

ARTESYN LPS360-M SERIES

360 Watt AC-DC Power Supply



Advanced Energy's Artesyn LPS360-M series of open-frame AC-DC power supplies comprises five single output models, offering voltages of 12 V, 15 V, 24 V, 36 V or 48 V. Each power supply also provides 12 V fan and 5 V standby outputs. All four models feature ITE and medical safety approvals and accept a universal input of 90—264 Vac or 120—300 Vdc. Comprehensive overcurrent, overvoltage and overtemperature protection is provided as standard. Additional facilities include main output remote sense, Power fail signal and I2C for basic monitoring and control. LPS360-M power supplies have a full load efficiency of up to 92%. Depending on operating conditions, they provide up to 240 watts of output power with free air convection cooling and up to 360 watts with 400 LFM of forced air. Less than 1U high, the power supplies are ideal for light industrial systems as well as patient contact Type BF medical applications.

AT A GLANCE

Total Power:

200 to 360 W

Input Voltage:

90 to 264 Vac
120 to 300 Vdc

Outputs:

Single



SPECIAL FEATURES

- Medical and ITE safeties
- Active power factor correction
- 3" x 5" footprint
- Less than 1U high
- EN61000-3-2 compliant
- Remote sense
- Power fail
- Adjustable main output
- Level B Conducted EMI - Class I or Class II inputs
- Overvoltage protection
- Overload protection
- Thermal overload protection
- 12 V fan output
- LPX200 enclosure kit available
- 5 V Standby output
- Remote Inhibit
- PMBus commands
- RoHS compliant
- Digital I²C interface
- Designed to meet Class I and Class II
- Dual AC fuses
- Suitable for BF Type applications

SAFETY

- TUV 62368, 60601-1
- UL 62368, 60601-1
- cULus 62368, 60601-1
- CB Certificate & report
- CE Mark (LVD & EMC)
- CCC Approval

** LPS360-M tested according to the medical standard IEC 60601-1-2 4th Edition.

ELECTRICAL SPECIFICATIONS

| Input | |
|-------------------------------|---|
| Input range | 90 - 264 Vac; 120 - 300 Vdc |
| Frequency | 47 - 63 Hz |
| Inrush current | 50 A max., cold start @ 25 °C |
| Efficiency | Up to 93% at full load |
| EMI/RFI | FCC Class B conducted; CISPR22 Class B conducted; EN55022 Class B conducted; VDE0878PT3 Class B conducted |
| Power factor | 0.99 typical |
| Safety ground leakage current | 150 μ A @ 132 Vac, 60 Hz for class I, 300 μ A @ 264 Vac, 60 Hz for class II |
| Output | |
| Maximum power | 200 - 240 W (see de-rating) for convection, 360 W with 400 LFM of forced air |
| Adjustment range | 12 V and 24 V models, -0%, +15%; 15 V and 48 V models, -5%, +10%; 36 V model, -15%, +0% |
| Standby output | 5 V @ 1A convection, 2 A with forced air |
| Fan output | 12 V @ 0.5 A convection, 1 A forced air |
| Hold-up time | 20 ms @240 W, 220 Vac input; 12 ms @ 360 W |
| Overload protection | Short circuit protection on all outputs. Case overload protected @ 110 - 160% above rating |
| Overvoltage protection | 30 - 50% above nominal output |
| Logical Control | |
| Power failure | Open collector logic signal goes high 100 - 500 msec after main output; it goes low at least 6 msec before loss of regulation |
| Remote sense | Compensates for 0.5 V lead drop min. Will operate without remote sense connected. Reverse connection protected. |

ENVIRONMENTAL SPECIFICATIONS

| | |
|--------------------------------|---|
| Operating temperature | -20 °C to 50 °C ambient, derate each output as 2.5% per degree from 50 °C to 70 °C; -40 °C startup if Standby output \leq 1A (any valid load on main output); -30 °C startup if Standby output > 1A (any valid load on main output) |
| Storage temperature | -40 °C to +85 °C |
| Electromagnetic susceptibility | Designed to meet EN61000-4; -2, -3, -4, -5, -6, -8, -11 Level 3 |
| Humidity | Operating; non-condensing 10% to 95% RH |
| Vibration | IEC68-2-6 to the levels of IEC721-3-2 |
| MTBF calculated | >2 million hours at full load and 25 °C ambient conditions. 230 Vac input, Bellcore |

