

## 150W CONVECTION COOLED

### AC-DC POWER SUPPLIES

The LCW series of regulated output convection cooled AC-DC power supplies are designed to provide a cost effective solution for industrial electronics, technology and household 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

- 150W convection cooled
- Active PFC
- Integrated connector cover
- ITE, industrial & household approvals
- Class B conducted & radiated emissions
- Input voltage range 85-305VAC
- Regulated single outputs from 12 to 48VDC
- Output voltage trim
- Remote On/Off
- Efficiency to 88%
- Short circuit, overvoltage & overload protection
- Conformal coating option
- -30°C to +70°C operating temperature
- 3 year warranty

### Applications



Household Appliances



Industrial Electronics



Instrumentation



Robotics



Technology

### Dimensions

7.05" x 3.89" x 1.18" (179.0 x 99.0 x 30.0 mm)

### Models & Ratings

Model Number <sup>(3)</sup>	Output Voltage		Output Current	Ripple & Noise pk to pk <sup>(1)</sup>	Efficiency <sup>(2)</sup>	Maximum Capacitive Load	Power
	Nominal	Adjustment Range <sup>(4)</sup>					
LCW150PS12	12.0V	10.8 - 13.2V	12.5A	120mV	85%	5000µF	150W
LCW150PS15	15.0V	13.5 - 16.5V	10.0A	120mV	86%	5000µF	150W
LCW150PS24	24.0V	21.6 - 26.4V	6.3A	150mV	87%	5000µF	150W
LCW150PS48	48.0V	45.6 - 55.2V	3.2A	200mV	88%	3000µF	150W

#### 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.

## 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		0.99			115VAC at full load
		0.98			230VAC at full load
Input Current - Full Load		2.5		A	85VAC
		2.0			115VAC
		1.0			230VAC
No Load Input Power			0.3	W	
Inrush Current		30		A	115VAC cold start at 25°C ambient
		45			230VAC cold start at 25°C ambient
Earth Leakage Current			2.0	mA	277VAC/50Hz (Typ)
Input Protection	T3.15A/300VAC Internal fuse fitted in line				

## Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions	
Output Voltage	10.8		55.2	VDC	See Models & Ratings table	
Initial Set Accuracy		±2		%	Full load	LCW150PS12/15
		±1				LCW150PS24/48
Voltage Adjustment		±10		%		
Minimum Load	0			A	No minimum load required	
Start Up Delay		200		ms	115/230VAC full load	
Hold Up Time	16			ms	230VAC	
Line Regulation			±0.5	%	100-264VAC, full load	
Load Regulation			±0.5	%	0-100% load	
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 5ms recovery	
Overvoltage Protection			16.8	VDC	Output will switch off, cycle supply to restart.	LCW150PS12
			24.5			LCW150PS15
			33.6			LCW150PS24
			60.0			LCW150PS48
Overload Protection	105		150	%	Nominal output current, auto recovery. Constant current mode	
Temperature Coefficient		±0.03		%/°C		
Short Circuit Protection	Constant current mode, auto recovery					
Remote On/Off Control	Output is on if +RC pin 1 is floating or at 0V (max. 0.8V) relative to -RC pin 2. If +RC pin 1 is between 4 and 10VDC relative to -RC pin 2 then output is off. See mechanical details.					

## General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		87		%	230VAC Full load (see Models & Ratings table)
Isolation: Input to Output	4000			VAC	Class I construction
Input to Ground	2000			VAC	
Output to Ground	500			VAC	
Insulation Resistance	100			MΩ	Input to output and to ground, 25°C, 95% RH non condensing
Switching Frequency		65		kHz	
Power Density			4.62	W/in <sup>3</sup>	
Mean Time Between Failure	300			khrs	MIL-HDBK-217F, Notice 2 25°C GB
Weight		1.10 (500)		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
Storage Temperature	-40		+85	°C	
Overtemperature Protection	Hiccup mode with auto recovery, temperature measured internally				
Cooling	Natural convection				
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		

