

96 Watt - LP96W-XX-CV Series

CONSTANT VOLTAGE



Constant Voltage
LP96W-XX-CV
96W

Model: LP96W Series

- Drive Mode: Constant Voltage
- Technology: PFC Corrected 2-Stage Switch Mode
- Output Power: 96W Max.
- Input Voltage: 90 to 305VAC, 47- 63Hz
- Number of Outputs: One
- Output Voltages: 24VDC & 48VDC
- Minimum Output Current 100mA

Environmental

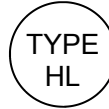
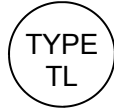
1. Operating temperature: Tc 90C Maximum. Reference -30 to +65°C ambient
2. UL Type TL (Tref Max/Meas. Tref): UL Class 2 83/54°C
3. Storage temperature range: -40 to +85°C
4. Humidity (non-condensing): 5% - 95%RH
5. Cooling: Convection
6. Vibration Frequency: 5-55Hz/2g, 30 minutes
7. Impact resistance: 1g/s
8. MTBF@ 40°C: 474,000 hours @ Full Load per MIL-217F Notice 2.

Safety and Compliance

1. Class P: UL8750, EN61347, CSA 22.2 safety listed, UL Class P -or- Type TL: UL8750, EN61347, CSA 22.2, UL TL recognized
2. FCC, 47CFR Part 15 Class B certified
3. Water resistant and Dust Proof Design: IP66, NEMA6, for Dry, Damp, Wet Locations.
4. Compact Miniature, Lightweight Design.
5. Safety Isolation between Primary and Secondary
6. Meets EN61000-3-2 & EN61000-3-3 Class C
7. Protection: output over-voltage, output over-current, output short circuit, auto-recovery.
8. EN61000-4-5: 2kV/4kV 8/20 μsec surge protection.

Electrical Specifications at 25°C

- Input voltage range: 90 to 305VAC
- Frequency: 47- 63HZ
- Power Factor: ≥ 0.90 at $\geq 60\%$ Load, 120Vac/230Vac/277Vac 50/60Hz
- THD%: $\leq 20\%$ at $\geq 60\%$ Load, 120Vac/230Vac/277Vac 50/60Hz
- Inrush current: $<50A$ at 25C, 277V, cold start, Max. Load
- Input current: 1.3A Maximum
- Efficiency: 88% typical at 230Vac Full Load
- Line regulation accuracy: $\pm 3\%$
- Load regulation accuracy: $\pm 4\%$
- Leakage current: 277Vac, 750uA maximum

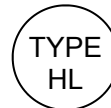


IP66



UL Recognized Constant Voltage Versions

Part Number	US Class 2	CN Class 2	UL Types	Output Constant Voltage	Output Current Range	Voltage Accuracy	Output Power Maximum	Typical Efficiency ⁽¹⁾
LP96W-48-CV	YES	YES	TL & HL	48 VDC	100 - 2000 mA	$\pm 5\%$	96W	88%
LP96W-24-CV ⁽²⁾	YES	YES	TL & HL	24 VDC	100 - 4000 mA	$\pm 5\%$	96W	85%



IP66



UL Class P Listed Constant Voltage Versions

Part Number	US Class 2	CN Class 2	UL Types	Output Constant Voltage	Output Current Range	Voltage Accuracy	Output Power Maximum	Typical Efficiency ⁽¹⁾
LP96W-48-PCV	YES	YES	HL	48 VDC	100 - 2000 mA	$\pm 5\%$	96W	88%
LP96W-24-PCV	YES	YES	HL	24 VDC	100 - 4000 mA	$\pm 5\%$	96W	85%

Notes

1. Typical efficiency measured at 230VAC input, full load
2. SAM Recognized

96W

LP96W-XX-CV

Constant Voltage



CV LED Optimized Drivers

96 Watt - LP96W-XX-CV Series

CONSTANT VOLTAGE

UL Recognized Labeling Example

Constant Voltage LED Optimized Driver
 EPtronics, Inc.
 www.EPtronics.com
 800.643.0688/010.636.0700

