



■ 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

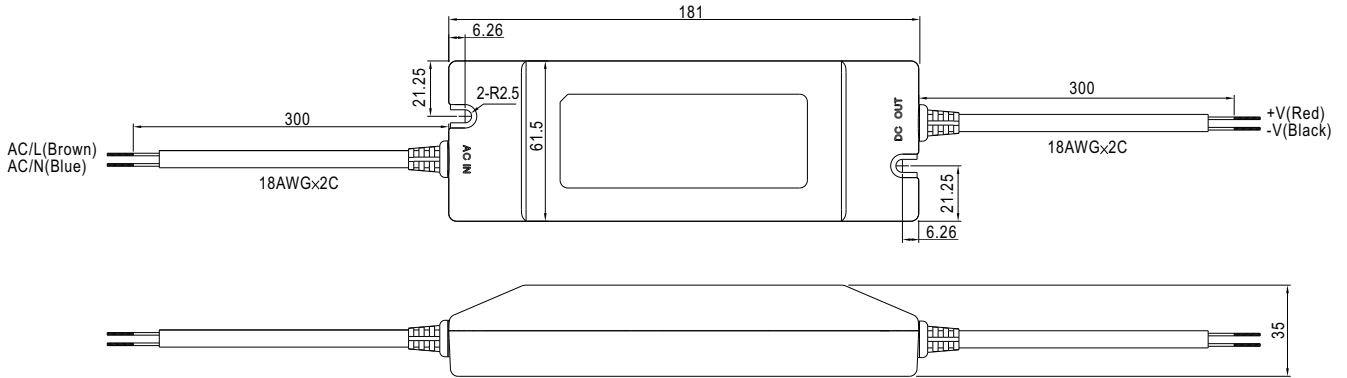
**IP64 CE**

**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
	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 STAR 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	
	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	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°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>						

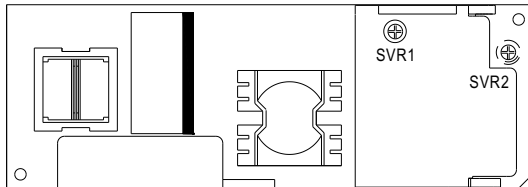
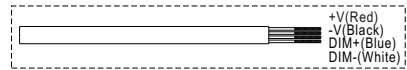
**Mechanical Specification**

Case No.960A Unit:mm



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

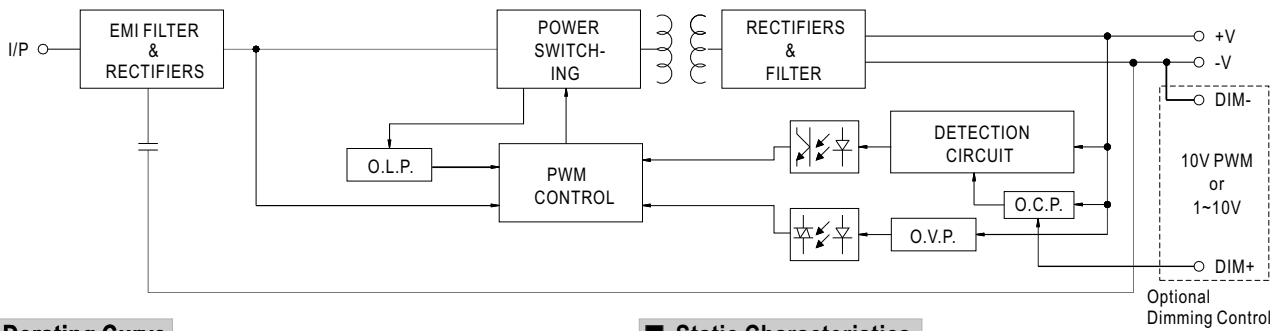
OUTPUT(with optional dimming function)



