ALM150 series

XP Power

150W External desktop

AC-DC power supplies

The ALM150 has medical (2 x MOPP), home healthcare and ITE safety approvals, available as class I, or class II construction with a smooth wipe clean IP32 sealed case that is ideal for healthcare applications.

The standard class I version has an IEC320-C14 inlet, the class II version with suffix C2-8 has a polarized IEC320-C8 inlet.



Features

- Regulated single outputs 12V to 48VDC
- Energy efficiency level VI
- European CoC tier 2 compliant
- Medical (2 x MOPP) & ITE approvals
- Home Healthcare approval
- 4th Edition Medical EMC
- Class I as standard, class II optional
- Input voltage range 80 to 264VAC
- Low earth leakage current
- <0.15W standby power
- IP32 environmental rating
- Optional AC cable restraint (class 1 versions with C14 inlet only)
- 0° to +60°C operating temperature
- 3 year warranty

Applications

Medical Diagnostics

Home Healthcare

Healthcare

Dimensions

186.0 x 72.0 x 38.0mm (7.32" x 2.84" x 1.49")

Documentation

For further information click the link or scan the code

→ xppower.com

Models & ratings

Model number(1,2,3)	Output voltage	Output current	Total regulation	Output power
ALM150PS12	12.0VDC	12.5A	±5%	150W
ALM150PS15	15.0VDC	10.0A		
ALM150PS19	19.0VDC	7.9A		
ALM150PS24	24.0VDC	6.2A		
ALM150PS48	48.0VDC	3.1A		

Notes:

1. For class II versions, add suffix 'C2-8' to the end of the part number e.g. ALM150PS24C2-8.
2. For optional input connector retention clip add suffix '-A' to the model number, e.g. ALM150PS24-A (not available for C2 versions)
3. Power de-rated <100VAC for 12 & 15VDC models, refer to input specifications.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage	80		264	VAC	19, 24 & 48VDC models: Derate linearly from 100% load at 90VAC to 80% load at 80VAC, 300VAC/5s maximum. 12 & 15VDC models: Derate linearly from 100% load at 100VAC to 80% load at 80VAC, 300VAC/5s maximum.
Input frequency	47		63	Hz	
Input current		1.8/0.9		A	Measured at 115/230VAC
Inrush current			160	A	230VAC, cold start at +25°C
Power factor		>0.9			EN61000-3-2 Class A
Earth leakage current			250	µA	264VAC, 60Hz
No load input power			0.15	W	
Input protection	T3.15A/250 VAC internal fuse in both line & neutral				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	12		48	VDC	See models and ratings table
Initial set accuracy			±2	%	At 50% load
Minimum load	No minimum load required				
Start up delay		1	2	s	
Start up rise time			50	ms	
Hold up time	20	30		ms	Full load and 115/230VAC
Line regulation			±0.5	%	
Total regulation			±5	%	
Transient response			4	%	Maximum deviation, recovering to less than 1% within 500µs for 50-75-50% load change
Ripple and noise			1.5	% pk-pk	Measured with 20MHz bandwidth and 10µF electrolytic in parallel with 0.1µF ceramic capacitor.
Overshoot		5	10	%	At turn on / turn off
Overload protection	115		175	%	
Overvoltage protection			150	%	Recycle mains to reset
Short circuit protection	Trip and restart (hiccup), auto resetting				
Thermal protection	Measured internally, auto resetting				
Temperature coefficient		0.02		%/°C	
Patient leakage current			95	µA	264VAC, 60Hz

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		93		%	See models and ratings table and curves.
Isolation: input to output			4000	VAC	2 x MOPP
input to ground			1500	VAC	1 x MOPP (Class I versions only)
output to ground			500	VAC	Class I versions only
Switching frequency	45		140	kHz	PFC
	85		190		Main converter
Power density		0.29 (4.83)		cm^3 (W/in^3)	
Mean time between failure		>300		khrs	MIL-HDBK-217F at 25°C GB
Weight		635 (1.4)		g (lb)	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	0		+60	°C	Derate from 100% load at 40°C to 30% load at +60°C
Cooling	Natural convection				
Operating humidity	5		95	%RH	Non-condensing
Storage temperature	-25		+80	°C	
Operating altitude			5000	m	
Shock	IEC68-2-27, 30g, 11ms half sine, 3 times in each of 6 axes				
Vibration	IEC68-2-6, 10-500Hz, 2g 10 mins/sweep, 60 mins for each of 3 axes				

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Emissions	EN55032	Level B	Conducted and radiated
Harmonic currents	EN61000-3-2	Class A	
Voltage flicker	EN61000-3-3		

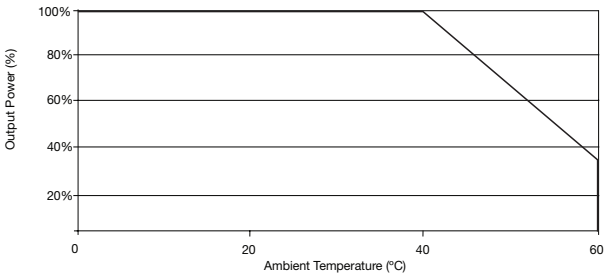
Emissions - immunity

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	3	A	±15kV air/±8kV contact
Radiated immunity	EN61000-4-3	10V/m	A	80-2700MHz. IEC60601-1-2 Ed.4 at other frequencies
EFT/burst	EN61000-4-4	3	A	
Surge	EN61000-4-5	Installation class 3	A	
Conducted	EN61000-4-6	10V	A	
Magnetic fields	EN61000-4-8	4	A	
Dips and interruptions	EN61000-4-11	Dip: 30% 500ms	A	
		Dip: 60% 200ms	A/B	High line/low line
		Dip: 80% 5000ms	A	
		Int: 100% 10ms	A	
		Int: 100% 20ms	A	
		Int: 100% 5000ms	B	
	EN60601-1-2	Dip: 30% 25 AC Cycles	A	
		Dip: 60% 5 AC Cycles	A	230VAC 100% load, 100VAC 25% load
		Int: 100% 0.5 AC Cycles	A	
		Int: 100% 1.0 AC Cycles	A	
		Int: 100% 250 AC Cycles	B	

