



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



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



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.

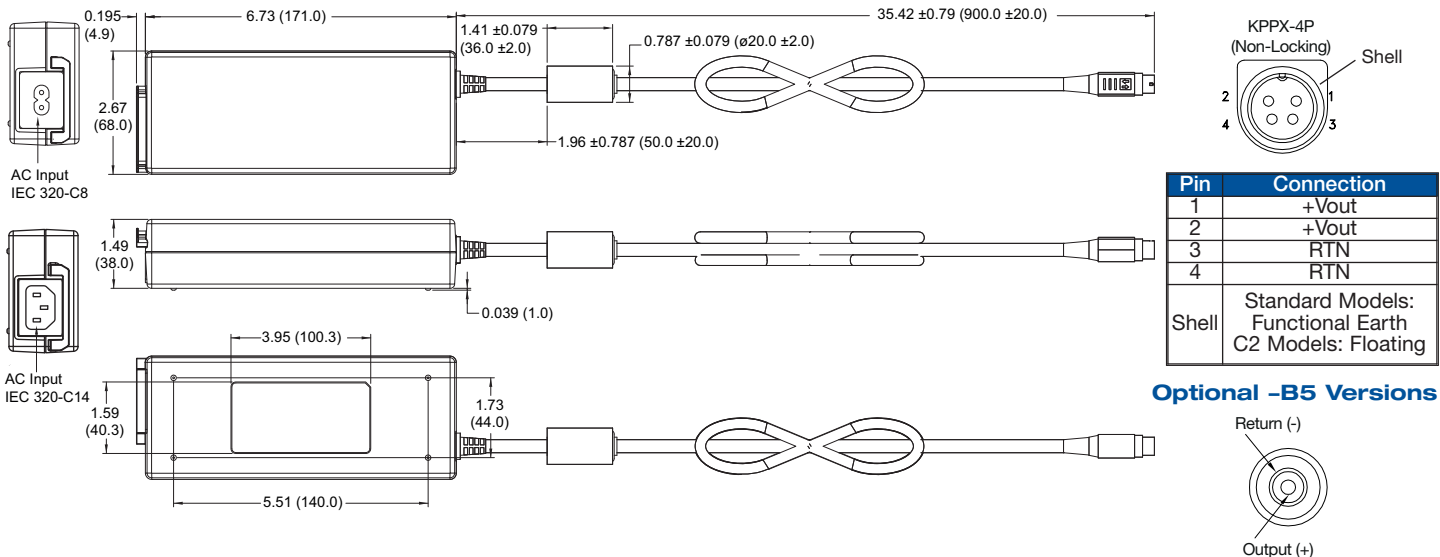
Models & Ratings

| 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

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

Mechanical Details



Notes

- All dimensions shown in inches (mm). Tolerance is 0.02 (0.5) maximum, except output cable length.
- Weight: 1.1 lbs (0.5 kg) approx.
- For European mains lead order part EU-MAINS-IEC for C14 versions, or EU-MAINS-8 for C8 versions.
- For UK mains lead order part UK-MAINS-IEC for C14 versions, or UK-MAINS-8 for C8 versions.
- For US mains lead order part US-MAINS-IEC for C14 versions, or US-MAINS-8 for C8 versions.
- 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 | | | | |