Part Number: LP96W-24-CV
 Input Voltage: 90-305VAC 50/60Hz
 Input Current: 1.3 Amp Max
 Output Voltage: 24 VDC
 Output Current: 100-4000 mA
 Output Power: 96W Maximum
 UL & cUL Class 2 Output
 UL Type HL & TL 83/54°C

AC INPUT
 LINE = BLACK
 NEUT = WHITE
 (PE) GND = GREEN/YEL

DC OUTPUT
 + = RED
 - = BLUE

IP66
 Made in China REV: A1.3

UL Class P Listed Labeling Example

Constant Voltage LED Optimized Driver
 EPtronics, Inc.
 www.EPtronics.com
 800.643.0688/010.636.0700

Part Number: LP96W-24-PCV
 Input Voltage: 90-305VAC 50/60Hz
 Input Current: 1.3 Amp Max
 Output Voltage: 24 VDC
 Output Current: 100-4000 mA
 UL & cUL Class 2 Output
 SAM Recognized, E325626
 UL Class P, For Connections use wire rated $\geq 90C$ (194F)

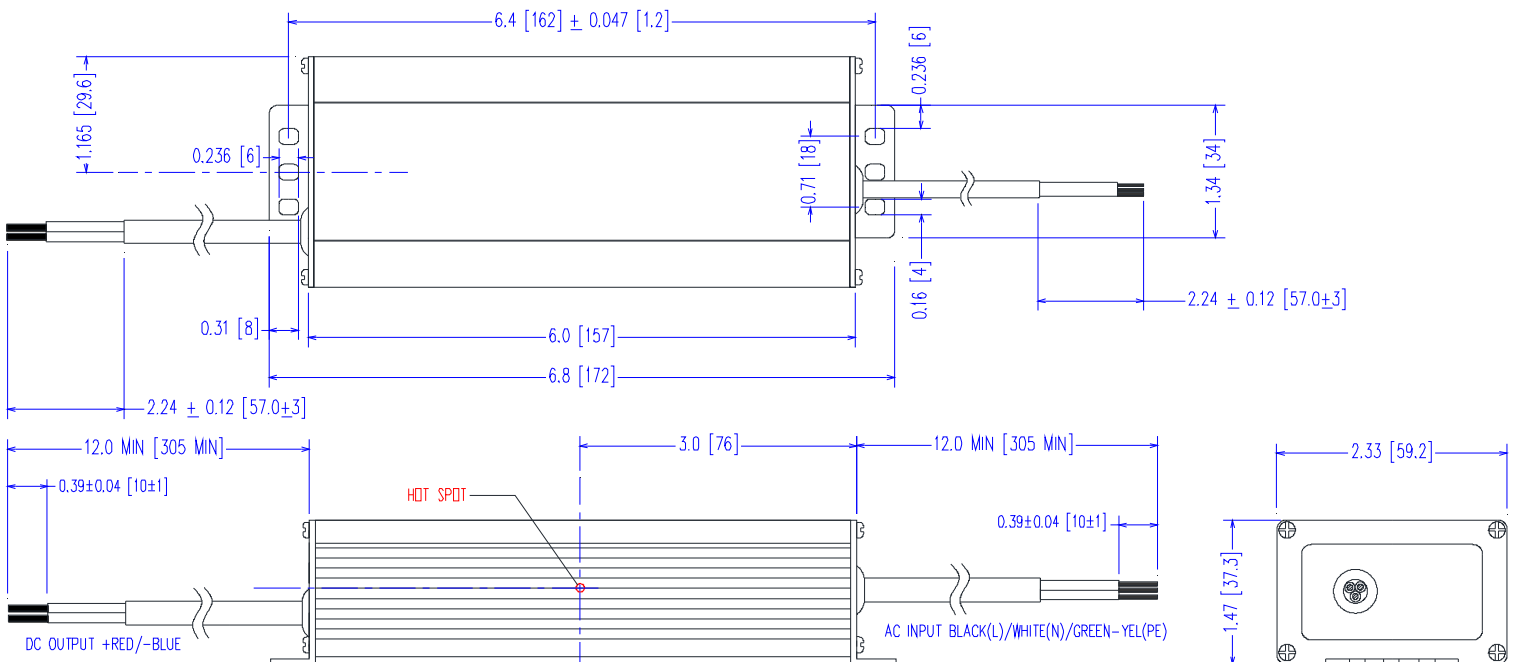
AC INPUT
 LINE = BLACK
 NEUT = WHITE
 (PE) GND = GREEN/YEL

