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LCW320 Series

XP Power

AC-DC POWER SUPPLIES

320W FAN COOLED



The LCW series of regulated output fan cooled AC-DC power supplies are designed to provide a cost effective solution for industrial electronics and technology applications. Features include wide range AC input from 85-305VAC, active PFC, output voltage adjustment, a power 'ON' LED, low stand-by power consumption, output short circuit protection, over current and over voltage protection. Applications include auxiliary power sources, security installations, lighting control, smart home or office control systems, ticketing and vending applications.

Features

- 320W fan cooled
- Active PFC
- Integrated connector cover
- ITE & industrial approvals
- Class B conducted & radiated emissions
- Input voltage range 85-305VAC
- Regulated single outputs from 5.0V to 48VDC
- Output voltage trim
- Efficiency to 89%
- Short circuit, overvoltage & overload protection
- Conformal coating option
- -30°C to +70°C operating temperature
- 3 year warranty

Applications

Industrial Electronics | Instrumentation | Robotics | Technology

Dimensions

8.46" x 4.53" x 1.18" (215.0 x 115.0 x 30.0mm)

Models & Ratings

Model Number[3]	Output Voltage		Output Current	Ripple & Noise pk to pk[1]	Efficiency[2]	Maximum Capacitive Load	Power
	Nominal	Adjustment Range[4]					
LCW320PS05	5.0V	4.5 - 5.5V	60.0A	150mV	84%	5000µF	300W
LCW320PS12	12.0V	10.8 - 13.2V	26.7A	150mV	86%	5000µF	320W
LCW320PS15	15.0V	13.5 - 16.5V	21.4A	150mV	89%	5000µF	320W
LCW320PS24	24.0V	21.6 - 26.4V	13.4A	150mV	88%	5000µF	320W
LCW320PS48	48.0V	43.2 - 56.0V	6.7A	200mV	89%	3000µF	320W

Notes:

1. Ripple & noise measured with 20MHz bandwidth and 47µF electrolytic capacitor in parallel with 0.1µF ceramic capacitor.
2. Typical efficiencies measured at 230VAC full load.
3. Add suffix -E to model number to specify conformal coating option, MOQ applies, please contact sales.
4. Output power rating must not be exceeded.

LCW320 Series

AC-DC POWER SUPPLIES

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage - Operating	85	115/230	305	VAC	Derate output power linearly from 100% at 100VAC to 80% at 85VAC
	120		430	VDC	Alternative input. Not to be used in addition to AC input. DC input not included in safety approvals, external DC rated fuse required. Derate output power linearly from 100% at 140VDC to 80% at 120VDC
Input Frequency	47	50/60	63	Hz	
Power Factor		0.98			115VAC at full load
		0.95			230VAC at full load
Input Current - Full Load		4.0		A	115VAC
		2.0			230VAC
No Load Input Power			0.3	W	
Inrush Current		35		A	115VAC cold start at 25°C ambient
		65			230VAC cold start at 25°C ambient
Earth Leakage Current			2.0	mA	305VAC
Input Protection	T6.3A/300VAC Internal fuse fitted in line				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions	
Output Voltage	4.5		56	VDC	See Models & Ratings table	
Initial Set Accuracy		±2		%	Full load	LCW320PS05
		±1				All other models
Voltage Adjustment		±10		%		
Minimum Load	0			A	No minimum load required	
Start Up Delay	0.3		1.4	s	115/230VAC full load	
Hold Up Time	12			ms	115/230VAC	
Drift			±0.03	%	After 20 minutes warm up, 230VAC, 0°C to 50°C	
Line Regulation		±0.5		%	Full load	LCW320PS05
		±0.3				LCW320PS12/15
		±0.2				LCW320PS24/48
Load Regulation			±1	%	0-100% load	LCW320PS05
			±0.5			All other models
Transient Response			10	%	Recovery within 1% in less than 5ms for a 50-75% and 75-50% load step	
Ripple & Noise				mV pk-pk	See Models & Ratings table	
Over/Undershoot			10	%	Full load	
Overvoltage Protection			7.0	VDC	LCW320PS05	Auto recovery, hiccup mode
			16.2		LCW320PS12	
			21.8		LCW320PS15	
			32.4		LCW320PS24	
			60.0		LCW320PS48	
Overload Protection	105		150	%	Nominal output current, hiccup with auto recovery	
Temperature Coefficient		±0.03		%/°C		
Short Circuit Protection	Continuous hiccup with auto recovery					

