

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



Features

- MEAN WELL Patent Number: ZL 202223277512.1
- 5"×3" compact size with **low profile (30.5mm)**
- 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
- **320W** convection, **500W** with FAN **23CFM** forced-cooled
- Suitable for **Class I** or **Class II** installations
- Over voltage category **III (OVC III)**
- **-40 ~ +80°C** wide range operation temperature
- High efficiency up to 95%
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Extremely low leakage current
- Operating altitude up to **5000 meters**
- Built-in 12V/0.5A for external FAN
- Built-in Remote sense
- 3 years warranty

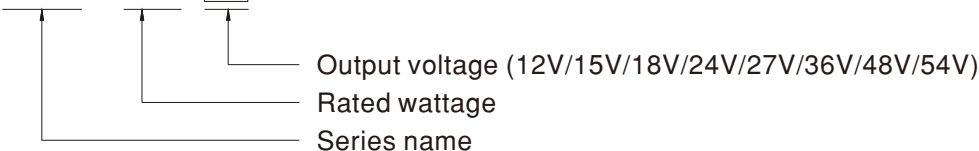
Description

LOP-500 is a 500W highly reliable green PCB type low profile power supply with a high power density (27.8W/in³) on the 5" by 3" footprint. It accepts 80~264VAC input and offers various output voltages between 12V and 54V. The working efficiency is up to 95% and the extremely low no load power consumption is down below 0.5W.

LOP-500 is able to be used for both Class I (with FG) and Class II(no FG) system design. LOP-500 is equipped with complete protection functions; It is complied with the international safety regulations such as IEC/BS EN/EN/UL62368-1, IEC/BS EN/EN60335-1, IEC/BS EN/EN61558-1/-2-16, IEC/BS EN/EN60601-1. LOP-500 serves as a high price-to-performance power supply solution for various industrial applications. The extremely low leakage current is less than 500 μA. In addition, it conforms to the international medical regulations (2*MOPP) and EMC BS EN/EN55011, perfectly fitting all kinds of BF rated "patient contact" medical system equipment.