DC OUTPUT
 + = RED
 - = BLUE

IP66
 Made in China REV: A1.3

Mechanical Dimensions: Inches [mm]

Material: Black Aluminum Housing
 Fully Encapsulated
 Weight: 19 oz (538 grams) Typical



96 Watt - LP96W-XX-CV Series

CONSTANT VOLTAGE

Constant Voltage

LP96W-XX-CV

96W

Input Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
Input Voltage	90 Vac	—	305 Vac	120, 230, 240, 277 Vac Nominal Values
Input Frequency	47 Hz	—	63 Hz	50/60Hz Nominal
Input AC Current	—	—	0.92 A	Measured at 120Vac/60Hz Input, Output Full load.
	—	—	0.48 A	Measured at 230Vac/60Hz Input, Output Full load.
Inrush Current (Peak)	—	22A	30A	Measured at 277Vac/60Hz Input, Output Full Load, Ta 25°C, Cold Start 50% I _{peak} duration \approx 750 μ sec (1/2*I _p ² *t)
Inrush Current (I ² t)	—	—	0.34 A ² s	
Leakage Current	—	—	0.28mA	Measured at 120Vac/60Hz Input, Output Full load.
	—	—	0.78mA	Measured at 277Vac/60Hz Input, Output Full load.
THD	—	—	20%	Measured at 120, 230, 277Vac Input, Output \geq 60% Load
Power Factor (PF)	0.90	—	—	Measured at 120, 230, 277Vac Input, Output \geq 60% Load

Output Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
DC Output Constant Voltage	-5%	Per Table	+5%	Per Tables on Page 1
DC Output Current	Per Table	Per Table	Per Table	Per Tables on Page 1
Output Power	—	—	Per Table	Per Tables on Page 1
Ripple & Noise (V _{pk-pk})	—	—	5% V _o	20 MHz BW, Full load output in parallel with 0.1 μ F ceramic & 10 μ F Electrolytic.
Ripple (I _{pk-pk})	—	—	5% I _o	20 MHz BW, Full load output in parallel with 0.1 μ F ceramic & 10 μ F Electrolytic. 120 Hz component (Flicker Free)
Start-up Time	—	200 mS	1000 mS	Measured at 120Vac/60Hz Input, Output Full load.
Hold-up Time	—	40 mS	—	Typical @ 277Vac Input, Output Full load.

Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
Case Temperature (T _c)	-30 °C	—	+90 °C	Measured at location specified on case.
Operating Temperature (T _a)	-30 °C	—	+60 °C	This is a reference range. T _c controls temperature range.
Storage Temperature (T _s)	-40 °C	—	+85 °C	Non operating temperature range.
Operating Humidity	—	—	95% RH	Relative Humidity, non-condensing.
Vibration	5 Hz	—	55 Hz	2G, 10 minutes/1 cycle, period 30 minutes, each along X, Y, Z axis.
MTBF	474,000 Hours	—	—	MIL-HDBK-217F Notice 2, T _a = 25C, Output Full Load.

