EML30 series

30W

AC-DC power supplies

The EML30 is a series of open frame and encapsulated 30W AC-DC single output power supplies designed for medical applications.

The series provides a number of flexible mechanical options including open frame PCB mount (suffix -P), open frame chassis mount (suffix -T), encapsulated PCB mount (suffix -E), encapsulated chassis mount with screw terminals (suffix -S) and a DIN rail option (suffix -SD).

With approvals to world-wide medical safety standards, compliance with class B for both conducted and radiated emissions and a 130%, 30s peak load capability, these class II isolation parts benefit system designers with easy integration into the latest medical products and applications.



Features

- Regulated single outputs 3.3V to 48VDC
- Input range 85 to 264VAC
- Open frame or encapsulated PCB mount
- Open frame or encapsulated chassis mount
- Encapsulated DIN rail mount
- Medical (2 x MOPP) approvals
- 3.0kVAC input to output isolation
- Class II construction
- Peak load capability
- No external components required
- <0.3W no load input power
- -25°C to +70°C operating temperature
- Full load to +50°C
- 3 year warranty

Applications

Healthcare

Home healthcare

Medical diagnostic

Dimensions

(-P): 75.2 x 34.6 x 26.7 mm (2.96" x 1.36" x 1.05")
(-T): 87.9 x 34.6 x 25.4 mm (3.46" x 1.36" x 1.00")
(-E): 78.7 x 38.1 x 27.9 mm (3.10" x 1.50" x 1.10")
(-S): 96.0 x 40.0 x 28.5 mm (3.78" x 1.57" x 1.12")

Documentation

For further information click the link or scan the code

→ xppower.com

Models & ratings

Model number[2,3]	Output voltage	Output current		Output power
		Nominal	Peak[1]	
EML30US03	3.3VDC	6.00A	7.80A	20W
EML30US05	5.0VDC	6.00A	7.80A	30W
EML30US09	9.0VDC	3.33A	4.33A	30W
EML30US12	12.0VDC	2.50A	3.25A	30W

Continued on page 2

Notes:

1. Peak load lasting <30s with a maximum duty cycle of 10%, average output power not to exceed nominal.
2. Add suffix to model number to define type: add '-P' for PCB mount, add '-T' for chassis mount, add '-E' for encapsulated, add '-S' for screw terminals.
3. A Screw terminal version (-S) is available with DIN clip attached, add suffix 'D', e.g. EML30US24-SD, DIN rail mounting kit is available as a seperate item, order code ECL25/30 DIN CLIP.

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Models & ratings

Model number[2,3]	Output voltage	Output current		Output power
		Nominal	Peak[1]	
EML30US15	15.0VDC	2.00A	2.60A	30W
EML30US24	24.0VDC	1.25A	1.63A	30W
EML30US36	36.0VDC	0.83A	1.08A	30W
EML30US48	48.0VDC	0.62A	0.81A	30W

Notes:

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Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	85		264	VAC	
	120		370	VDC	
Input frequency	47		63	Hz	
Input current - full load		0.55/0.32		A rms	115/230 VAC
No load input power			0.3	W	
Inrush current		20/40		A	At 115/230VAC
Earth leakage current	Class II construction no earth				
Input protection	T2AL/250VAC internal fuse fitted in line and neutral				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	3.3		48	VDC	See models and ratings table
Initial set accuracy			±1	%	
Output voltage adjustment			±5	%	Not encapsulated units
Minimum load	No minimum load required				
Line regulation			±0.5	%	
Load regulation			±1	%	
Start up delay			2	s	
Start up rise time			14	ms	
Hold up time	12			ms	At full load and 115VAC
Transient response			4	%	Deviation, recovery within 1% in less than 500µs for a 25% load change
Ripple & noise			50	mV pk-pk	3.3-5V, 20MHz bandwidth
			120		12-15V, 20MHz bandwidth
			200		24-48V, 20MHz bandwidth
Overvoltage protection	195		216	% Vnom	3.3V versions, recycle input to reset
	115		140		All other versions, recycle input to reset
Overload protection	120		185	%	
Short circuit protection	Trip & restart (hiccup mode)				
Temperature coefficient			0.05	%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	79		88	%	
Isolation: input to output	4000			VAC	
Switching frequency		70		kHz	
Power density			0.42 (7)	W/cm³ (W/in³)	PCB Mount version
Mean time between failure		>400		khrs	MIL-HDBK-217F, +25°C GB.
Weight		60 (0.13)		g (lb)	Open frame versions
		160 (0.35)			Encapsulated version
		170 (0.37)			Screw terminal version

