



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



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
- **140W** convection, **200W** with FAN **10.98CFM** 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 94%
- 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
- 3 years warranty

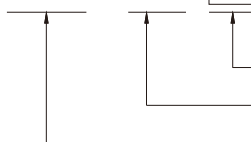
Description

LOP-200 is a 200W highly reliable green PCB type low profile power supply with a high power density (25W/in³) on the 4" by 2" footprint. It accepts 80~264VAC input and offers various output voltages between 12V and 54V. The working efficiency is up to 94% and the extremely low no load powerconsumption is down below 0.5W.

LOP-200 is able to be used for both Class I (with FG) and Class II(no FG) system design. LOP-200 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-200 serves as a high price-to-performance power supply solution for various industrial applications.The extremely low leakage current is less than 500 μ A.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 - 200 - 12



Output voltage (12V/15V/18V/24V/27V/36V/48V/54V)
Rated wattage
Series name

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>



200W 4"x2" Low Profile Open Frame Power Supply

LOP-200 series

SPECIFICATION

MODEL		LOP-200-12	LOP-200-15	LOP-200-18	LOP-200-24	LOP-200-27	LOP-200-36	LOP-200-48	LOP-200-54
OUTPUT	DC VOLTAGE	12V	15V	18V	24V	27V	36V	48V	54V
	CURRENT	Peak(3sec.)	25A	20A	16.7A	12.5A	11.1A	8.3A	6.3A
		10.98CFM	16.7A	13.4A	11.1A	8.4A	7.5A	5.6A	4.2A
		Convection	11.7A	9.4A	7.8A	5.9A	5.3A	3.9A	3.0A
	RATED POWER	Peak(3sec.)	300W	300W	300.6W	300W	299.7W	298.8W	302.4W
		10.98CFM	200.4W	201W	199.8W	201.6W	202.5W	201.6W	205.2W
		Convection	140.4W	141W	140.4W	141.6W	143.1W	140.4W	144W
	RIPPLE & NOISE (max.) Note.2	120mVp-p	150mVp-p	180mVp-p	200mVp-p	200mVp-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 ~ 29V	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%
	LINE REGULATION	±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%
	SETUP, RISE TIME	1000ms, 30ms/230VAC 1500ms, 30ms/115VAC at full load							
	HOLD UP TIME (Typ.)	16ms@140W load , 8ms@200W 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%	93%	93.5%	94%	94%	94%	94%	94%
	AC CURRENT (Typ.)	2.5A/115VAC 1A/230VAC							
	INRUSH CURRENT (Typ.)	COLD START 40A/115VAC 80A/230VAC							
	LEAKAGE CURRENT	Earth leakage current < 500 μ A(rms) @ 264VAC , touch current < 70 μ A(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	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 / 12V@0.1A without fan ; (10.98CFM) tolerance -20% ~ +15% at main output 20% rated current							
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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LOP-200 series

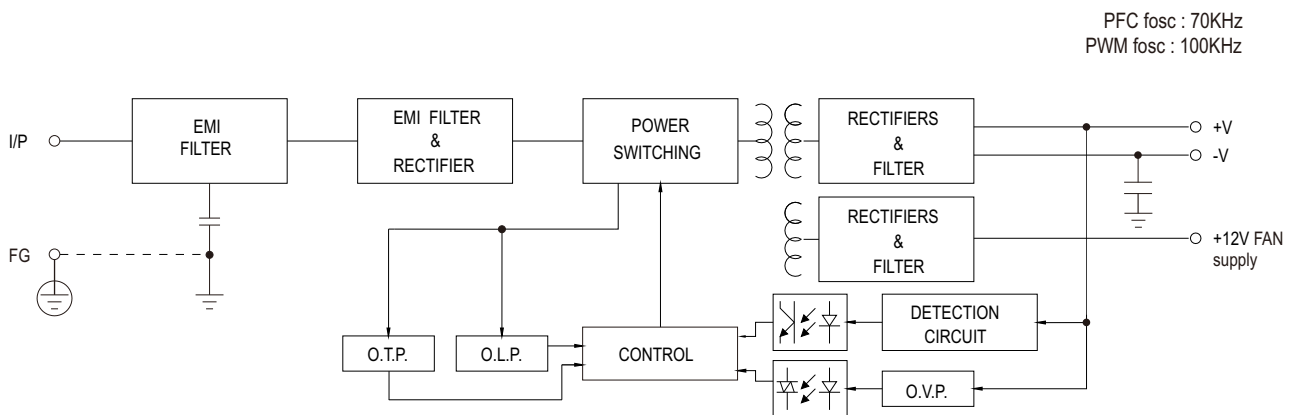
SAFETY & EMC (Note 5)	SAFETY STANDARDS	CB IEC62368-1, IEC60335-1, IEC61558-1/-2-16, IEC60601-1; TUV BS EN/EN62368-1, BS EN/EN60335-1, BS EN/EN61558-1/-2-16, BS EN/EN60601-1(3.2 Version); UL UL62368-1, ANSI / AAMI ES60601-1(3.2 Version) ; CCC GB4943.1 ; RCM AS/NZS 61558-1/-2-16; EAC TPTC 004 approved.		
	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) 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) 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
		RF field susceptibility	BS EN/EN61000-4-3	
		EFT bursts	BS EN/EN61000-4-4	Level 3, 2KV
		Surge susceptibility	BS EN/EN61000-4-5	
Conducted susceptibility		BS EN/EN61000-4-6	Level 3, 10V	
Magnetic field immunity		BS EN/EN61000-4-8		
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	2928.9K hrs min. Telcordia SR-332 (Bellcore) ; 393.9K hrs min. MIL-HDBK-217F (25°C)		
	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. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μf & 47μf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. Derating may be needed under low input voltages. Please check the derating curve for more details. 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) ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx			



