

## 100W 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, output voltage adjustment, 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

- 100W convection cooled
- Integrated connector cover
- ITE, industrial & household approvals
- Class B conducted & radiated emissions
- Input voltage range 85-305VAC
- Regulated single outputs from 5.0V to 48VDC
- Output voltage trim  $\pm 10\%$
- Efficiency to 90%
- Short circuit, overvoltage & overload protection
- Conformal coating option
- $-30^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  operating temperature
- 3 year warranty

### Applications



Household Appliances



Industrial Electronics



Robotics



Technology

### Dimensions

5.079" x 3.819" x 1.181" (129.0 x 97.0 x 30.0mm)

### 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>					
LCW100US05	5.0V	4.5 - 5.5V	18.0A	100mV	85%	10000 $\mu\text{F}$	90W
LCW100US12	12.0V	10.8 - 13.2V	8.5A	120mV	87%	6800 $\mu\text{F}$	100W
LCW100US15	15.0V	13.5 - 16.5V	7.0A	120mV	87%	3300 $\mu\text{F}$	100W
LCW100US24	24.0V	21.6 - 26.4V	4.5A	150mV	89%	2200 $\mu\text{F}$	100W
LCW100US36	36.0V	32.4 - 39.6V	2.8A	200mV	89%	1000 $\mu\text{F}$	100W
LCW100US48	48.0V	43.2 - 52.8V	2.3A	200mV	90%	470 $\mu\text{F}$	100W

#### Notes:

1. Ripple & noise measured with 20MHz bandwidth and 47 $\mu\text{F}$  electrolytic capacitor in parallel with 0.1 $\mu\text{F}$  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 115VAC 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 163VDC to 80% at 120VDC
Input Frequency	47	50/60	63	Hz	
Input Current - Full Load			3.0	A	115VAC
			1.5		230VAC
No Load Input Power			0.5	W	
Inrush Current		35		A	115VAC cold start at 25°C ambient
		65			230VAC cold start at 25°C ambient
Earth Leakage Current			0.75	mA	277VAC/50Hz (Typ)
Input Protection	T6.3A/300VAC Internal fuse fitted in line				

## Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	4.5		52.8	VDC	See Models & Ratings table
Initial Set Accuracy		±2		%	Full load
		±1			LCW100US05 All other models
Voltage Adjustment		±10		%	
Minimum Load	0			A	No minimum load required
Start Up Delay		230		ms	115/230VAC full load
Hold Up Time		10		ms	115VAC
		55			230VAC
Drift			±0.03	%	After 20 minutes warm up, 230VAC, 0°C to 50°C
Line Regulation		±0.5		%	100-264VAC, full load
Load Regulation			±1.0	%	0-100% load
			±0.5		LCW100US05 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 5ms recovery
Overvoltage Protection			7.5	VDC	LCW100US05
			19.2		LCW100US12
			24.0		LCW100US15
			38.4		LCW100US24
			57.6		LCW100US36
			60.0		LCW100US48
Overload Protection	110		160	%	Nominal output current, auto recovery
Temperature Coefficient		±0.03	5	%/°C	
Short Circuit Protection	Continuous, hiccup with auto recovery				

## General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		88		%	230VAC Full load (see Models & Ratings table)
Isolation: Input to Output	4000			VAC	Class I construction
Input to Ground	2000			VAC	
Output to Ground	1250			VAC	
Switching Frequency		65		kHz	
Power Density			4.60	W/in <sup>3</sup>	
Mean Time Between Failure	300			khrs	MIL-HDBK-217F, Notice 2 25°C GB
Weight		0.72 (325)		lb(g)	LCW100US05
		0.67 (305)			All other models
Case Material	Aluminium chassis with vented galvanized steel cover				
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	
Cooling	Natural convection				
Humidity	5		90	%RH	Non-condensing
Operating Altitude			5000	m	
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	

## EMC: Immunity

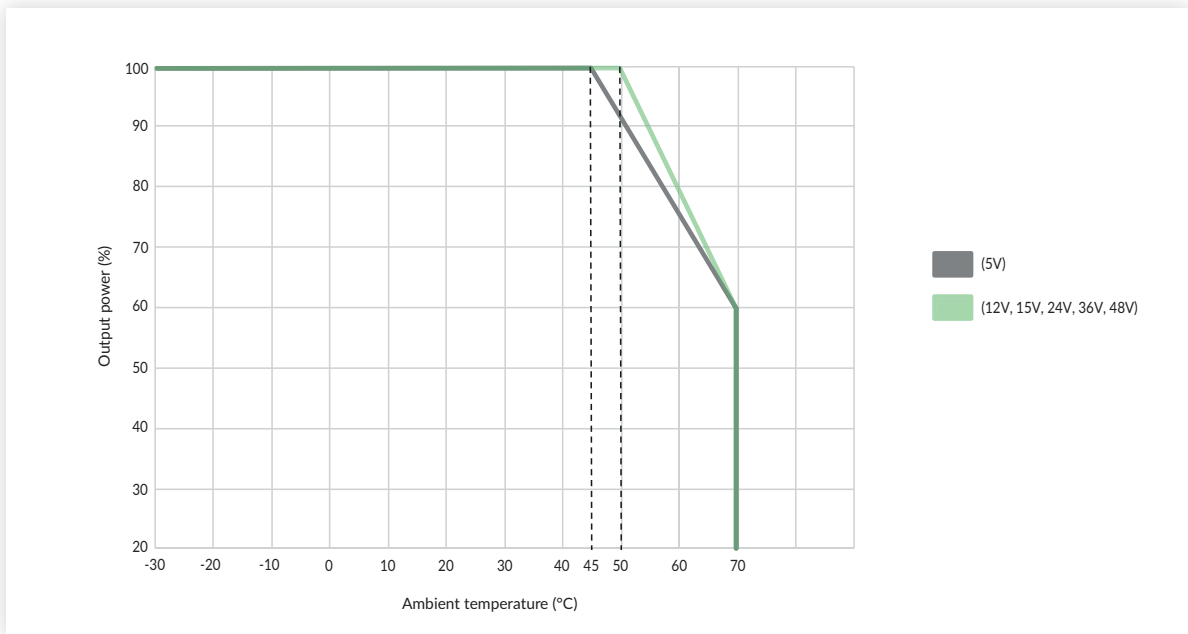
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	EN61000-4-2	3	A	Contact ±6kV/Air ±8kV
Radiated Immunity	EN61000-4-3	3	A	10V/m
EFT	EN61000-4-4	3	A	±2kV
Surge	EN61000-4-5	Installation class 4	A	Line to line ±2kV, line to ground ±4kV
Conducted	EN61000-4-6	3	A	10Vrms
Dips	EN61000-4-11	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

