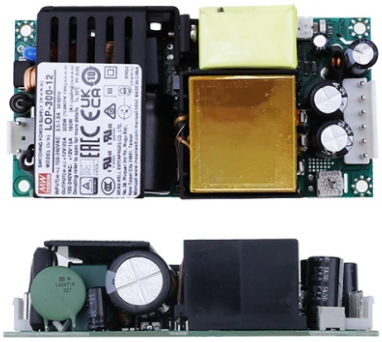
# 300W 4"×2" Low Profile Open Frame Power Supply LOP-300 series



User's Manual

UL62368-1
ANSI/AAMI ES60601-1

BS EN/EN62368-1
BS EN/EN60335-1
BS EN/EN61558-1/-2-16
BS EN/EN60601-1

IEC62368-1
IEC60335-1
IEC61558-1/-2-16
IEC60601-1

AS/NZS 61558-1/-2-16

GB4943.1

TPTC004

ECO, Automate, Industrial, Security, Network, Telecom, Household, Medical, 2xMOPP, BF rated

## Features

- MEAN WELL Patent Number: ZL 202223277512.1
- 4"×2" compact size with low profile (25.4mm)
- 80~264Vac input with PFC, No load power consumption<0.5W
- Global certificates in multi-fields (ITE 62368-1, Medical 60601-1, Household 60335-1, Industrial 61558-1/-2-16)
- 150%peak load @ 3s
- 180W convection, 300W with FAN 10.98CFM forced-cooled
- Suitable for Class Ⅰ or Class Ⅱ installations
- Over voltage category Ⅲ (OVC Ⅲ)
- -40 ~ +80℃ wide range operation temperature
- High efficiency up to 94%
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Extremely low leakage current, 2 x MOPP, suitable for BF medical applications
- Operating altitude up to 5000 meters
- Built-in 12V/0.5A for external FAN
- 3 years warranty

## Applications

- Industrial automation machinery/ control system
- Security system
- Mechanical and electrical equipment
- Electronic instruments, equipments or apparatus
- Network equipment
- Telecom devices
- Power sourcing equipment of PoE
- Home automation
- Medical devices

## GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

## Description

The LOP-300 is a 300W highly reliable, energy-efficient, low-profile open frame type power supply. With a high power density of 37.5W/in$^3$ within the standard size of 4" x 2", it features a universal input voltage range of 80~264VAC, making it suitable for global applications. The series offers a comprehensive selection of standard voltages, including 12V/15V/18V/24V/27V/30V/36V/48V/54V, and comes in a complete range of models.

The main features of the LOP-300 include: low standby power (<0.5W), high efficiency (up to 94%), capable of providing 180W under natural air cooling and 300W with an additional fan. It has a 150% @ 3 seconds overload capacity, a wide operating temperature range of -40 to +80°C, compliance with OVCIII, suitable for Class I (with FG) or Class II (without FG) systems. The product has obtained multiple safety certifications, including 62368-1/60601-1/61558-1/60335-1, and is designed to meet 2xMOPP and extremely low touch leakage current <70 μA, making it suitable for BF class medical devices. With high product safety and excellent EMC performance, it is versatile and applicable in various fields such as ITE, medical, industrial control, home automation and more. It is a cost-effective slim open frame type power supply.

## Model Encoding

LOP - 300 - 12

- 12 → Output voltage (12V/15V/18V/24V/27V/30V/36V/48V/54V)
- 300 → Rated wattage
- LOP → Series name



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# 300W 4"×2" Low Profile Open Frame Power Supply LOP-300 series