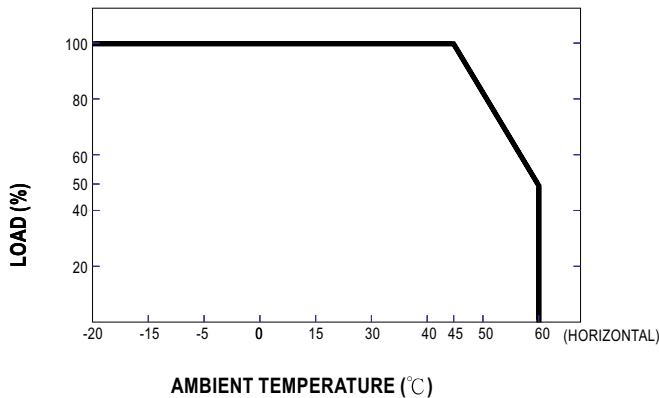
SVR1	Output voltage adjustment
SVR2	Output current adjustment

**Block Diagram**

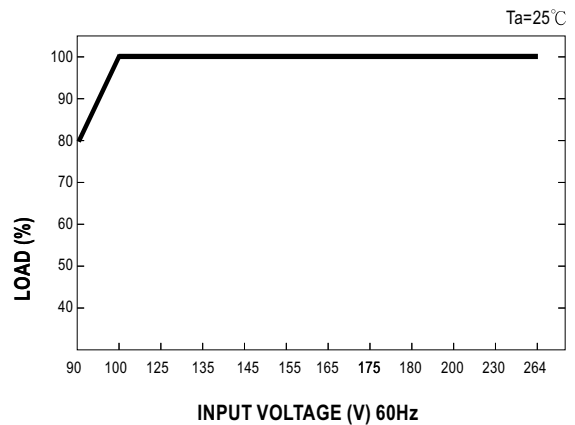
fosc : 60KHz



**Derating Curve**



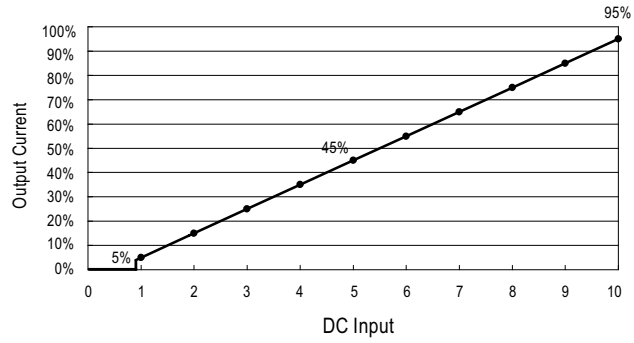
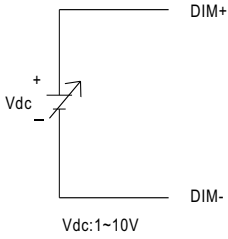
**Static Characteristics**



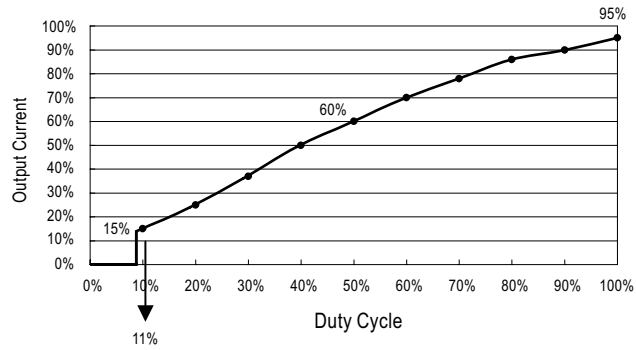
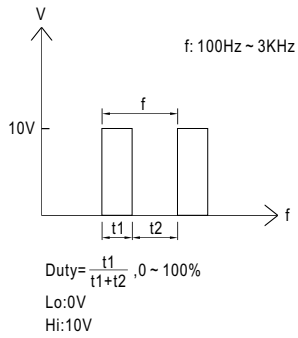
**■ Dimming Control (Optional)**