## EMC: Immunity

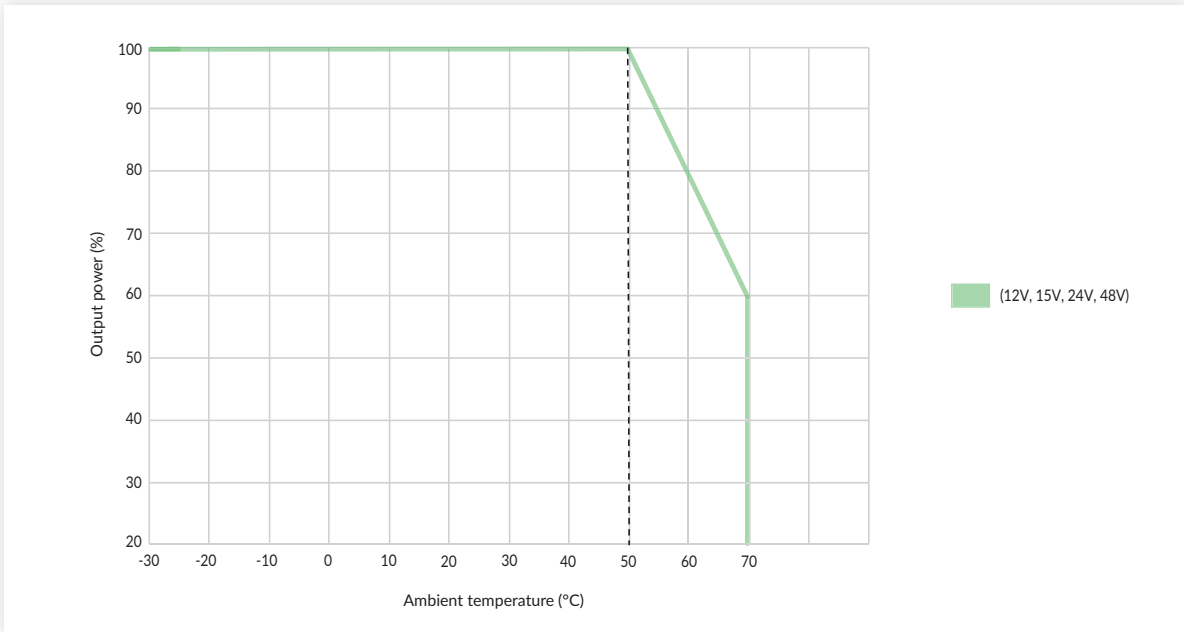
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	EN61000-4-2	3	A	Contact $\pm 6kV$ / Air $\pm 8kV$
Radiated Immunity	EN61000-4-3	3	B	10V/m
EFT	EN61000-4-4	3	A	$\pm 2kV$
Surge	EN61000-4-5	Installation class 3	A	Line to line $\pm 1kV$ , line to ground $\pm 2kV$
Conducted	EN61000-4-6	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