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-20		+70	°C	Derate linearly from 100% at +50°C to 50% at +70°C
Storage temperature	-40		+85	°C	
Cooling	Convection-cooled				
Humidity			95	%RH	Non-condensing
Operating altitude			3048	m	
Shock	IEC68-2-27, 30g, 11ms half sine, 3 times in each of 6 axes				
Vibration	IEC68-2-6, 2g, 10Hz to 500kHz, 10 mins/cycle, 60 mins each cycle				

EMC: emissions

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032/11	Class B	
Radiated	EN55032/11	Class B	
Harmonic currents	EN61000-3-2	Class A	
Voltage flicker	EN61000-3-3		

EMC: immunity

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	4	A	
Radiated immunity	EN61000-4-3	10 V/m	A	Acc. IEC60601-1-2 4th Ed
EFT/burst	EN61000-4-4	3	A	
Surge	EN61000-4-5	3	A	
Conducted	EN61000-4-6	10Vrms	A	
Magnetic field	EN61000-4-8	30A/m	A	
Dips and interruptions	EN60601-1-2	70% U_T for 500ms	A	
		0% U_T for 20ms	A	
		0% U_T for 5000ms	B	

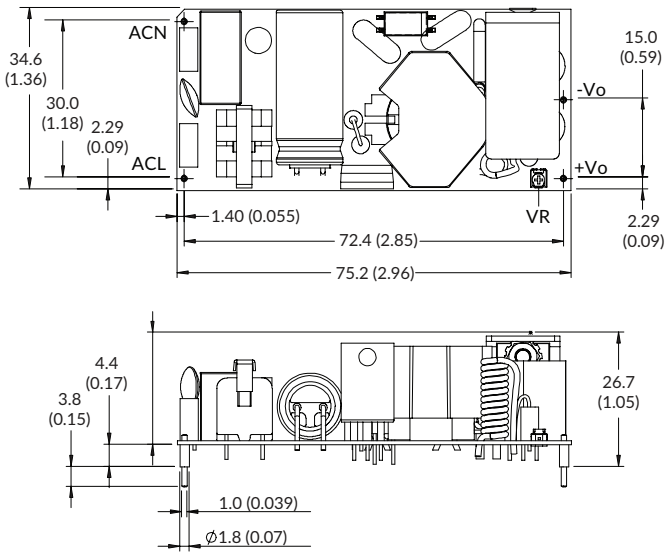
Safety approvals

Certification	Standard	Notes & conditions
CB report	IEC60601-1 Ed 3 Including Risk Management	Medical
UL	ANSI/AAMI ES60601-1:2005 & CSA C22.2, No.60601-1:08	
TUV	EN60601-1/A11:2011	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

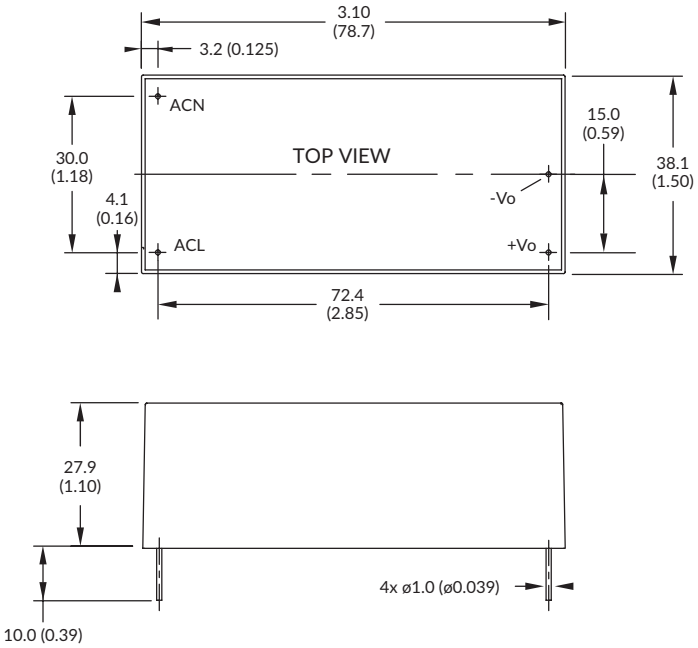
	Means of protection	Category
Primary to Secondary	2 x MOPP (Means of Patient Protection)	IEC60601-1 Ed.3

