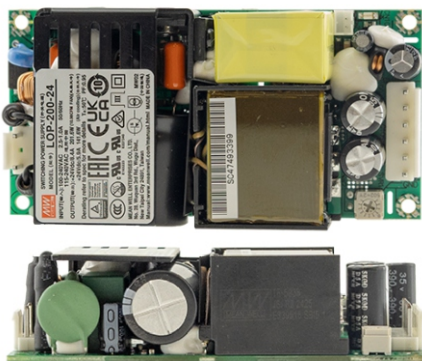
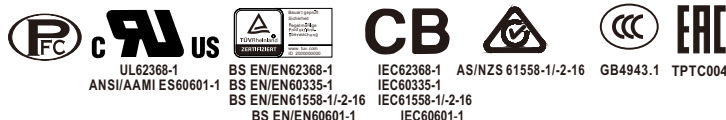




User's Manual



Features

- MEAN WELL Patent Number: ZL 202223277512.1
- 4"x2" 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, **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-200 is a 200W highly reliable, energy-efficient, low-profile open frame type power supply. With a high power density of 25W/in³ 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/36V/48V/54V, and comes in a complete range of models.

The main features of the LOP-200 include: low standby power (<0.5W), high efficiency (up to 94%), capable of providing 140W under natural air cooling and 200W 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 - 200 - 12

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



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 (10.98CFM) / 12V@0.1A without fan ; 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							

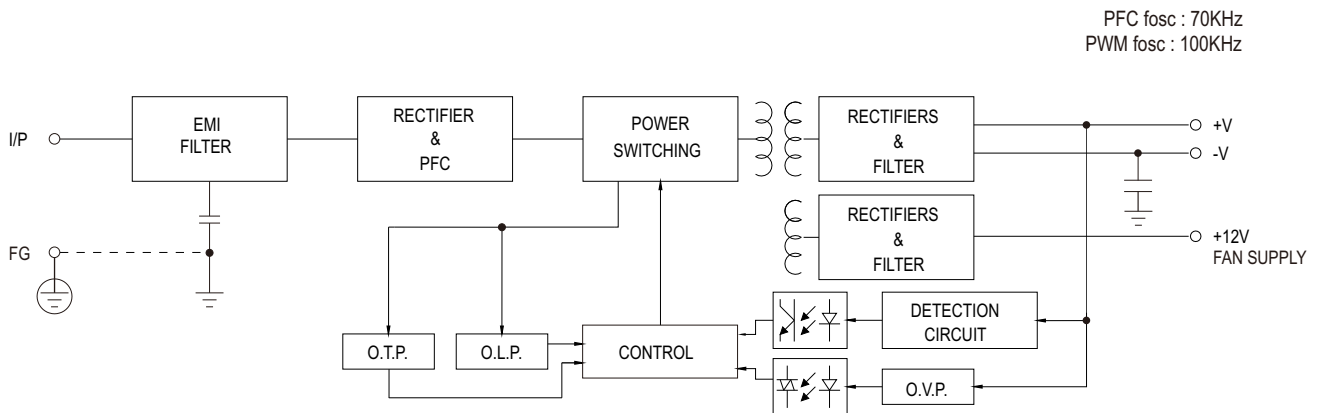


200W 4"x2" Low Profile Open Frame Power Supply

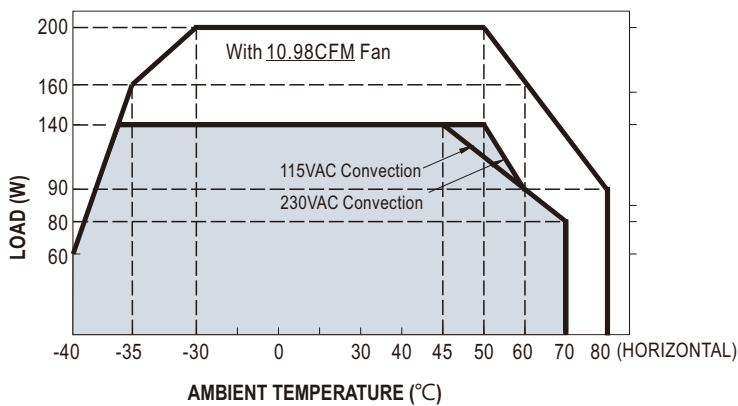
LOP-200 series

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, 12~48V) 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°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
		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	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°C 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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf) ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx			