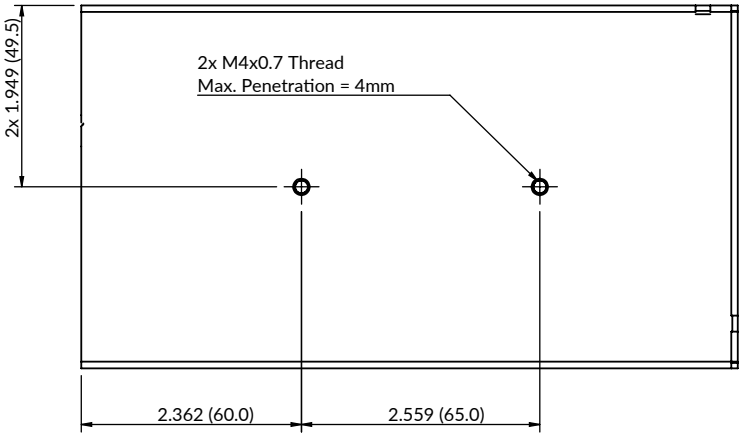
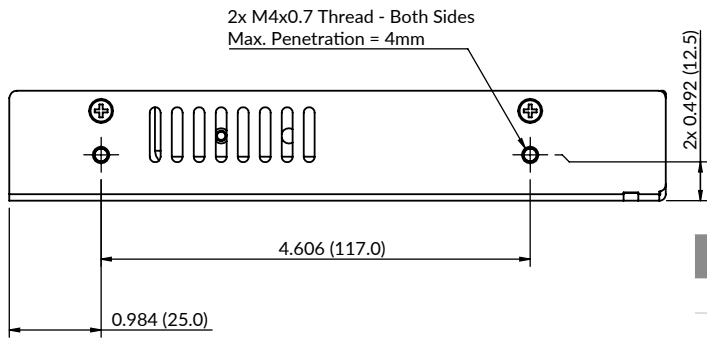
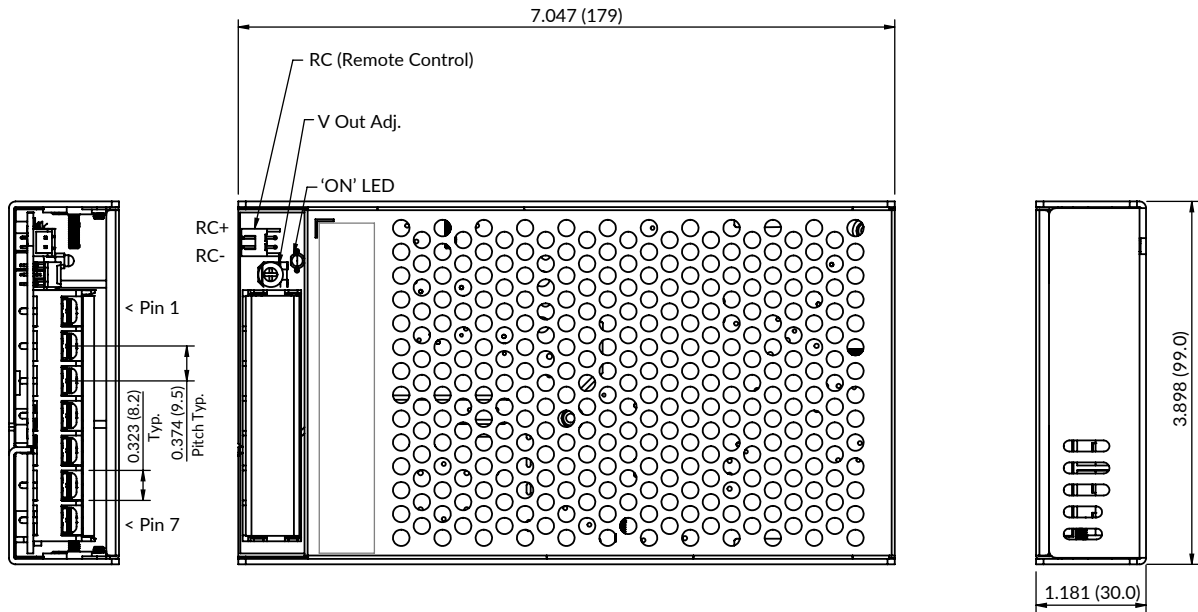
Certification	Standard	Notes & Conditions
UL	UL62368-1	Information Technology
EN	EN62368-1, EN60335, EN61558	Information Technology and Household
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

## Application Notes

### Temperature Derating



Mechanical Details



RC Remote Control Connector	
Suggested connector type	J.S.T S2B-XH-A
Plug	J.S.T XHP-2
Terminals	J.S.T SXH-001T-P0.6"

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