Mechanical details

Open frame - PCB mount (-P)



Encapsulated (-E)



Notes:

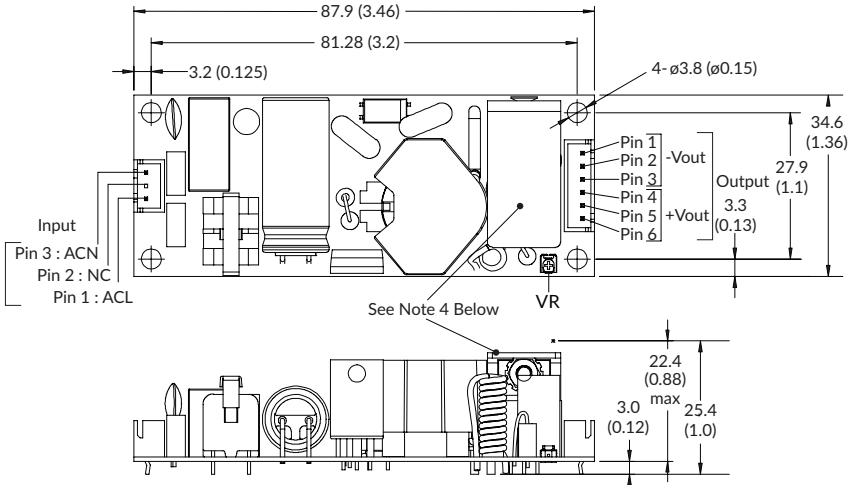
1. Dimensions in mm (inches.
2. Weight: P Version: 60g (0.13 lbs)
   T Version: 60g (0.13 lbs)
   E Version: 160g (0.35 lbs)
   S Version: 170g (0.37 lbs)
3. Tolerances: x.x = ± 0.5 (x.xx = ± 0.02)
   x.xx = ± 0.25 (x.xxx = ± 0.01)
4. Heatsink is only fitted to 3V3, 5V and 9V models

Mating Connectors (-T version only)

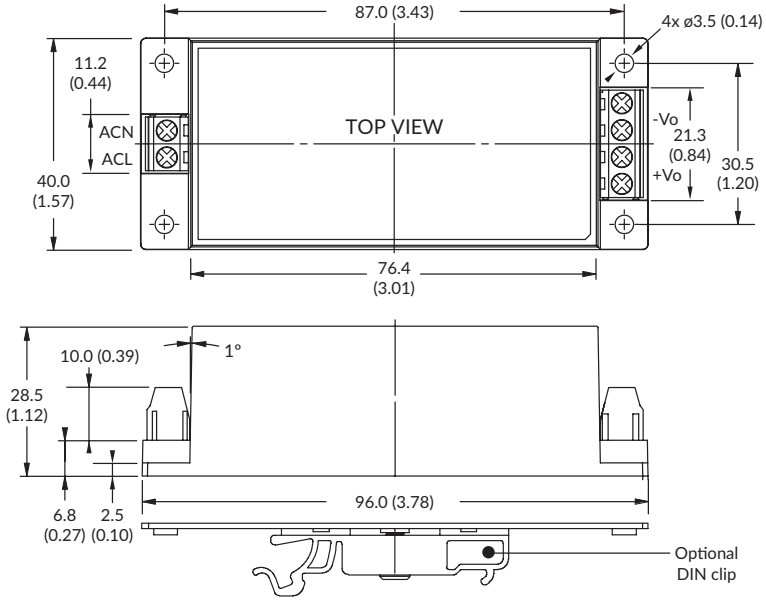
Input Connector: JST XHP-3
Output Connector: JST XHP-6
Crimps: SPH-002T-P0.5S
Cable harness with 300mm wire available, order part no. ECL25 LOOM KIT

Mechanical details

Open frame - Chassis mount (-T)



Screw terminal (-S)



Notes:

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2. Weight: P Version: 60g (0.13 lbs)
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