Block Diagram

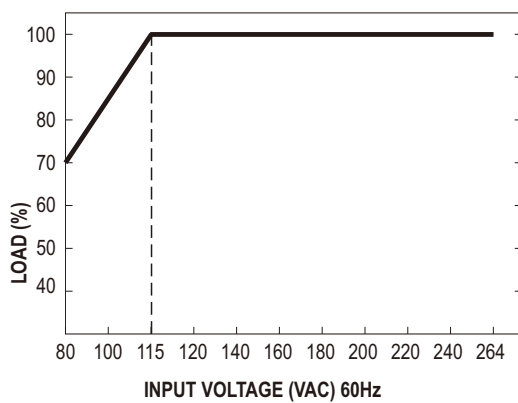


Derating Curve

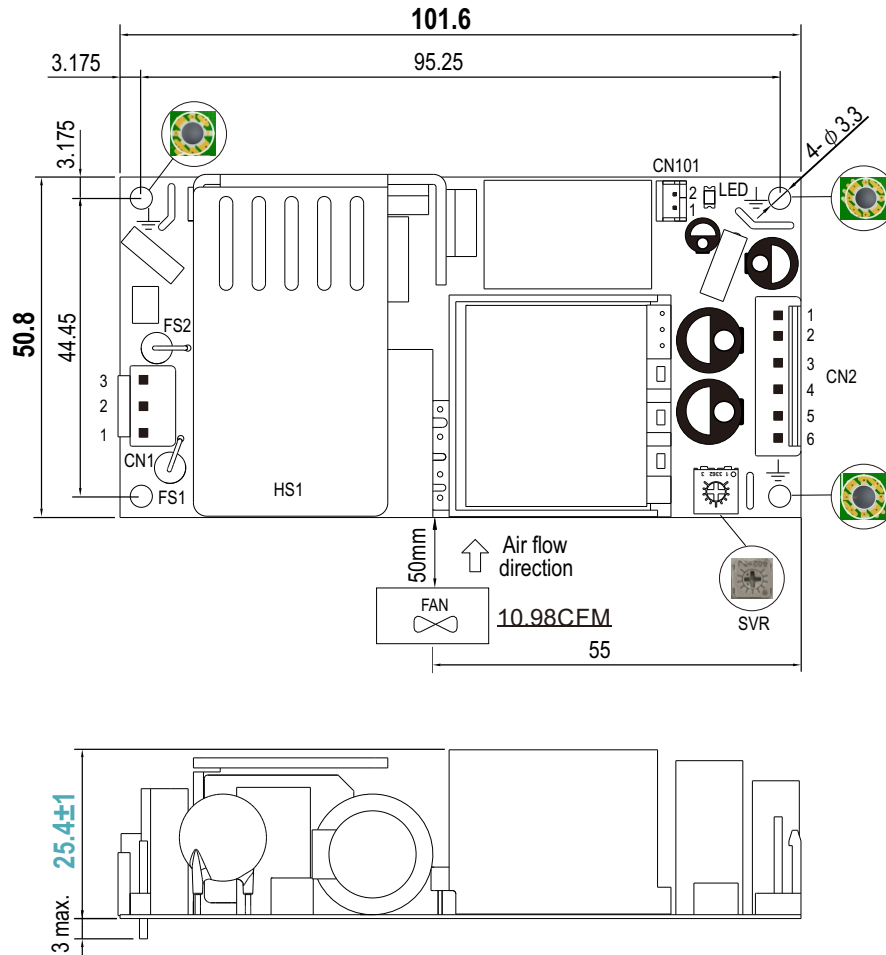


Cooling	Max. Output Power
Free air convection	140W
Force-cooled with external Fan	200W

Output Derating VS Input Voltage



Mechanical Specification

(Unit: mm , tolerance ± 1 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		

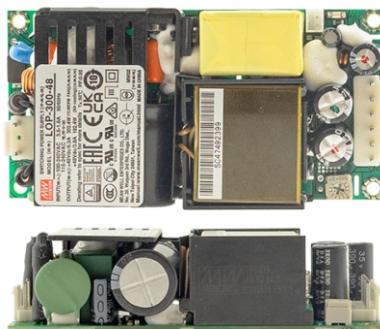
Note:

Class I System: Mounting holes marked with $\perp$ 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/manual.html>



User's Manual



Features

- MEAN WELL Patent Number: ZL 202223277512.1
- 4"x2" 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°C** 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

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/in³ 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 μ A, 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