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LCW320 Series

AC-DC POWER SUPPLIES

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		88		%	230VAC Full load (see Models & Ratings table)
Isolation: Input to Output	4000			VAC	
Input to Ground	2000			VAC	Class I construction
Output to Ground	500			VAC	
Switching Frequency		65		kHz	
Power Density			7.07	W/in^3	
Mean Time Between Failure	250			khrs	MIL-HDBK-217F, Notice 2 25°C GB
Weight		1.65 (750)		lb(g)	
Case Material	Aluminium chassis with vented galvanized steel cover (AL1100 and SGCC)				
Conformal Coating Option	Acrylic resin, UL94V-0 rated, certified (UL No. E351072), minimum 30µm coating thickness. Add suffix -E to part number				

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-30		+70	°C	See derating curve
Overtemperature Protection	Hiccup mode with auto recovery, temperature measured internally				
Storage Temperature	-40		+85	°C	
Cooling	Fan cooled, automatic operation				
Humidity	5		90	%RH	Non-condensing
Operating Altitude			5000	m	Derate output linearly from 2000m to 85% at 5000m
Shock and Vibration	Tested according to EN60068-2-27, 10 - 500Hz, 5g (1H) for each X, Y and Z plane				

EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55032	Class B	
Radiated	EN55032	Class B	
Harmonic Current	EN61000-3-2	Class A	
Voltage Flicker	EN61000-3-3		

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EMC: Immunity

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	EN61000-4-2	3	A	Contact ±6kV / Air ±8kV
Radiated Immunity	EN61000-4-3	3	A	10V/m
EFT	EN61000-4-4	3	A	±2kV
Surge	EN61000-4-5	Installation class 3	A	Line to line ±1kV, line to ground ±2kV
Conducted	EN61000-4-6	3	A	10Vrms
Dips	EN61000-4-11	Dip. 100% (0VAC), 10ms	A	
		Dip. 100% (0VAC), 20ms	B	
		Dip. 60% (88VAC), 200ms	A	
		Dip. 30% (154VAC), 500ms	A	
		Dip. 20% (176VAC), 5000ms	A	
Interruptions		Int. 100% (0VAC), 5000ms	B	

Safety Approvals

Certification	Standard	Notes & Conditions
UL	UL62368-1	Information Technology
TUV	EN62368-1	Information Technology
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

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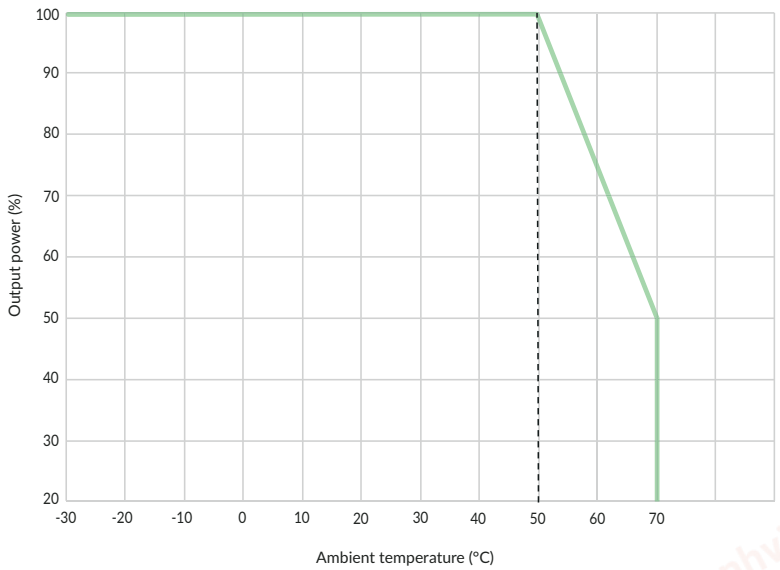
Application Notes