ORDERING INFORMATION

| Model Number | Output Voltage | Minimum Load | Maximum Load with Convection Cooling | Maximum Load with Forced Air | Peak Load | Regulation ² | Ripple P/P (PARD) ³ |
|--------------|----------------|--------------|--------------------------------------|------------------------------|-----------|-------------------------|--------------------------------|
| LPS363-M | 12 V | 0 A | 20 A | 30 A | 39 A | ±2% | 120 mV |
| LPS364-M | 15 V | 0 A | 16 A | 24 A | 31 A | ±2% | 150 mV |
| LPS365-M | 24 V | 0 A | 10 A | 15 A | 19.5 A | ±2% | 240 mV |
| LPS366-M | 36 V | 0 A | 6.25 A ⁴ | 11.25 A ⁴ | 14.62 A | ±2% | 360 mV |
| LPS368-M | 48 V | 0 A | 5 A | 7.5 A | 9.75 A | ±2% | 480 mV |

¹ Peak current lasting <3 seconds.

² At 25 °C including initial tolerance, line voltage, load currents and output voltages adjusted to factory settings.

³ Peak-to-peak with 20 mHz bandwidth and 10 µF (tantalum capacitor) in parallel with a 0.1 µF capacitor at rated line voltage and load ranges.

⁴ LPS366-M is limited to the lower of the applicable power rating or current rating, whichever results in lowest power.

⁵ This product is a Component Power Supply and is only for inclusion by professional installers within other equipment and must not be operated as a standalone product. EMC compliance to appropriate standards must be verified at the system level. This product is for sale to OEMs and System Integrators, including through Distribution Channels. It is not intended for sale to End Users.

PIN ASSIGNMENTS

| Connector | LPS360-M | |
|-----------|----------|----------------------------|
| J4 | Pin 1 | Line |
| | Pin 3 | Neutral |
| Barr | Barr-1 | Main output + |
| | Barr-2 | Main output common |
| J5 | Pin 1 | +V1 Remote sense |
| | Pin 2 | -V1 Remote sense |
| | Pin 3 | +5 V Standby |
| | Pin 4 | 5 V Standby return |
| | Pin 5 | +Power fail |
| | Pin 6** | Forced air operation |
| | Pin 7 | Inhibit |
| | Pin 8 | GND |
| | Pin 9 | SDA |
| | Pin 10 | SCL |
| J3 | Pin 1 | +12 V Fan |
| | Pin 2 | 12 V fan Return (isolated) |

** For forced air operation, connect pin 6 to pin 8 of J5.

MATING CONNECTORS

| | |
|---|--|
| J4 AC Input | Molex 09-50-3031 (connector) PINS: 08-52-0072 |
| J6 AC Ground | Molex 01-90020001 |
| DC Output (Barr) | Molex 19141-0058/0063 or 19099/0048 Spade lug based on Cable Ampacity/AWG |
| J5 Control Signals | Molex 90142-0010 (USA) PINS: 90119-2110 |
| J3 Fan Output | Molex 51065-0200 Pins: 50212-8100 |
| The Artesyn Connector Kit #70-841-029, includes all of the above. | |

