



# HLV96

96 WATT-24 VOLT | CLASS 2 SUPPLY

Fixture Type: \_\_\_\_\_

Project: \_\_\_\_\_

Location: \_\_\_\_\_

## UL-LISTED FOR WET LOCATIONS

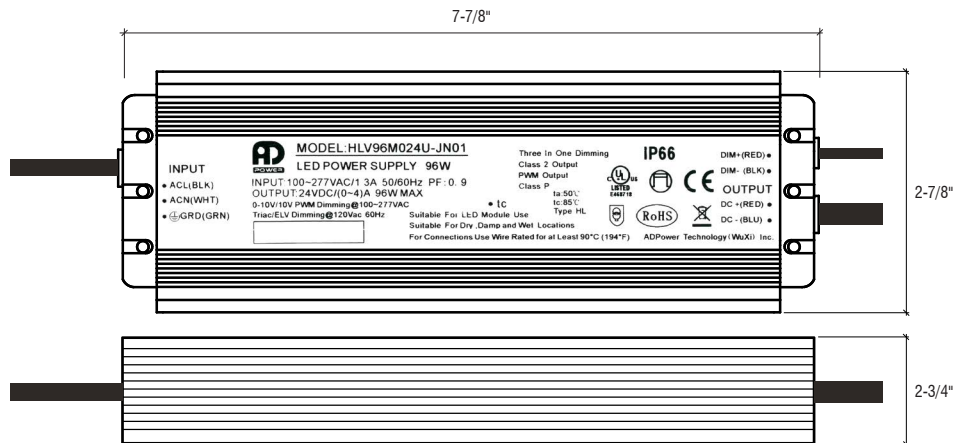
### PRODUCT FEATURES

- 431 Hz/Flicker-free Dimming Down to 1%
- Incandescent, ELV, MLV, or 0-10V Dimming
- Protections: Short Circuit/Over Current/Over Voltage
- Free Air Convection Cooling
- Dry/Damp/Wet Rated
- UL-listed Class 2 for Indoor/Outdoor Use



### SPECIFICATIONS

Model	HLV96
Input Voltage	100-277 VAC
Output Voltage	24VDC/Constant Voltage
Max. Wattage	96W
Temp Range	-20°F-158°F
Dimensions W x H x D	7-7/8" x 2-7/8" x 2-3/4"
Classification	Class 2



Conforms to ANSI/UL Standard 2108  
Certified to CAN/CSA Standard C22.2 No. 250.0





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## MODEL LIST

Model Name	Rated Input Voltage	Rated Output Power	Rated Output Voltage	Output Current	Note
HLV96	100-277 VAC	96 W	24 V	0-4000 mA	3 In 1 Dimming
	100-120 VAC				

## SPECIFICATION

Parameters	Symbols	Test Conditions / Comment	Min	Typ	Max	Units
<b>INPUT</b>						
Input Voltage	$V_{IN}$		90		305	VAC
Rated Input Voltage	$V_{IN \text{ RATED}}$	Dimming with TRIAC/ELV/CL Dimmer	100		120	VAC
		No Phase Cut Dimming	100		277	VAC
Input Frequency	$f_{line}$		47	50/60	63	Hz
Input Current	$I_{IN}$	Full Load, $V_{IN} = 100 \text{ VAC}$			1.3	A

<b>GENERAL CHARACTERISTICS</b>						
Power Factor	PF	30% – 100% Load, $V_{IN} = 120 \text{ VAC}$	0.95			PF
		60% – 100% Load, $V_{IN} = 230 \text{ VAC}$	0.9			PF
		70% – 100% Load, $V_{IN} = 277 \text{ VAC}$	0.9			PF
Total Harmonic Distortion	THD	30% – 100% Load, $V_{IN} = 120 \text{ VAC}$			20	%
		60% – 100% Load, $V_{IN} = 230 \text{ VAC}$			20	%
		70% – 100% Load, $V_{IN} = 277 \text{ VAC}$			20	%
Efficiency	$\eta$	Full Load, $V_{IN} = 120 \text{ VAC}$	81	83		%
		Full Load, $V_{IN} = 230 \text{ VAC}$	83	85		%
		Full Load, $V_{IN} = 277 \text{ VAC}$	82	84		%
Turn On Delay Time	$T_{on\_delay}$	Cold Start, No TRIAC Dimmer		0.3	0.5	S