Temperature Derating



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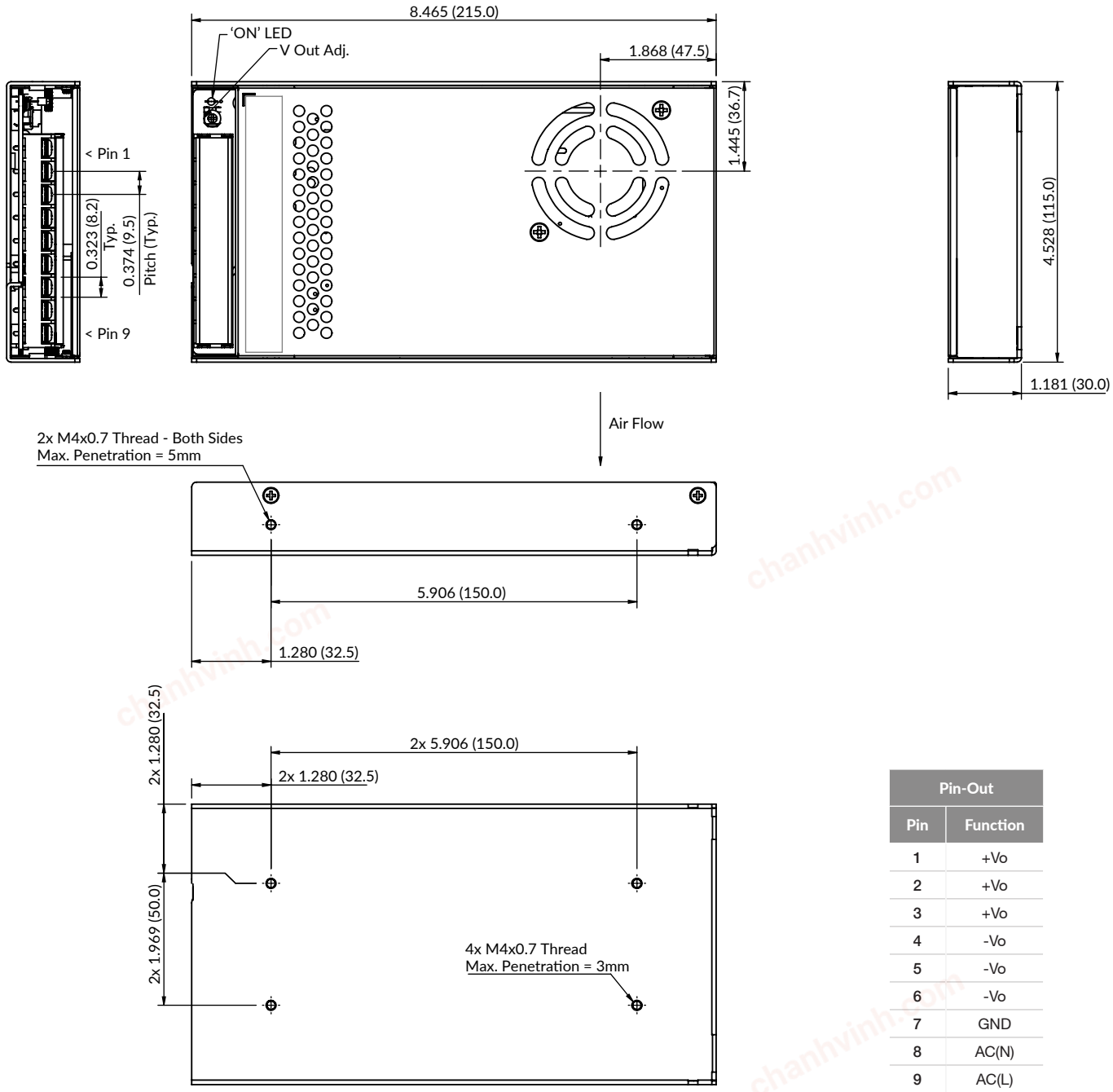
LCW320 Series

Mechanical Details



Pin-Out	
Pin	Function
1	+Vo
2	+Vo
3	+Vo
4	-Vo
5	-Vo
6	-Vo
7	GND
8	AC(N)
9	AC(L)

Connector torque: M3.5, 0.8Nm

Notes:

1. All dimensions are in inches (mm).
2. Tightening torque: M4 fixing, 0.9Nm. M3.5 connectors 0.8Nm
3. General tolerances: ±0.039 (±1.00)
4. Chassis must be connected to protective earth.