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

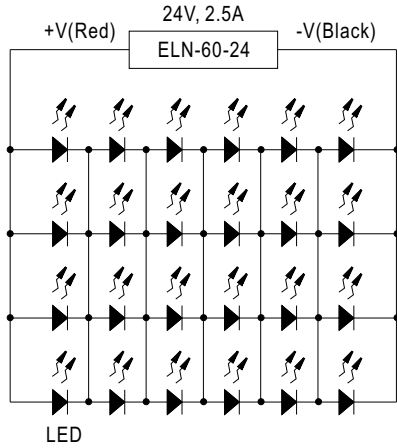
(1) 1~10V



(2) PWM



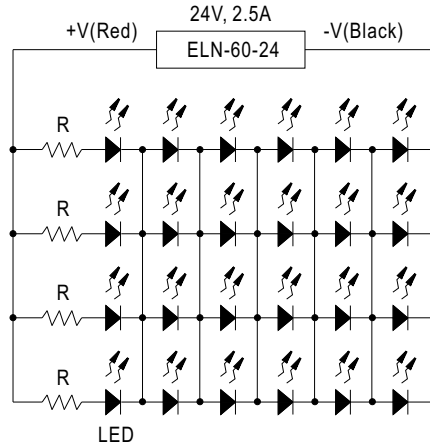
■ Recommend Application Deployment (24V)



1 to 6 LEDs // 4 strips

This configuration is based on LED with the following parameters :

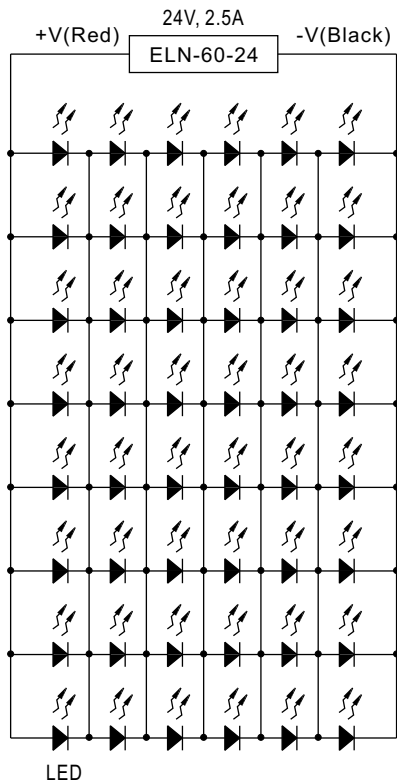
$V_f = 3.0 \sim 3.5V$        $I_f = 600 \sim 700mA$



6 LEDs // 1 to 4 strips

This configuration is based on LED with the following parameters :

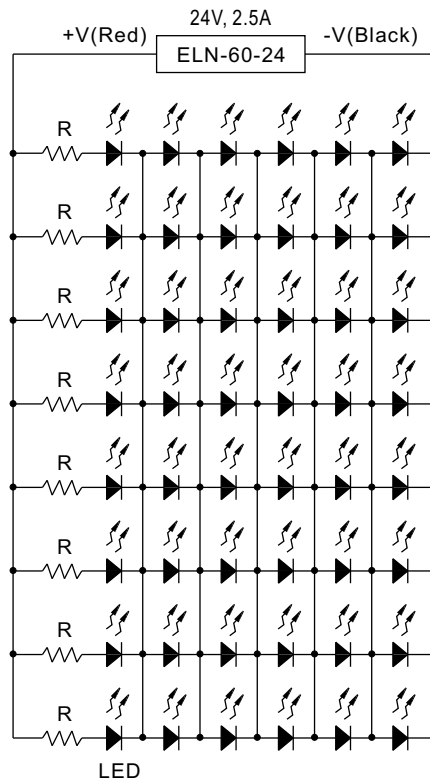
$V_f = 3.0 \sim 3.5V$        $I_f = 600 \sim 700mA$   
 $R = 10 \text{ ohm}, 10W$



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 :

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