<b>OUTPUT</b>						
Output Voltage	$V_{OUT}$	No Dimming	23.3	24	24.7	V
No Load Output Voltage	$V_{NO \text{ LOAD}}$	No Load, No Dimming	23.7	24	24.3	V
Output Current	$I_{OUT}$		0		4000	mA
Line Regulation	$V_{OUT-LINE}$				1	%
Load Regulation	$V_{OUT-LOAD}$	$I_{OUT}$ from MIN. to MAX.			2	%
Ripple Voltage	$V_{OUT-RIPPLE}$	Full Load, (pk-to-pk) / Average			3	%
Output Voltage Overshoot	$V_{OVERSHOOT}$	Turning Power ON			3	%
No Load Power Dissipation	$P_{NO-LOAD}$				4	W

**0-10V OR RESISTOR DIMMING**  
 The 0-10V or resistor dimming is a dimming manner that can be used to dim the output voltage via a standard commercial wall dimmer (0-10 VDC) or an external control voltage source (0-10 VDC) or external resistor.  
 The dimming range is 100%  $V_{OUT}$  to 1%  $V_{OUT}$ . When  $V_{DIM}$  is 9-10 VDC, the output voltage maintains 100%  $V_{OUT}$ , and when  $V_{DIM}$  is below 0.3V, the output voltage is 1%  $V_{OUT}$ .

Absolute Maximum Voltage on 0-10V Pin	$V_{DIM}$		-2		15	V
Source Current on 0-10V Dimming Pin	$I_{DIM}$			100		$\mu\text{A}$
$V_{DIM}$ Voltage for Full Bright	$V_{DIM-MAX}$		9			V
Minimum Output Voltage	$V_{OUT-MAX}$	$V_{DIM} = 0.3\text{V}$				% of $V_{OUT}$
External Resistor Value at Full Bright	$R_{External-MAX}$			90		$\text{k}\Omega$



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## SPECIFICATION (CONT.)

Parameters	Symbols	Test Conditions/Comment	Min	Typ	Max	Units
<b>PWM DIMMING</b>						
The PWM dimming is a dimming manner that can be used to dim the output voltage via the duty cycle of PWM signal.						
The dimming range is 100% $V_{OUT}$ to 1% $V_{OUT}$ . When the duty cycle is 90% to 100%, the output voltage reaches 100% $V_{OUT}$ , and the output voltage maintains 1% $V_{OUT}$ when the duty cycle below 3%.						
PWM Frequency	f <sub>PWM</sub>		0.1		1	KHz
High Level Voltage of PWM Signal	V <sub>PWM-High</sub>	V <sub>PWM-High</sub> Affect Output Voltage	-	10	-	V
Lower Level Voltage of PWM Signal	V <sub>PWM-Low</sub>	V <sub>PWM-Low</sub> Affect Output Voltage	0		1	V
Minimum Output Voltage	V <sub>OUT-MIN</sub>			1		% of $V_{OUT}$
<b>TRIAC DIMMING</b>						
The unit is compatible with leading-edge and trailing-edge dimmer.						
Input Voltage	V <sub>IN-TRIAC DIM</sub>		100		120	VAC
Dim Output Voltage	V <sub>OUT-TRIAC</sub>	PWM Output	0	-	100	% of $V_{OUT}$
Suggest Load Range	P <sub>Suggest</sub>	V <sub>IN</sub> from 100 VAC to 120 VAC	9.6		96	W
<b>PROTECTION</b>						
Over Voltage Protection	V <sub>OV</sub>	Latch Off Mode	28	32	36	V
Over Current Protection	I <sub>OC</sub>	It will recover automatically after fault condition is removed.	4.0	4.1	4.5	A
Over Temperature Protection	T <sub>OTP</sub>	If the case temperature exceeds OTP point, the output voltage of the driver is automatically reduced.	90	95	100	°C
Short Circuit Protection		It will recover automatically after fault conditions is removed.				
<b>ENVIRONMENT</b>						
Storage Temperature	T <sub>Storage</sub>	Humidity: 5% RH to 95% RH	-40	-	+85	°C
Operating Relative Humidity	H <sub>a</sub>	Non Condensing	10		95	%
<b>OTHERS</b>						
Life Time	T <sub>Life</sub>	Full load, 65 °C Case Temperature	30			kHrs
MTBF	T <sub>MTBF</sub>	Full Load, 120 VAC Input, 25 °C Ambient Temperature	200			kHrs
Dimension L × W × H		202 mm × 73 mm × 37.5 mm (7.95" × 2.87" × 1.48")				
<b>SAFETY COMPLIANCE</b>						
UL Listed		UL8750 Compliance to UL1310 Class 2, CSA-C22.2 No. 107.1				
<b>EMC COMPLIANCE</b>						
FCC Part 15B		Conducted Emission Test and Radiated Emission Test				
Note: Unless otherwise specified, all the above parameters are measured at ambient temperature of 25 °C and V <sub>IN</sub> = 100-277 VAC.						