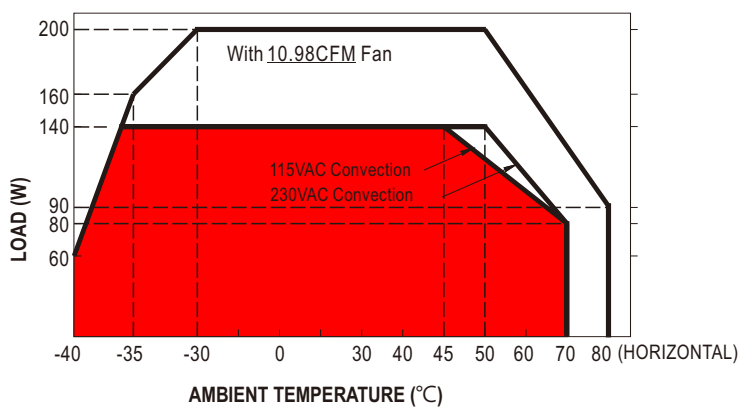
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■ Block Diagram

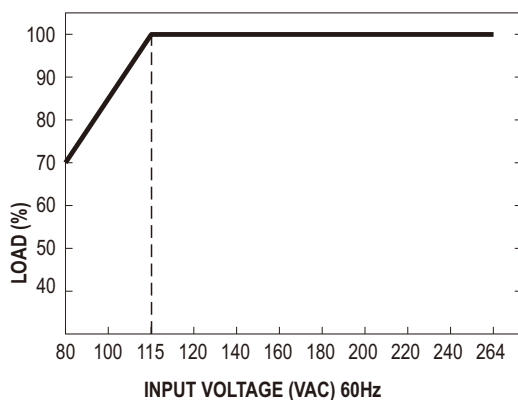


■ Derating Curve



Cooling	Max. Output Power
Free air convection	140W
Force-cooled with external Fan	200W

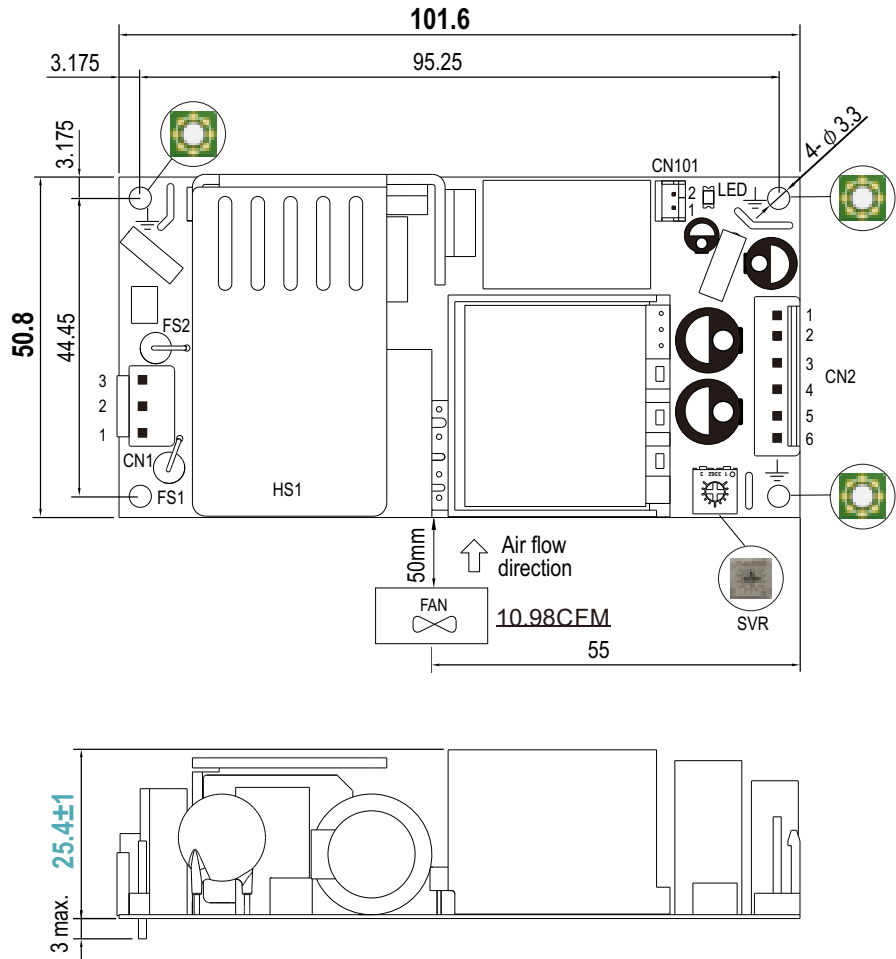
■ Output Derating VS Input Voltage





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		

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	+12V	JST PHR-2 or equivalent	JST SPH-002T-P0.5S or equivalent
2	DC COM		

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.

Installation Manual

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