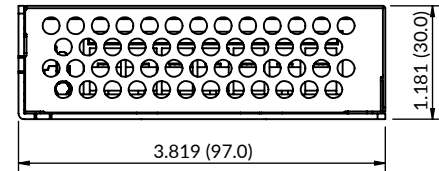
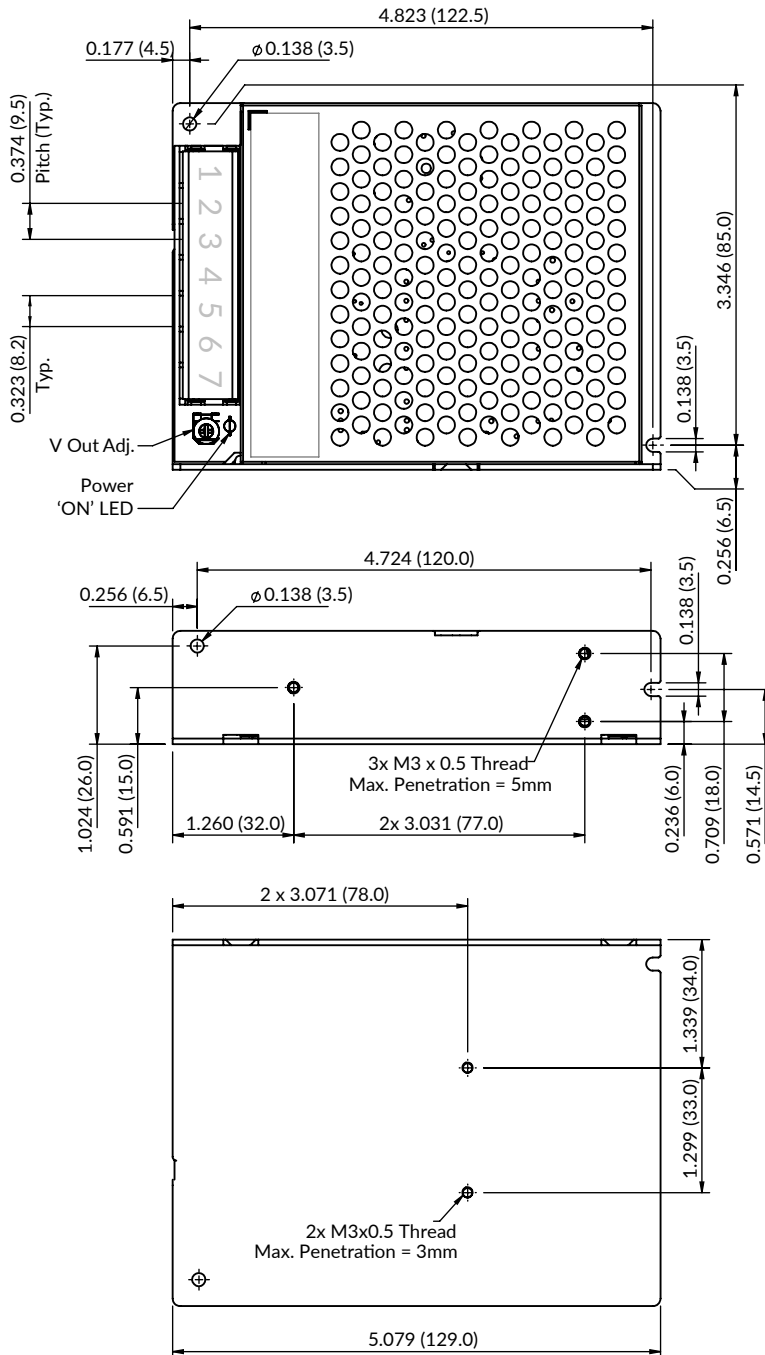
Certification	Standard	Notes & Conditions
UL	UL62368-1	Information Technology
EN	EN62368-1, EN60335, EN61558	Information Technology and Household
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

## Application Notes

### Temperature Derating



## Mechanical Details



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

Connector torque: M3.5, 0.4Nm

### Notes:

- All dimensions are in inches (mm).
- Tightening torque: M3.5, 0.4Nm fixings
- General tolerances:  $\pm 0.039$  ( $\pm 1.00$ )
- Chassis must be connected to protective earth.
- Use 22-14 AWG wire range for connector

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