Model Encoding

LOP - 500 - 12



Applications

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

GTIN CODE

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



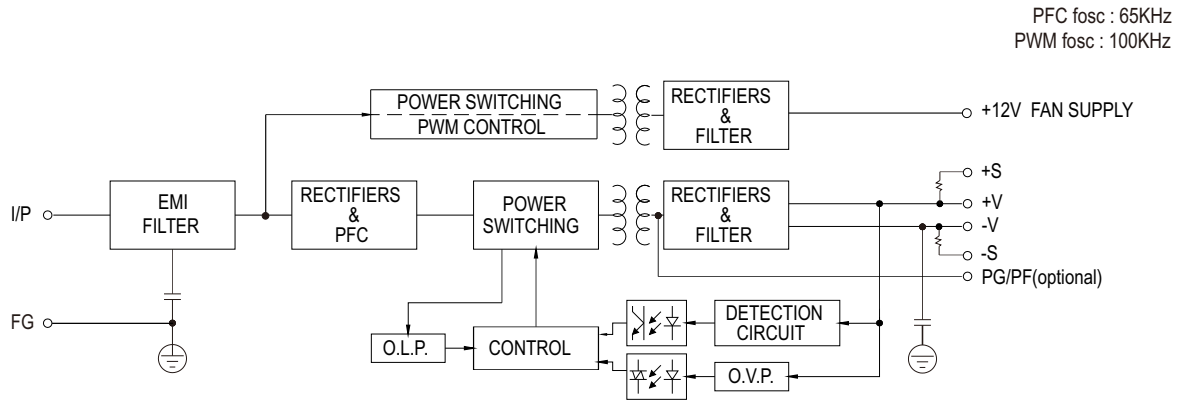
SPECIFICATION

| MODEL | | LOP-500-12 | LOP-500-15 | LOP-500-18 | LOP-500-24 | LOP-500-27 | LOP-500-36 | LOP-500-48 | LOP-500-54 | |
|---------------------|---|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------|
| OUTPUT | DC VOLTAGE | 12V | 15V | 18V | 24V | 27V | 36V | 48V | 54V | |
| | CURRENT | Peak(3sec.) | 62.5A | 50A | 41.7A | 31.3A | 27.8A | 20.8A | 15.6A | 13.9A |
| | | 23CFM | 41.6A | 33.3A | 27.8A | 20.9A | 18.5A | 13.9A | 10.4A | 9.3A |
| | | Convection | 25A | 20A | 16.7A | 13.4A | 11.9A | 8.9A | 6.7A | 6A |
| | RATED POWER | Peak(3sec.) | 750W | 750W | 750.6W | 751.2W | 750.6W | 748.8W | 748.8W | 750.6W |
| | | 23CFM | 499.2W | 499.5W | 500.4W | 501.6W | 499.5W | 500.4W | 499.2W | 502.2W |
| | | Convection | 300W | 300W | 300.6W | 321.6W | 321.3W | 320.4W | 321.6W | 324W |
| | 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 | 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.) | 26ms@300W load , 16ms@500W 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.) | 93.5% | 94.5% | 94.5% | 94.5% | 95% | 95% | 95% | 95% | 95% |
| | AC CURRENT (Typ.) | 5.2A/115VAC | | 2.6A/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 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 | 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 | | | | | | | | | |
| FUNCTION | EXTERNAL FAN SUPPLY | 12V@0.5A for driving a fan / 12V@0.2A for without fan ; (23CFM) tolerance -15% ~+15% at main output 20% rated current | | | | | | | | |
| | REMOTE SENSE | The remote sensing compensates voltage drop on the load wiring up to 0.5V | | | | | | | | |
| | POWER GOOD / POWER FAIL (optional) | 500ms>PG>10ms ; The TTL signal goes high with 10ms to 500ms delay after power set up ; The TTL signal goes low at least 1ms before Vo below 90% of rated value; TTL(0 ~ 1V), TTH(2 ~ 5V) | | | | | | | | |
| ENVIRONMENT | WORKING TEMP. | -40 ~ +80°C (Refer to "Derating Curve") | | | | | | | | |
| | WORKING HUMIDITY | 20 ~ 90% RH non-condensing | | | | | | | | |
| | STORAGE TEMP., HUMIDITY | -40 ~ +85°C, 10 ~ 95% RH non-condensing | | | | | | | | |
| | TEMP. COEFFICIENT | ±0.03%/°C (0 ~ 50°C) | | | | | | | | |
| | VIBRATION | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes | | | | | | | | |

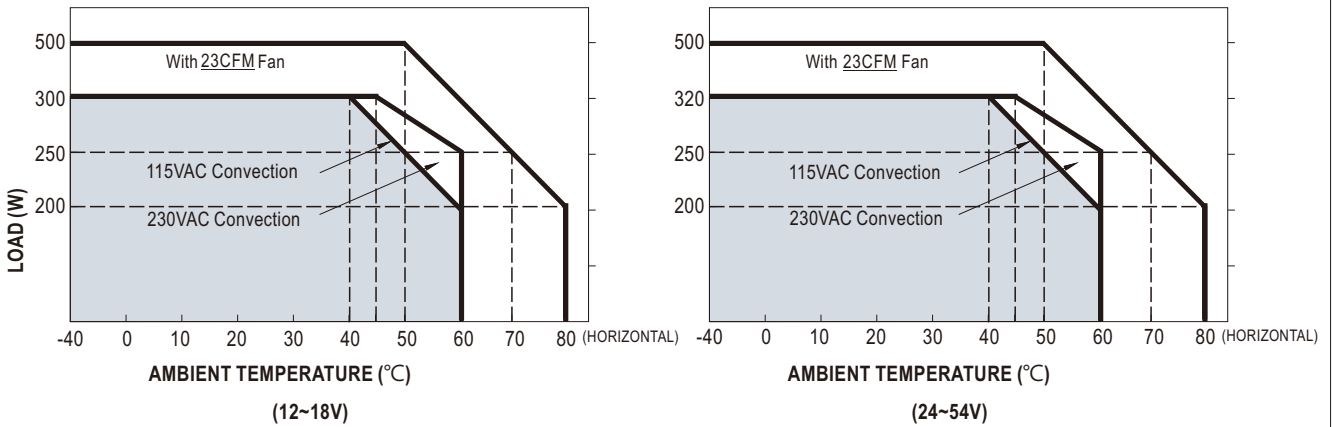


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|--------------------------------|--|---|--|--|
| SAFETY & EMC (Note 5) | SAFETY STANDARDS | CB IEC62368-1, IEC60335-1, IEC61558-1/-2-16, IEC60601-1; TUV BS EN/EN62368-1, BS EN/EN60335-1, BS EN/EN61558-1/-2-16, BS EN/EN60601-1(3.2 Version); UL UL62368-1, ANSI / AAMI ES60601-1(3.2 Version) ; CCC GB4943.1 ; RCM AS/NZS 61558-1/-2-16; EAC TPTC 004 approved. | | |
| | OVER VOLTAGE CATEGORY | IEC/EN 61558-1/-2-16(OVC III, altitude up to 2000M) IEC/EN/UL 62368-1 (OVC II, altitude up to 5000M) IEC/EN 60335-1 (OVC II, altitude up to 5000M) IEC/EN 60601-1 (OVC II, altitude up to 4000M) | | |
| | PROTECTIVE EXTRA-LOW VOLTAGE | IEC/EN61558-2-16 (SELV) IEC/EN/UL 62368-1 (SELV / ES1) | | |
| | 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°C/ 70% RH | | |
| | EMC EMISSION | Parameter | Standard | Test Level / Note |
| | | Conducted & Radiated | BS EN/EN55032(CISPR32) | 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) 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, >95% interruptions 250 periods | | |
| OTHERS | MTBF | 1695.7K hrs min. Telcordia SR-332 (Bellcore) ; 230.7K hrs min. MIL-HDBK-217F (25°C) | | |
| | DIMENSION | 127*76.2*30.5mm (L*W*H) | | |
| | PACKING | 0.39Kg; 36pcs/15Kg/0.96CUFT | | |
| NOTE | <p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25 of ambient temperature.</p> <p>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μf & 47μf parallel capacitor.</p> <p>3. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>4. Derating may be needed under low input voltages. Please check the derating curve for more details.</p> <p>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 http://www.meanwell.com)</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx</p> | | | |

