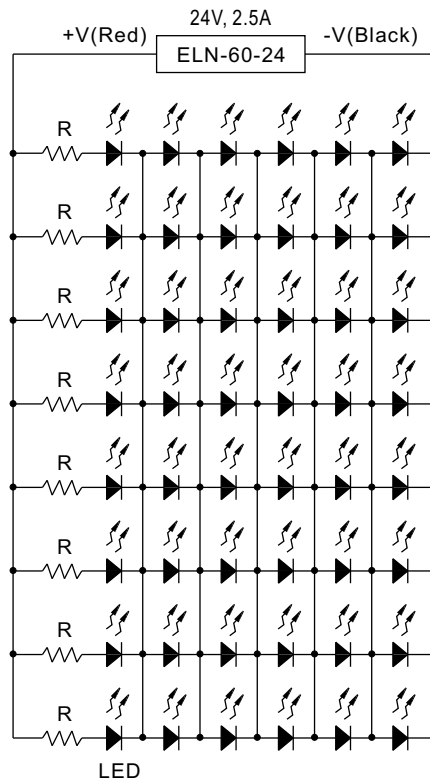
$V_f = 3.0 \sim 3.5V$        $I_f = 600 \sim 700mA$   
 $R = 10 \text{ ohm}, 10W$



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 :

$V_f = 3.0 \sim 3.5V$        $I_f = 300 \sim 350mA$   
 $R = 20 \text{ ohm}, 3W$