Protection Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
Output Short Circuit (SCP)	—	—	—	No Damage, Auto recovery after short is removed.
Output Over Current (OCP)	—	—	+8% I _o	Current Limiting circuit.
Output Over Voltage (OVP)	—	—	120% V _o	No Damage, Auto recovery after fault is removed.

96W**LP96W-XX-CV**

Constant Voltage

**CV LED Optimized Drivers****96 Watt - LP96W-XX-CV Series**

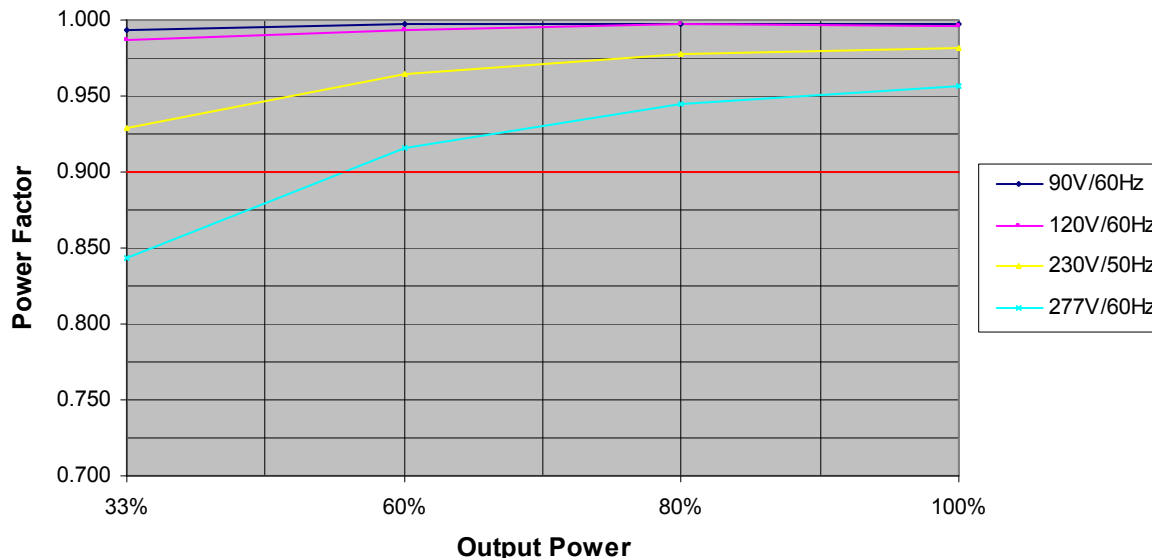
CONSTANT VOLTAGE

Safety Certification

Safety	Notes/Standards
UL Class P UL/CUL Listed	UL8750 & CAN/CSA C22.2 No. 250.13, UL Class P, UL Type HL
UL Type TL UL/CUL Recognized	UL8750, UL1310 for UL Class 2 & CAN/CSA C22.2 No. 250.13, UL Type HL & UL Type TL UL Class 2 83/54°C, UL Non-Class 2 90/75°C
CE	EN61347-1, EN61347-2-13
Withstand Voltage	Input to Output: 3750 Vac. Parts use a GDT. Hipot cannot be done with Case or GND connected.
Isolation Resistance	Input to Output: >100 MΩ, 500VDC @ 25 °C, 70 % RH