1 Specifications subject to change without notice.

2 All dimensions in inches (mm), tolerance is $\pm 0.02"$ (± 0.5 mm)

3 Mounting holes MH1 and MH2 should be grounded for EMI purposes.

4 Mounting hole MH1 is safety ground connection.

5 Specifications are for convection rating at factory settings at 115 VAC input, 25 °C unless otherwise stated.

6 This power supply requires mounting on metal standoffs 0.20" (5m) in height.

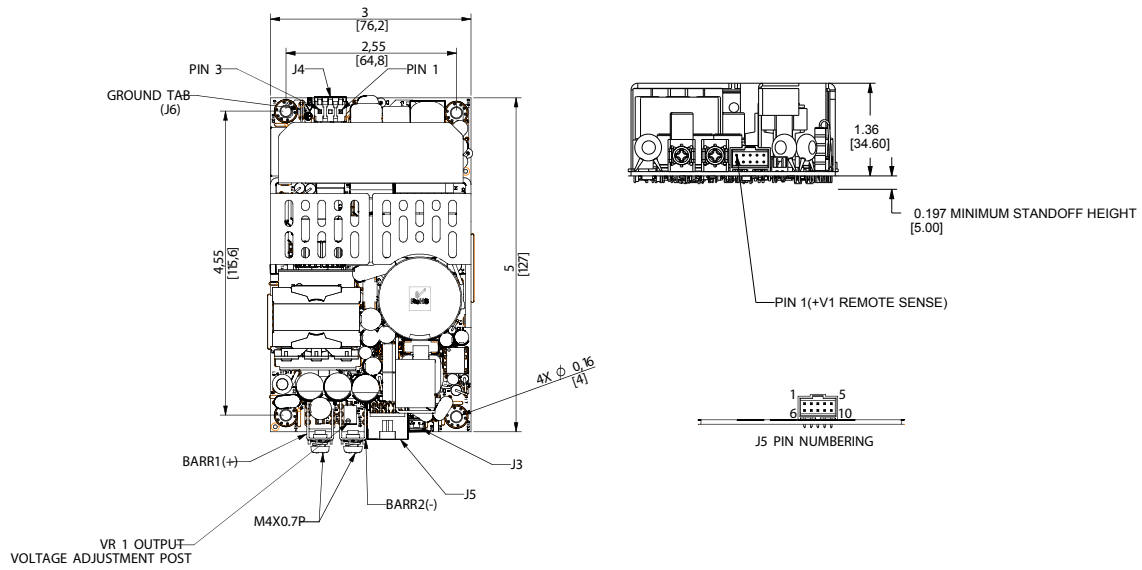
7 Warranty: 3 Years

8 Weight: 0.4kg / 0.88 lb (LPS363-M)

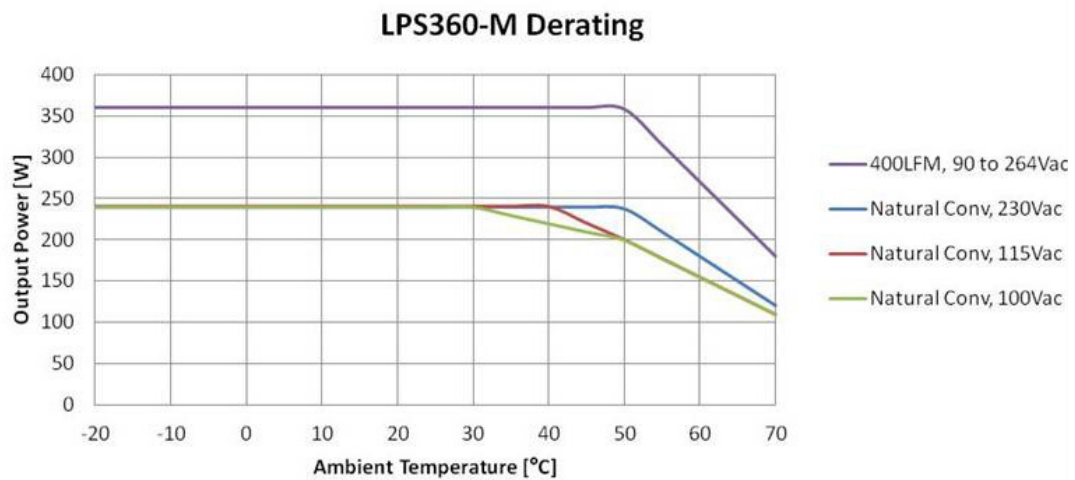
Digital I²C Interface Accessories

| | |
|--|--|
| 73-769-001 | USB to I ² C Adapter with USB Cable |
| 73-841-030 | LPS360-M I ² C Mating Connector |
| Artesyn Connector Kit #73-769-005 includes both of the above | |

MECHANICAL DRAWINGS



PERFORMANCE DATA





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ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

PRECISION | POWER | PERFORMANCE

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