Safety approvals

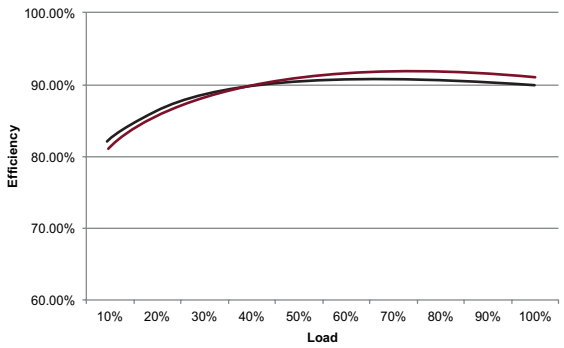
Safety agency	Standard	Notes & conditions
UL	UL62368-1	Information technology
	ANSI/AAMI ES 60601-1/ANSI/AAMI HA60601-1-11	Medical (60601-1-11 is for class II versions only)
EN	EN62368-1	Information technology
	EN60601-1/EN60601-1-11	Medical (60601-1-11 is for class II versions only)
CB	IEC62368-1, IEC60950-1	Information technology
	IEC60601-1/IEC60601-1-11	Medical (60601-1-11 is for class II versions only)
Others	CSA C22.2 No. 60601/CAN/CSA-C22.2 No.60601-1-11, CCC, PSE, KC & RCM	May require additional importer information
CE	Meets all applicable legislation	
UKCA	Meets all applicable legislation	

Derating curve

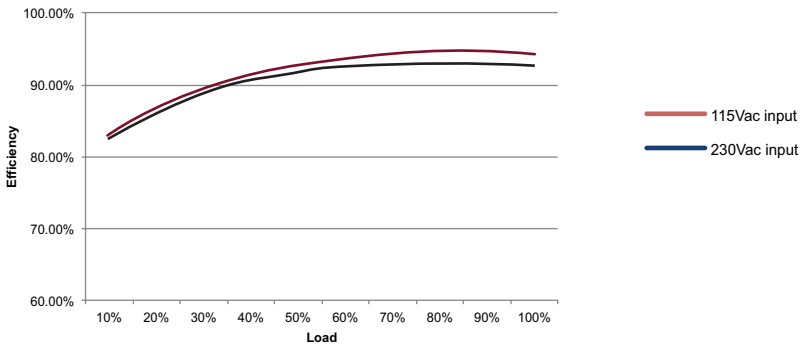


Efficiency curve

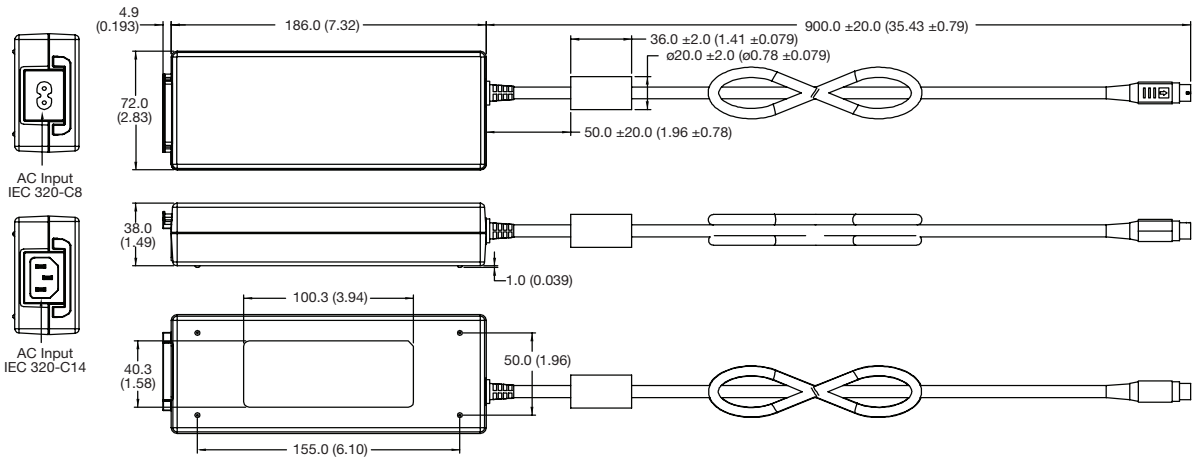
ALM150US12



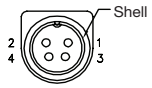
ALM150US24



Mechanical details



4 Pin Power DIN
(KPPX-4P Equivalent
Non-locking type)



Pin	Connection
1	+Vout
2	+Vout
3	RTN
4	RTN
Shell	Standard Models: Functional Earth C2 Models: Floating

Notes:

1. All dimensions shown in mm (inches). Tolerance is 0.5 (0.02) maximum, except output cable length.
2. Weight: 635g (1.4lbs) approx.
3. For European mains lead order part EU-MAINS-IEC for C14 versions, or EU-MAINS-8 for C8 versions.
4. For UK mains lead order part UK-MAINS-IEC for C14 versions, or UK-MAINS-8 for C8 versions.
5. For US mains lead order part US-MAINS-IEC for C14 versions, or US-MAINS-8 for C8 versions.
6. Output connector: 4 pin power din with pin 1 & 2 - positive and pin 3 & 4 - return, equivalent to KPPX-4P (non-locking).