## SPECIFICATION

| MODEL | | | LOP-300-12 | LOP-300-15 | LOP-300-18 | LOP-300-24 | LOP-300-27 | LOP-300-30 | LOP-300-36 | LOP-300-48 | LOP-300-54 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OUTPUT | DC VOLTAGE | | 12V | 15V | 18V | 24V | 27V | 30V | 36V | 48V | 54V |
| | CURRENT | Peak(3sec.) | 37.5A | 30A | 25A | 18.8A | 16.7A | 15A | 12.5A | 9.4A | 8.3A |
| | | 10.98CFM | 25A | 20A | 16.7A | 12.5A | 11.1A | 10A | 8.3A | 6.3A | 5.6A |
| | | Convection | 15A | 12A | 10A | 7.5A | 6.7A | 6A | 5A | 3.8A | 3.4A |
| | RATED POWER | Peak(3sec.) | 450W | 450W | 450W | 450W | 450W | 450W | 450W | 450W | 450W |
| | | 10.98CFM | 300W | 300W | 300.6W | 300W | 299.7W | 300W | 299.8W | 302.4W | 302.4W |
| | | Convection | 180W | 180W | 180W | 180W | 180.9W | 180W | 180W | 182.4W | 183.6W |
| | RIPPLE & NOISE (max.) Note.2 | | 120mVp-p | 150mVp-p | 180mVp-p | 200mVp-p | 200mVp-p | 250mVp-p | 250mVp-p | 250mVp-p | 250mVp-p |
| | VOLTAGE ADJ. RANGE (MAIN OUTPUT) | | 11.4~12.6V | 14.3~15.8V | 17.1~18.9V | 22.8~25.2V | 25.6 ~ 28.4V | 28.5 ~31.5V | 34.2 ~37.8V | 45.6 ~50.4V | 52 ~58V |
| | VOLTAGE TOLERANCE Note.3 | | ±3.0% | ±3.0% | ±3.0% | ±2.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% |
| | LINE REGULATION | | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% |
| | LOAD REGULATION | | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% |
| | SETUP, RISE TIME | | 1000ms, 30ms/230VAC 1500ms, 30ms/115VAC at full load | | | | | | | | |
| | HOLD UP TIME (Typ.) | | 16ms@180W load , 8ms@300W load | | | | | | | | |
| INPUT | VOLTAGE RANGE Note.4 | | 80 ~ 264VAC 113 ~ 370VDC | | | | | | | | |
| | FREQUENCY RANGE | | 47 ~ 63Hz | | | | | | | | |
| | POWER FACTOR | | PF>0.95/230VAC PF>0.98/115VAC at full load | | | | | | | | |
| | EFFICIENCY (Typ.) | | 92.5% | 93% | 93.5% | 93% | 93% | 93% | 94% | 94% | 94% |
| | AC CURRENT (Typ.) | | 3.5A/115VAC 1.8A/230VAC | | | | | | | | |
| | INRUSH CURRENT (Typ.) | | COLD START 40A/115VAC 80A/230VAC | | | | | | | | |
| | LEAKAGE CURRENT | | Earth leakage current < 500μA(rms) @ 264VAC , touch current < 70μA(rms) @ 264VAC | | | | | | | | |
| PROTECTION | OVERLOAD | | 105 ~ 150% rated output power, Protection type : Hiccup after 3 sec, recovers automatically(3 sec) after fault condition is removed | | | | | | | | |
| | OVER VOLTAGE | | 13.2 ~ 15.6V | 16.5 ~ 19.5V | 19.8 ~ 23.4V | 26.4 ~ 31.2V | 29.7 ~ 35.1V | 33 ~ 39V | 39.6 ~ 46.8V | 52.8 ~ 62.4V | 59.4 ~ 67.5V |
| | | | Protection type : Shut down o/p voltage, re-power on to recover | | | | | | | | |
| | OVER TEMPERATURE | | Protection type : Shut down o/p voltage, recovers automatically after temperature goes down or re-power on to recover | | | | | | | | |
| FUNCTION | EXTERNAL FAN SUPPLY | | 12V@0.5A for driving a fan (10.98CFM) / 12V@0.1A without fan cooling ; Tolerance -20% ~ +15% at main output 20% rated current | | | | | | | | |
| ENVIRONMENT | WORKING TEMP. | | -40 ~ +80℃ (Refer to "Derating Curve") | | | | | | | | |
| | WORKING HUMIDITY | | 20 ~ 90% RH non-condensing | | | | | | | | |
| | STORAGE TEMP., HUMIDITY | | -40 ~ +85℃, 10 ~ 95% RH non-condensing | | | | | | | | |
| | TEMP. COEFFICIENT | | ±0.03%/℃ (0 ~ 50℃) | | | | | | | | |
| | VIBRATION | | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes | | | | | | | | |