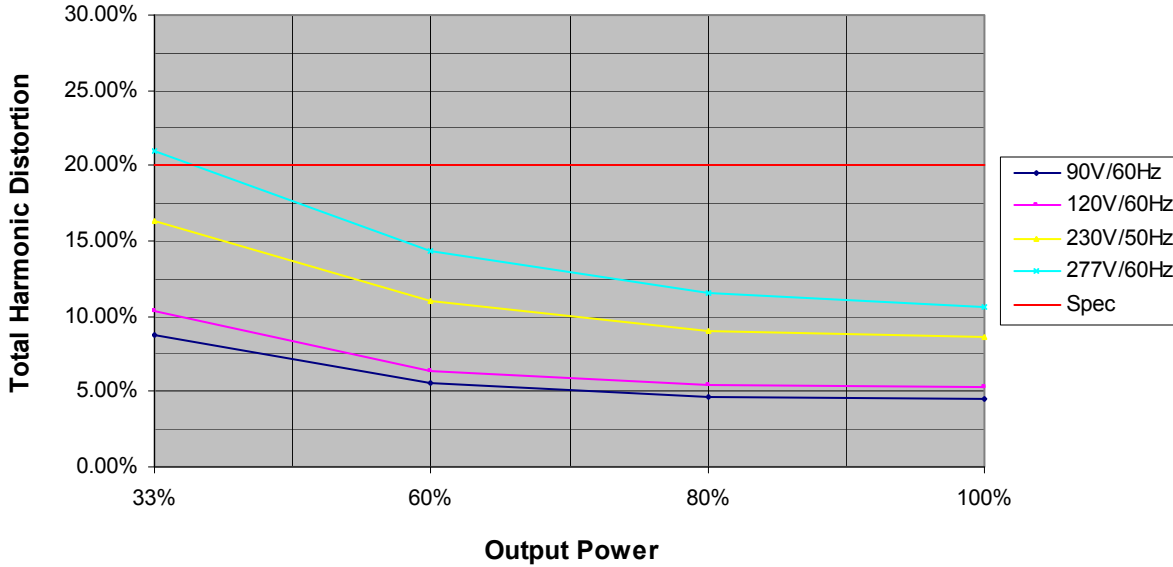
EMC Certification

Standard	Notes/Conditions
FCC, 47CFR Part 15	Class B
EN 55015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment.
EN 61000-3-2	Part 3-2: Limits for harmonic current emissions Class C, ≥80% Rated Power
EN 61000-3-3	Part 3-3: Limitation of voltage changes, voltage fluctuations and flicker.
EN 61000-4-5	Part 4-5: Surge Immunity test, 2kV L-N, 4kV L-FG & N-FG
Energy Star	Energy Star transient protection: Ballast or driver shall comply with ANSI/IEEE C62.41.1-2002 and ANSI/IEEE C62.41.2-2002, Category A operation. The line transient shall consist of seven strikes of a 100 kHz ring wave, 2.5 kV level, for both common mode and differential mode.

Power Factor Curves (Typical)**PF vs. Output Power**

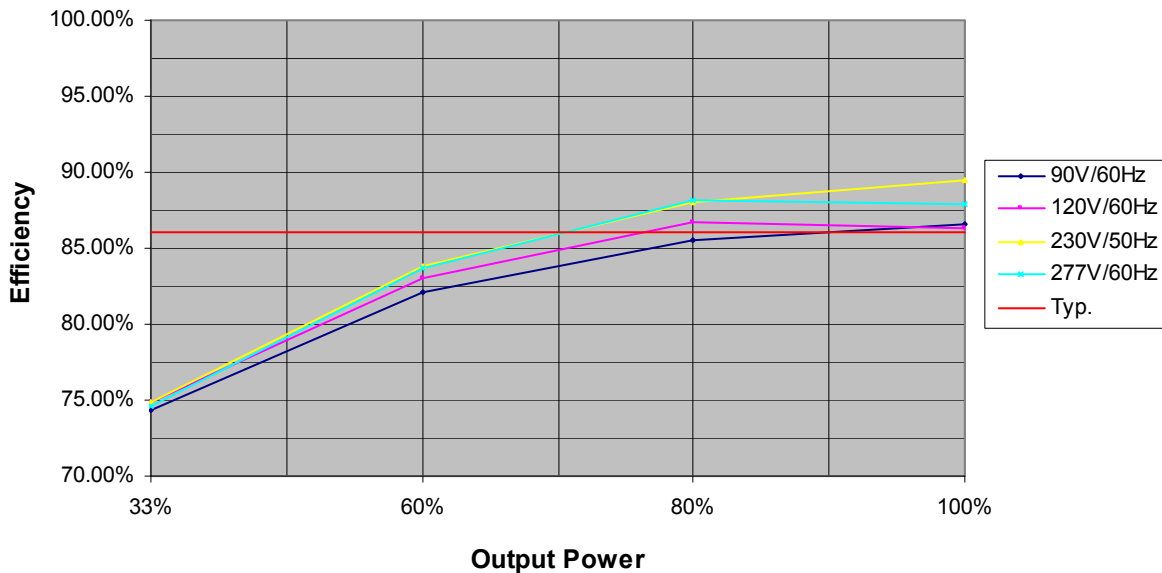
THD Curves (Typical)