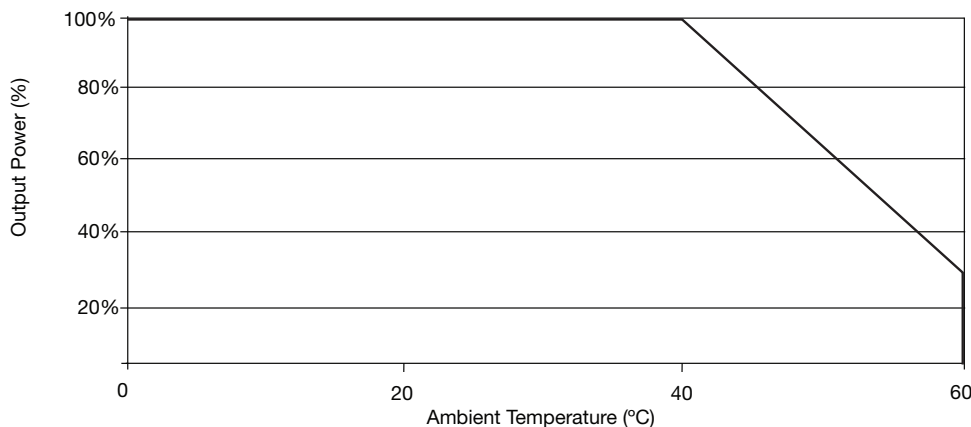
Output

| 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 | 20 MHz bandwidth, 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 | |
| Patent 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 | | | | |

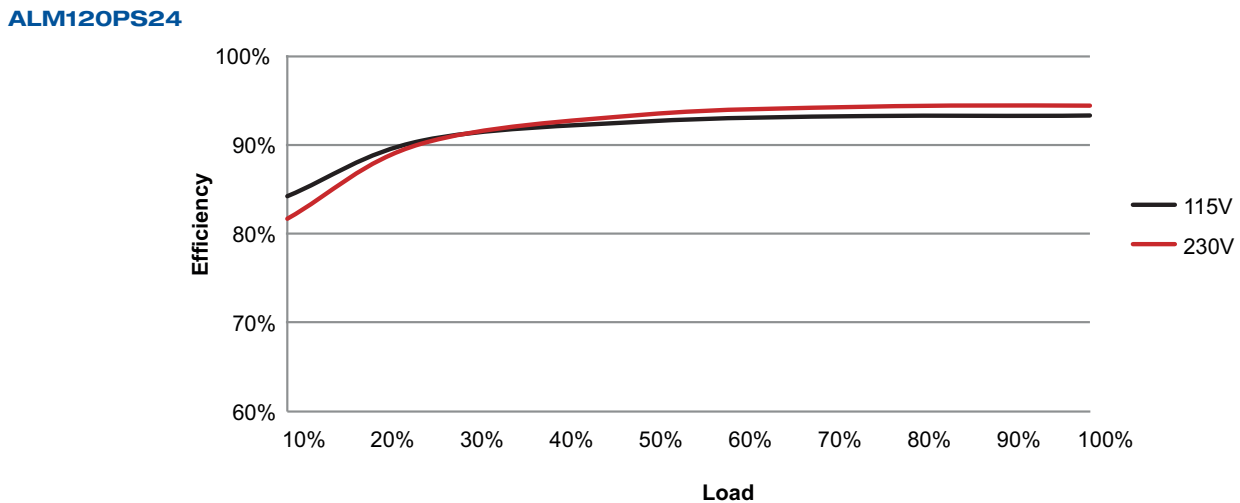
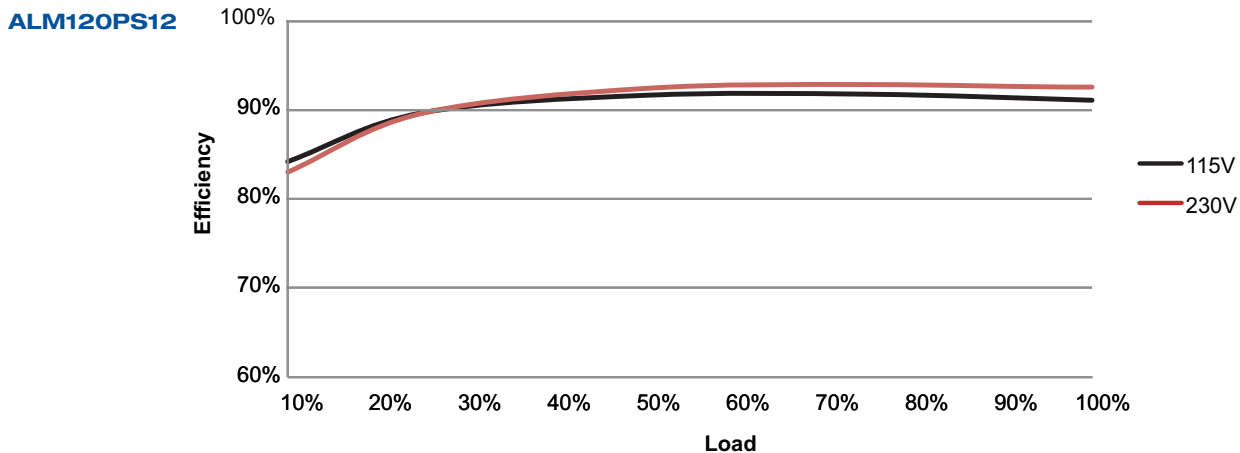
Derating Curve