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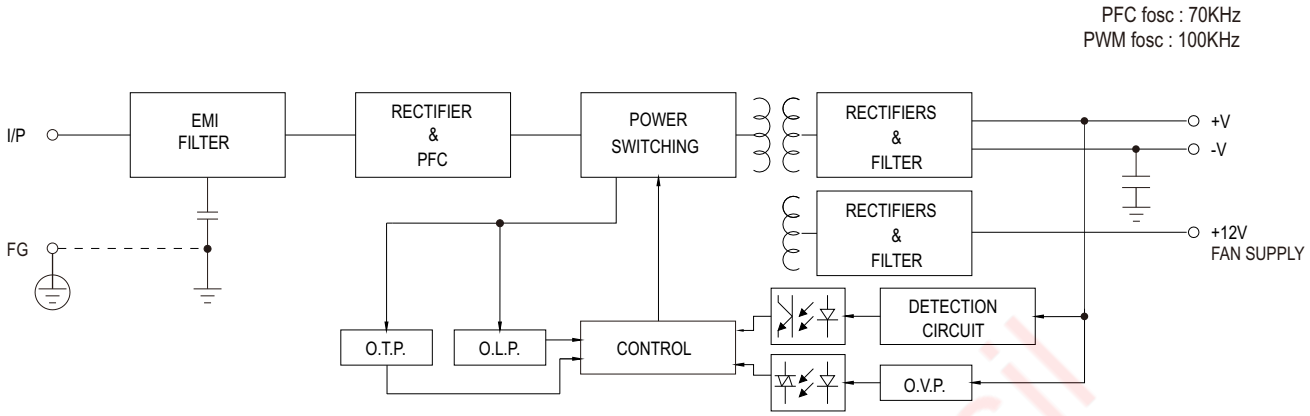
| | | | | |
|---|---|---|---|---|
| SAFETY & EMC (Note 5) | SAFETY STANDARDS | CB IEC62368-1, IEC60335-1, IEC61558-1/-2-16, IEC60601-1;<br>TUV BS EN/EN62368-1, BS EN/EN60335-1, BS EN/EN61558-1/-2-16, BS EN/EN60601-1(3.2 Version);<br>UL UL62368-1, ANSI / AAMI ES60601-1(3.2 Version) ;<br>CCC GB4943.1 ; RCM AS/NZS 61558-1/-2-16; EAC TPTC 004 approved. | | |
| | ISOLATION RESISTANCE | Primary-Secondary: 2xMOPP, Primary-Earth:1xMOPP, Secondary-Earth:1xMOPP | | |
| | OVER VOLTAGE CATEGORY | IEC/EN 61558-1/-2-16(OVC Ⅲ, altitude up to 2000M )<br>IEC/EN/UL 62368-1 (OVC Ⅱ, altitude up to 5000M )<br>IEC/EN 60335-1 (OVC Ⅱ, altitude up to 5000M )<br>IEC/EN 60601-1 (OVC Ⅱ, altitude up to 4000M ) | | |
| | PROTECTIVE EXTRA-LOW VOLTAGE | IEC/EN61558-2-16 (SELV, 12~48V )<br>IEC/EN/UL 62368-1 (SELV / ES1, 12~48V ) | | |
| | WITHSTAND VOLTAGE | I/P-O/P:4KVAC I/P-FG:2KVAC O/P-FG:1.5KVAC | | |
| | ISOLATION RESISTANCE | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH | | |
| | EMC EMISSION | **Parameter** | **Standard** | **Test Level / Note** |
| | | Conducted & Radiated | BS EN/EN55032(CISPR32)<br>BS EN/EN55011(CISPR11) | Class Ⅰ: Class B , Class Ⅱ: Class A |
| | | | BS EN/EN55014(CISPR32) | Class Ⅰ: Class B |
| | | Harmonic Current | BS EN/EN61000-3-2 | Class A |
| | | Voltage Flicker | BS EN/EN61000-3-3 | ------- |
| | EMC IMMUNITY | BS EN/EN55035,BS EN/ EN61000-6-2 | | |
| | | **Parameter** | **Standard** | **Test Level /Note** |
| | | ESD | BS EN/EN61000-4-2 | Level 4, 15KV air ; Level 4, 8KV contact |
| | | Radiated Susceptibility | BS EN/EN61000-4-3 | Level 3, 10V/m( 80MHz~2.7GHz )<br>Table 9, 9~28V/m( 385MHz~5.78GHz ) |
| | | EFT/Burest | BS EN/EN61000-4-4 | Level 3, 2KV |
| | | Surge | BS EN/EN61000-4-5 | Level 4, 4KV/Line-FG ; 2KV/Line-Line |
| | | Conducted | BS EN/EN61000-4-6 | Level 3, 10V |
| | | Magnetic Field | BS EN/EN61000-4-8 | Level 4, 30A/m |
| | | Voltage Dips and interruptions | BS EN/EN61000-4-11 | ＞95% dip 0. 5 periods, 100% dip 1 periods, 30% dip 25 periods,<br>＞95% interruptions 250 periods |
| OTHERS | MTBF | 2805.6K hrs min. Telcordia SR-332 (Bellcore) ; 384.4K hrs min. MIL-HDBK-217F (25℃) | | |
| | DIMENSION | 101.6*50.8* 25.4mm (L*W*H) | | |
| | PACKING | 0.21Kg; 36pcs/10Kg/0.95CUFT | | |
| NOTE | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. Derating may be needed under low input voltages. Please check the derating curve for more details.<br>5. The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf)<br>※ Product Liability Disclaimer ： For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx | | | |

