ALM120 Series

AC-DC Power Supplies

XP Power

120 Watts

- Medical & IT Safety Approvals
- Energy Efficiency Level VI & EU CoC Tier 2 Compliant
- 4th Edition Medical EMC
- IP32 Environmental Rating
- Class I and Class II Versions
- <0.15 W Standby Power
- 0 °C to 60 °C Operation
- Low Earth Leakage Current
- 3 Year Warranty

GREEN XP POWER

Dimensions:

ALM120:
6.732 x 2.677 x 1.496" (171.0 x 68.0 x 38.0 mm)

The ALM120 series of medical external power supplies is fully approved to international medical & IT safety standards. It has been designed with very high efficiency and low standby power, enabling it to meet the latest environmental legislation. The unit has a fully sealed enclosure complying with IP32 and a smooth surface finish making it easier to wipe down in a clinical setting.

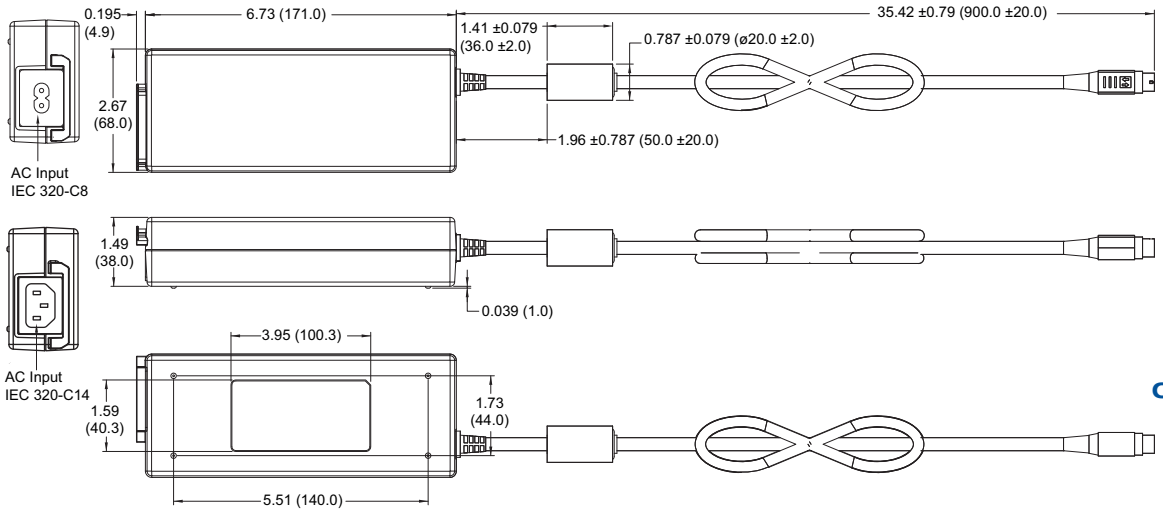
Models & Ratings

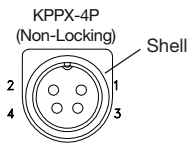
Output Power	Output Voltage	Output Current	Total Regulation	Model Number[1,2,3,4]
120 W	12.0 V	10.00 A	±5%	ALM120PS12
	15.0 V	8.00 A		ALM120PS15
	19.0 V	6.32 A		ALM120PS19
	24.0 V	5.00 A		ALM120PS24

Notes

1. *For class II versions, add suffix 'C2-8' to the end of the part number e.g. ALM120PS24C2-8.*
2. *For optional input connector retention clip add suffix '-A' to the model number, e.g. ALM120PS24-A (not available for C2 versions)*
3. *For optional output connector, DC barrel jack, add suffix -B5 to the model number, e.g. ALM120PS24-B5 (not available for 12 & 15 V models)*
4. *Power de-rated <100 VAC for 12 & 15 V models, refer to input specifications.*

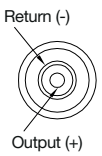
Mechanical Details





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

Optional -B5 Versions



Notes

1. All dimensions shown in inches (mm). Tolerance is 0.02 (0.5) maximum, except output cable length.
2. Weight: 1.1 lbs (0.5 kg) 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). Optional for 19 & 24 models: DC barrel jack; 5.5 mm outer diameter, 2.5 mm inner diameter with centre positive, and 9.5 mm barrel length.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage	80		264	VAC	19 & 24 V models: Derate linearly from 100% load at 90 VAC to 80% load at 80 VAC, 300 VAC/5 s maximum. 12 & 15 V models: Derate linearly from 100% load at 100 VAC to 80% load at 80 VAC, 300 VAC/5 s maximum.
Input Frequency	47		63	Hz	
Input Current		1.2/0.6		A	Measured at 115/230 VAC
Inrush Current			60/120	A	115/230 VAC, cold start at 25 °C
Power Factor		>0.9			EN61000-3-2 Class A
Earth Leakage Current		160	250	µA	264 VAC, 60 Hz
No Load Input Power			0.15	W	
Input Protection	T3.15A/250 VAC internal fuse in both line & neutral				