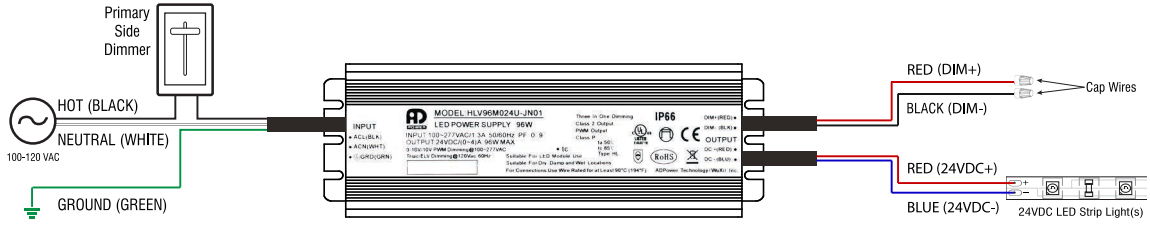
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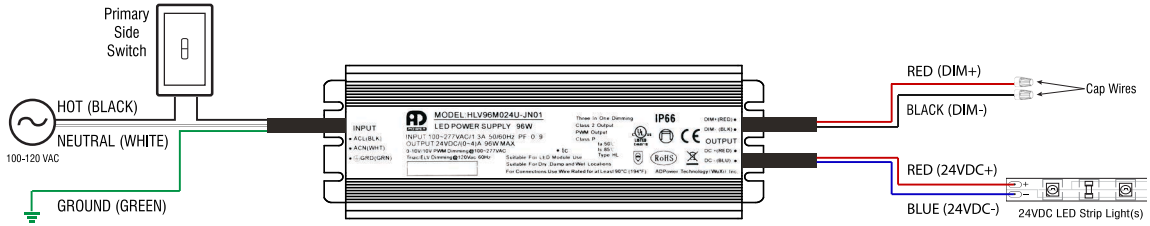


## TYPICAL APPLICATION

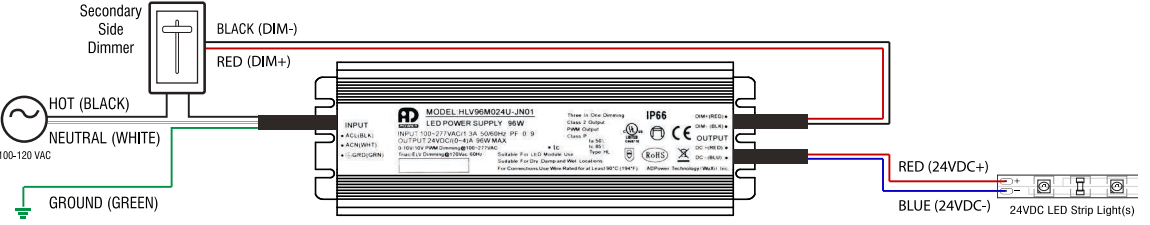
### PRIMARY SIDE DIMMING (120V ONLY)



### SECONDARY SIDE SWITCHING (120-277V)



### SECONDARY SIDE DIMMING (0-10V)



### SECONDARY SIDE DIMMING (DMX)