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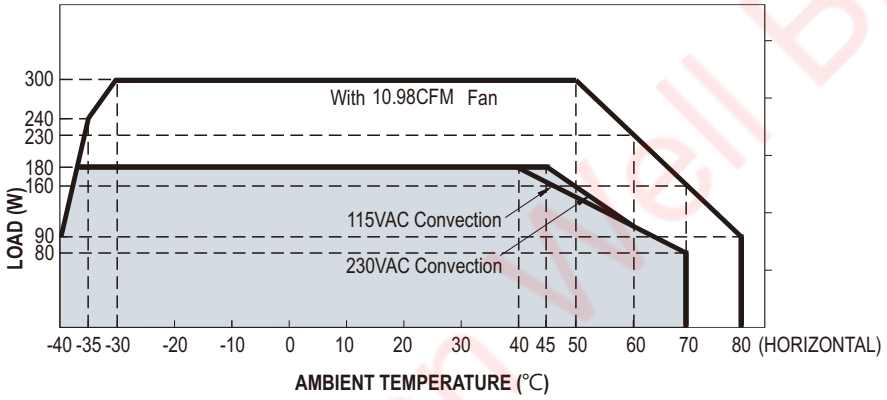


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## ■ Block Diagram

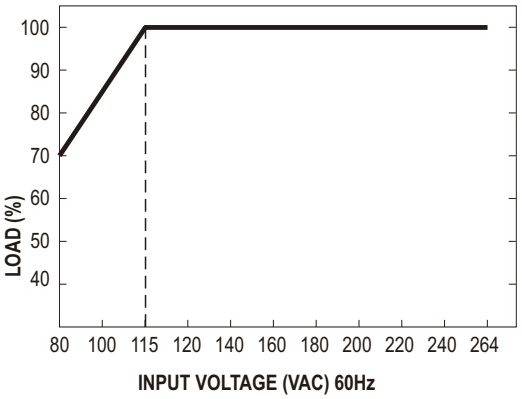



## ■ Derating Curve




| Cooling | Max. Output Power |
|---|---|
| Free air convection | 180W |
| Force-cooled with external Fan | 300W |