THD vs. Output Power



Efficiency Curve (Typical) LD40W-36-C1100-RD

Efficiency vs. Output Power



96W

LP96W-XX-CV

Constant Voltage



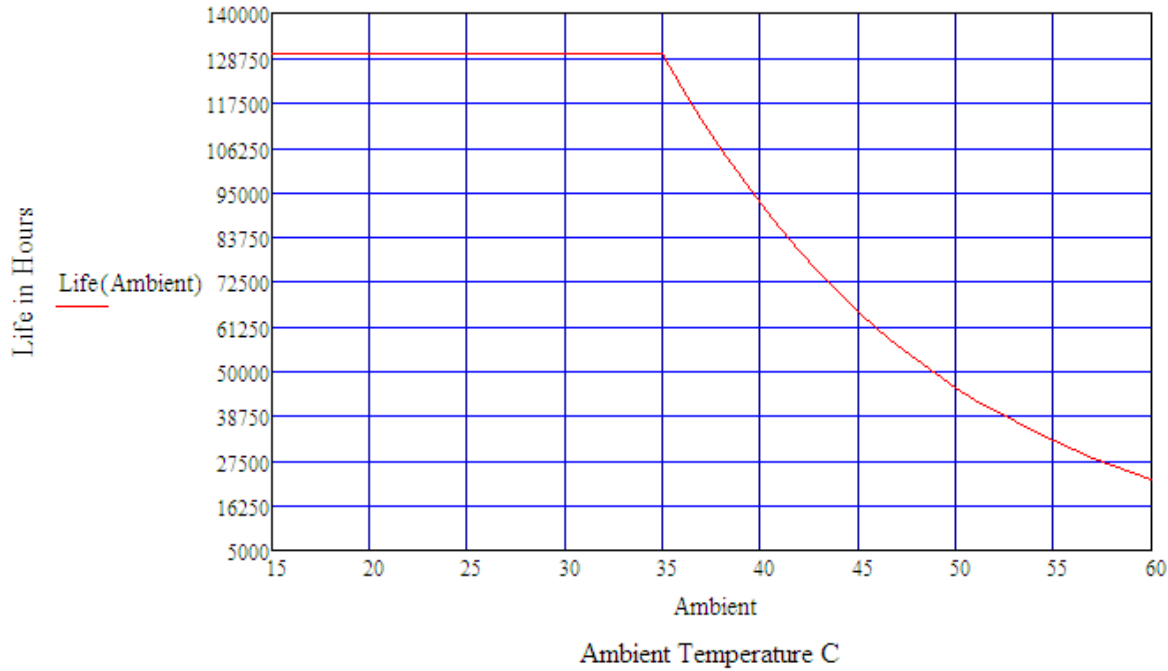
CV LED Optimized Drivers

96 Watt - LP96W-XX-CV Series

CONSTANT VOLTAGE

Life vs. Ambient Temperature

LP96W Estimated Life Full Load @ 120Vac



Life vs. Case (Tc) Temperature

LP96W Estimated Life Full Load @ 120Vac