Block Diagram



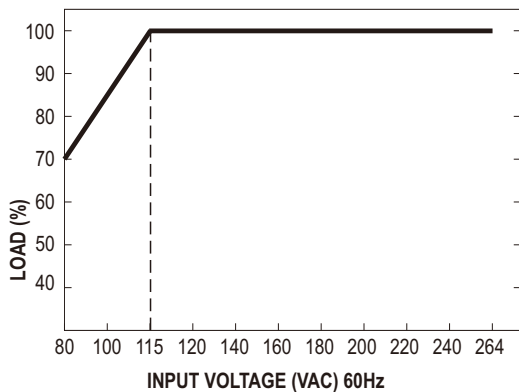
Derating Curve



| Cooling | Max. Output Power |
|-----------------------------|-------------------|
| Free air convection | 300W |
| Force air with external Fan | 500W |

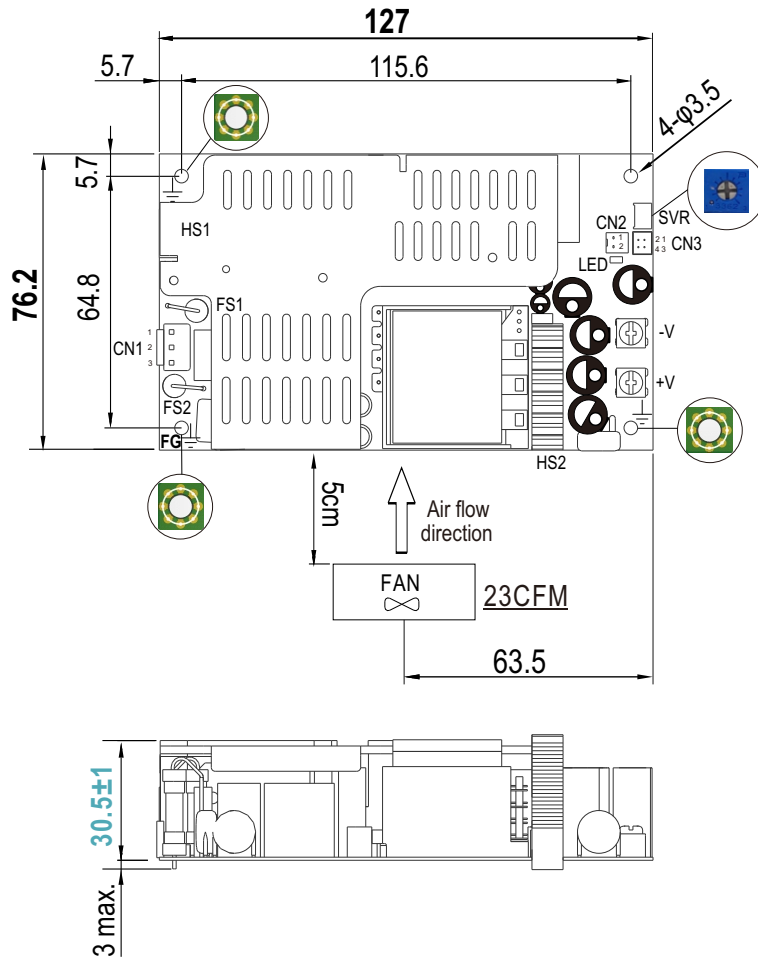
| Cooling | Max. Output Power |
|-----------------------------|-------------------|
| Free air convection | 320W |
| Force air with external Fan | 500W |

Output Derating VS Input Voltage



■ 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 | | |

FAN Connector(CN2) : TKP 8812-2 or equivalent

| Pin No. | Assignment | Mating Housing | Terminal |
|---------|------------|------------------------|------------------------|
| 1 | DC COM | TKP 2502 or equivalent | TKP 8811 or equivalent |
| 2 | +12V | | |

Note:

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

Class II System: Unnecessary to connect with safety earth.

⚠ HS1,HS2,HS3,HS4 can not be shorted

DC Output Connector

| Assignment | Output Terminals |
|------------|----------------------------------|
| -V | M3.5 Pan HD screw in 2 positions |
| +V | Torque to 8 lbs-in(90cNm)max. |

■ Installation Manual

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