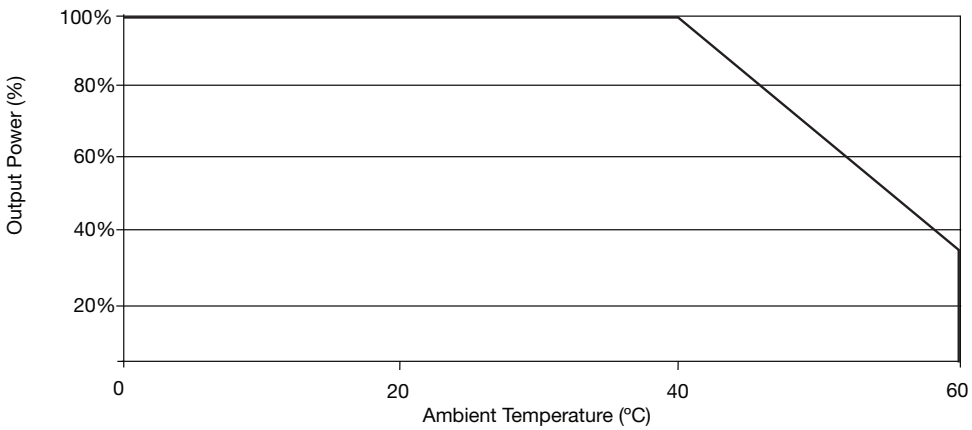
Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	12		24	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 115/230 VAC
Line Regulation			±0.5	%	
Total Regulation			±5	%	
Transient Response			4	%	Maximum deviation, recovering to less than 1% within 500 µs for 50-75-50% load change
Ripple and Noise			1.5	% pk-pk	Measured with 20 MHz Bandwidth and 10 µF electrolytic in parallel with 0.1 µF 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	µ A	264 VAC, 60 Hz

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	-20		+80	°C	
Operating Altitude			5000	m	
Shock	IEC68-2-27, 30 g, 11 ms half sine, 3 times in each of 6 axes				
Vibration	IEC68-2-6, 10-500 Hz, 2 g 10 mins/sweep, 60 mins for each of 3 axes				

Derating Curve

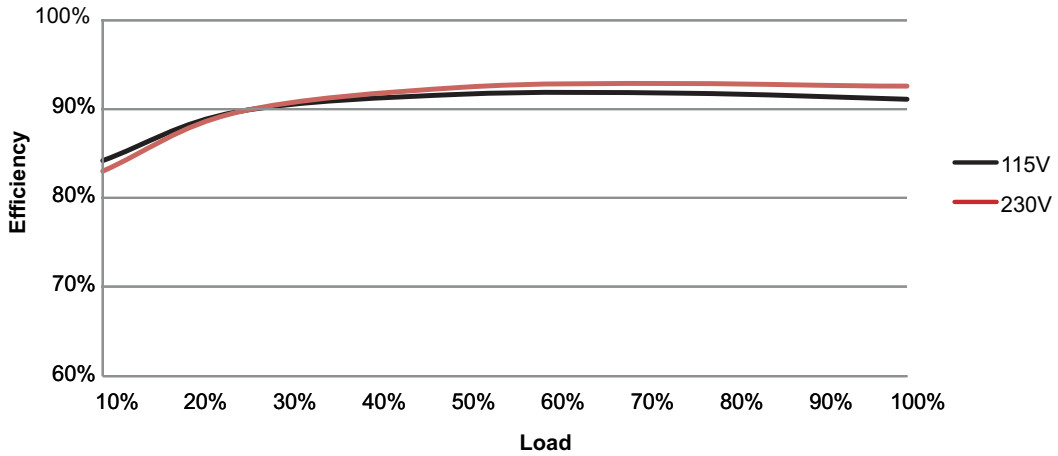


General

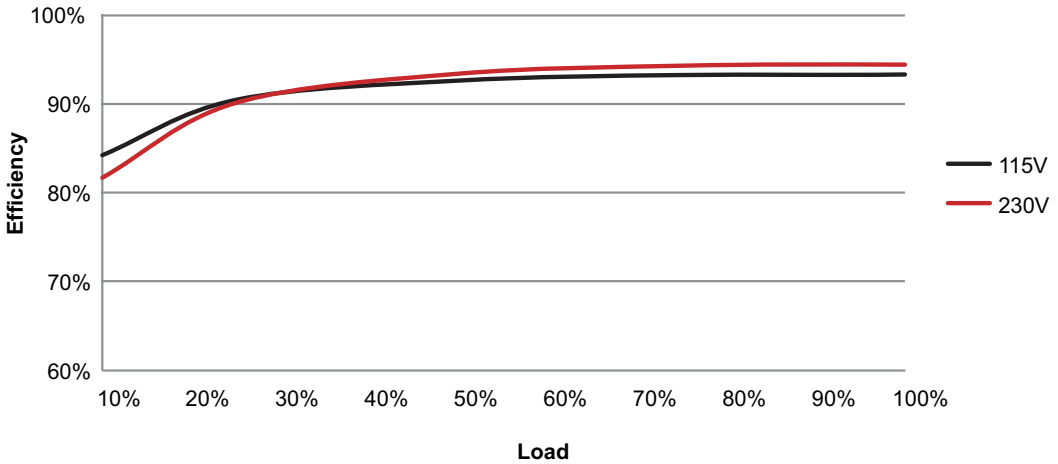
Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		93		%	See curves.
Isolation: Input to Output			4000	VAC	2 x MOPP
Input to Ground			1500	VAC	1 x MOPP (Class I versions only)
Output to Ground			500	VAC	Class I versions only
Switching Frequency	45		140	kHz	PFC
	85		190		Main Converter
Power Density		4.45		W/in^3	
Mean Time Between Failure		>300		kHrs	MIL-HDBK-217F at 25 °C GB
Weight		1.1 (500)		lb (g)	