General

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---|---------|-----------|---------|-------------------|----------------------------------|
| Efficiency | | 93 | | % | See curves. |
| Isolation: Input to Output Input to Ground Output to Ground | | | 4000 | VAC | 2 x MOPP |
| | | | 1500 | VAC | 1 x MOPP (Class I versions only) |
| | | | 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



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 | | |

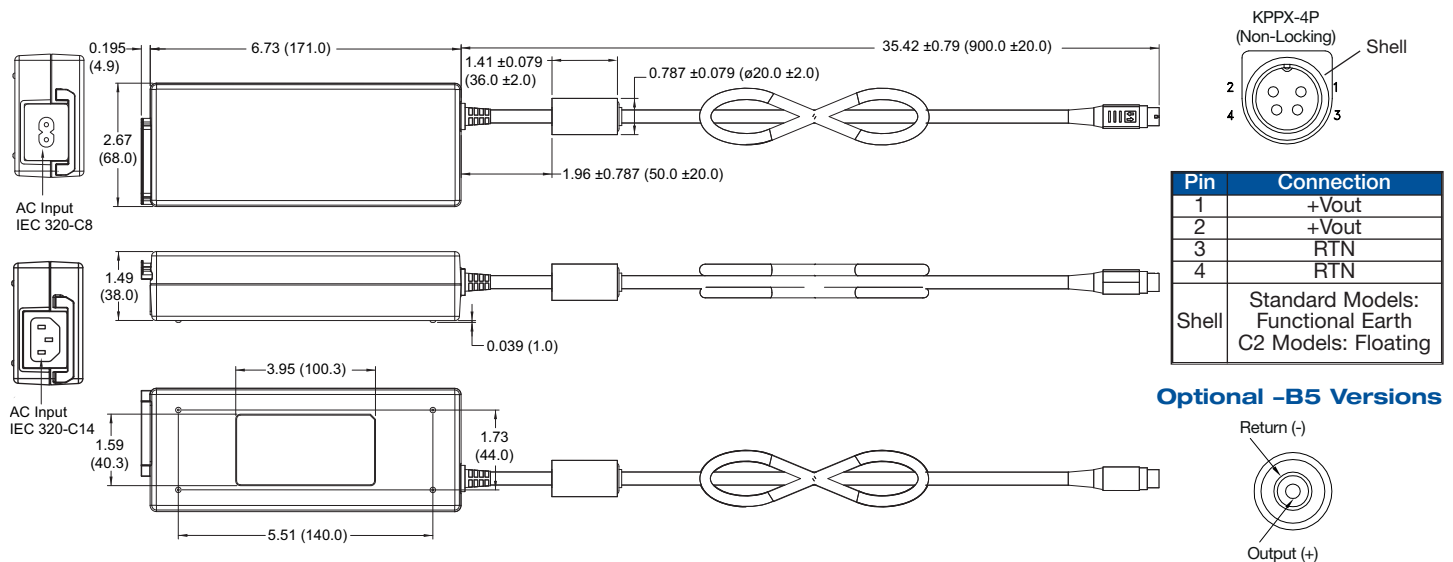
EMC: Immunity

| 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 | High Line/Low Line |
| | | Dip: 60% 200 ms | A/B | |
| | | Dip: 80% 5000 ms | B | |
| | | Int: 100% 10 ms | A | |
| | | Int: 100% 20 ms | A | |
| | EN60601-1-2 | Int: 100% 5000 ms | B | |
| | | Dip: 30% 25 AC Cycles | A | 230 VAC 100% load, 100 VAC 25% load |
| | | Dip: 60% 5 AC Cycles | A | |
| | | 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 |

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