## ■ Output Derating VS Input Voltage



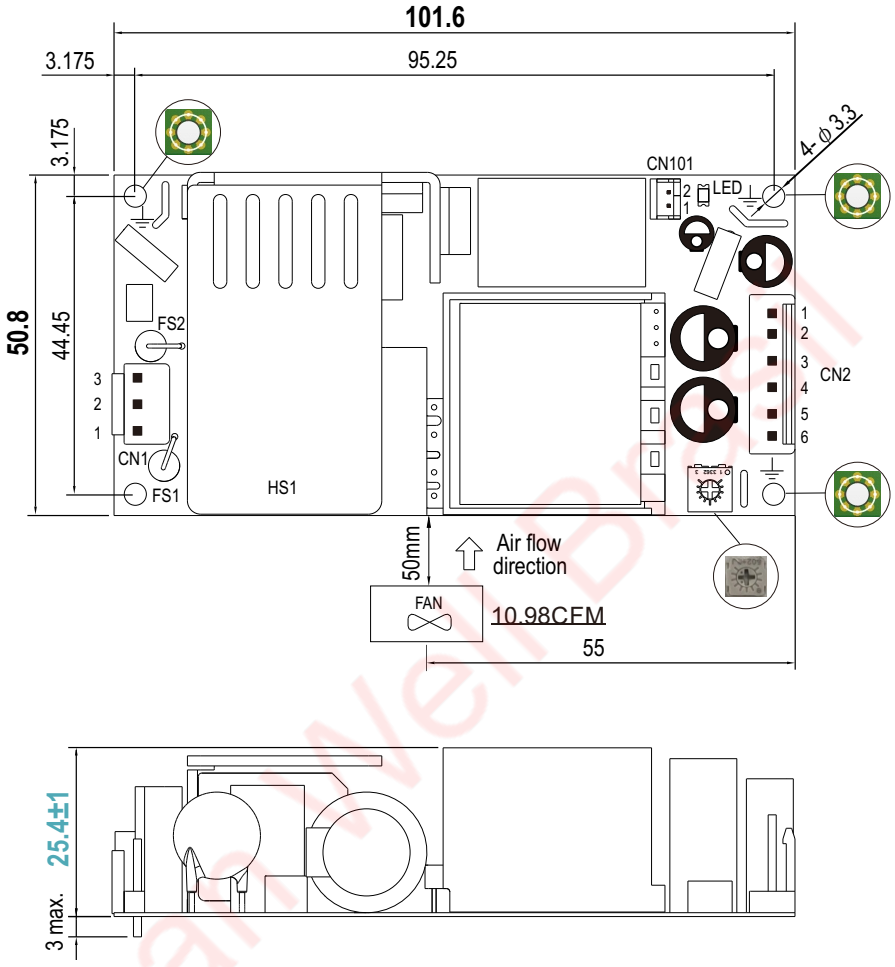

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## ■ Mechanical Specification

Unit:mm







AC Input Connector (CN1) : JST B3P-VH or equivalent

| Pin No. | Assignment | Mating Housing | Terminal |
|---|---|---|---|
| 1 | AC/L | JST VHR or equivalent | JST SVH-21T-P1.1 or equivalent |
| 2 | No Pin | | |
| 3 | AC/N | | |

DC Output Connector (CN2) : JST B6P-VH or equivalent

| Pin No. | Assignment | Mating Housing | Terminal |
|---|---|---|---|
| 1,2,3 | +V | JST VHR or equivalent | JST SVH-21T-P1.1 or equivalent |
| 4,5,6 | -V | | |

FAN Connector(CN101) : JSTB2B-PH-K-S or equivalent

| Pin No. | Assignment | Mating Housing | Terminal |
|---|---|---|---|
| 1 | +12Vaux | JST PHR-2 or equivalent | JST SPH-002T-P0.5S or equivalent |
| 2 | DC COM | | |

Note:

Class Ⅰ System: Mounting holes marked with ⏚ have to be connected to safety earth.

Class Ⅱ System: Unnecessary to connect with safety earth.

## ■ Installation Manual

Please refer to : http://www.meanwell.com/webnet/search/InstallationSearch.html



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