Efficiency Curves

ALM120PS12



ALM120PS24



EMC: Emissions

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

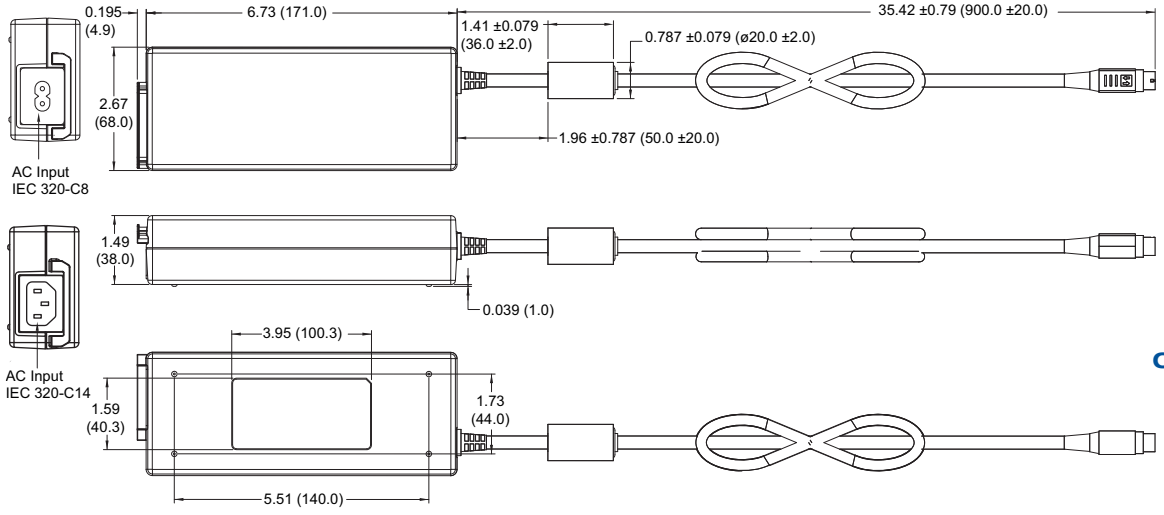
EMC: Immunity

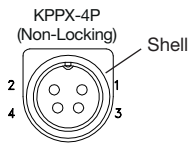
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD	EN61000-4-2	3	A	±15 kV air/±8 kV contact
Radiated	EN61000-4-3	10 V/m	A	80-2700 MHz. IEC60601-1-2 Ed.4 at other frequencies
EFT/Burst	EN61000-4-4	3	A	
Surge	EN61000-4-5	Installation Class 3	A	
Conducted	EN61000-4-6	10 V	A	
Magnetic Fields	EN61000-4-8	4	A	
Dips and Interruptions	EN61000-4-11	Dip: 30% 500 ms	A	
		Dip: 60% 200 ms	A/B	High Line/Low Line
		Dip: 80% 5000 ms	B	
		Int: 100% 10 ms	A	
		Int: 100% 20 ms	A	
		Int: 100% 5000 ms	B	
	EN60601-1-2	Dip: 30% 25 AC Cycles	A	
		Dip: 60% 5 AC Cycles	A	230 VAC 100% load, 100 VAC 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	Safety Standard	Notes & Conditions
UL	UL62368-1	Information Technology
TUV	EN62368-1	
CB	IEC60950-1 & IEC62368-1	
CE	LVD	
UL	ANSI/AAMI ES 60601-1	Medical
CSA	CSA C22.2 No. 60601	
TUV	EN60601-1	
CB	IEC60601-1	
Others	CCC, PSE, KC & RCM	May require additional importer information

Mechanical Details





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

Optional -B5 Versions

Notes

1. All dimensions shown in inches (mm). Tolerance is 0.02 (0.5) maximum, except output cable length.
2. Weight: 1.1 lbs (0.5 kg) 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). Optional for 19 & 24 models: DC barrel jack; 5.5 mm outer diameter, 2.5 mm inner diameter with centre positive, and 9.5 mm barrel length.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

XP Power:

ALM120PS24 ALM120PS19C2-8 ALM120PS19 ALM120PS12C2-8 ALM120PS15 ALM120PS12 ALM120PS15C2-8 ALM120PS24C2-8 ALM120US12 ALM120PS24-B5