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

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>



300W 4"x2" 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
		10.98CFM	25A	20A	16.7A	12.5A	11.1A	10A	8.3A	6.3A
		Convection	15A	12A	10A	7.5A	6.7A	6A	5A	3.8A
	RATED POWER	Peak(3sec.)	450W	450W	450W	450W	450W	450W	450W	450W
		10.98CFM	300W	300W	300.6W	300W	299.7W	300W	299.8W	302.4W
		Convection	180W	180W	180W	180W	180.9W	180W	180W	182.4W
	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 < 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	33 ~ 39V	39.6 ~ 46.8V	52.8 ~ 62.4V	59.4 ~ 67.5V
	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°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								

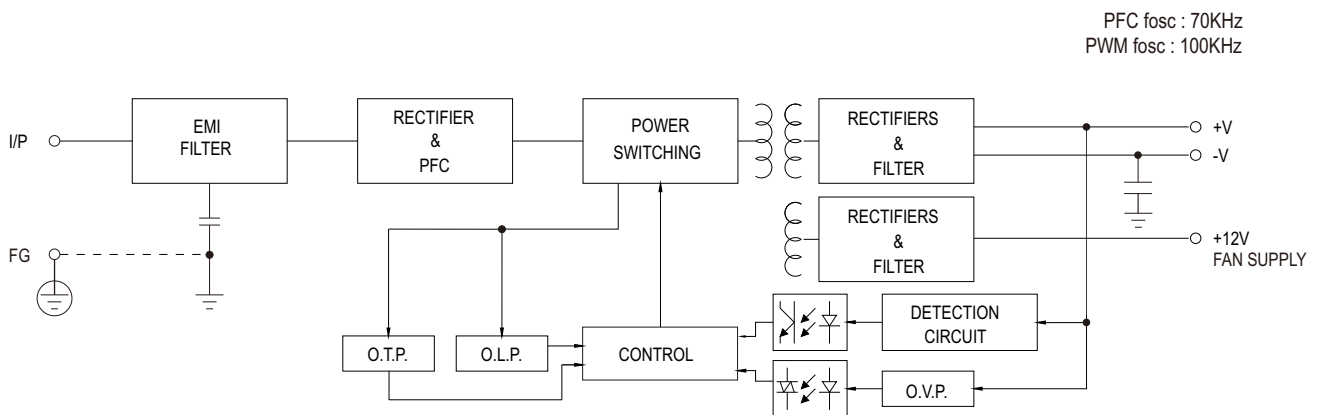


300W 4"x2" Low Profile Open Frame Power Supply

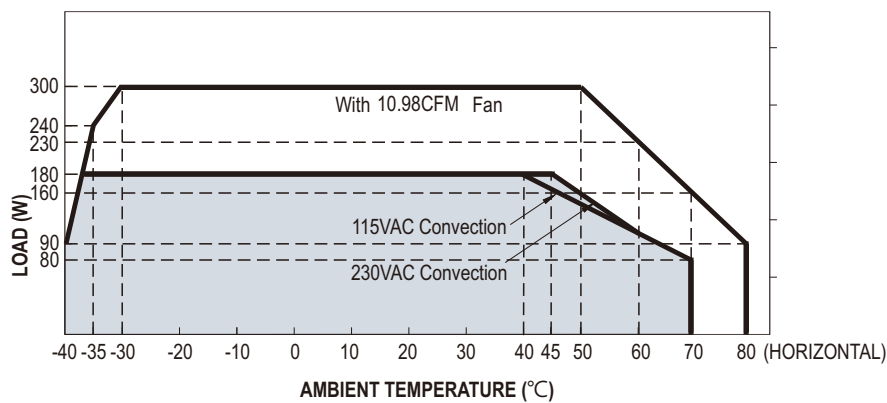
LOP-300 series

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, 12~48V) 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°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
		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	2805.6K hrs min. Telcordia SR-332 (Bellcore) ; 384.4K 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°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μF & 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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf) ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx			

Block Diagram

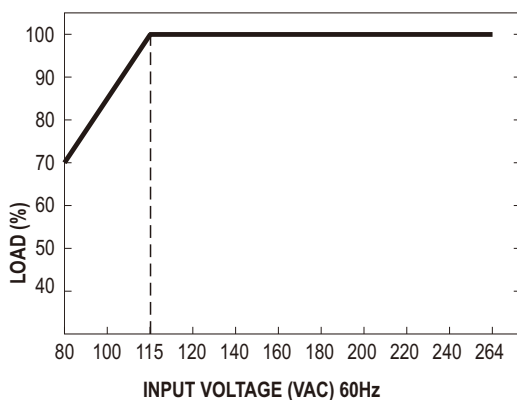


Derating Curve



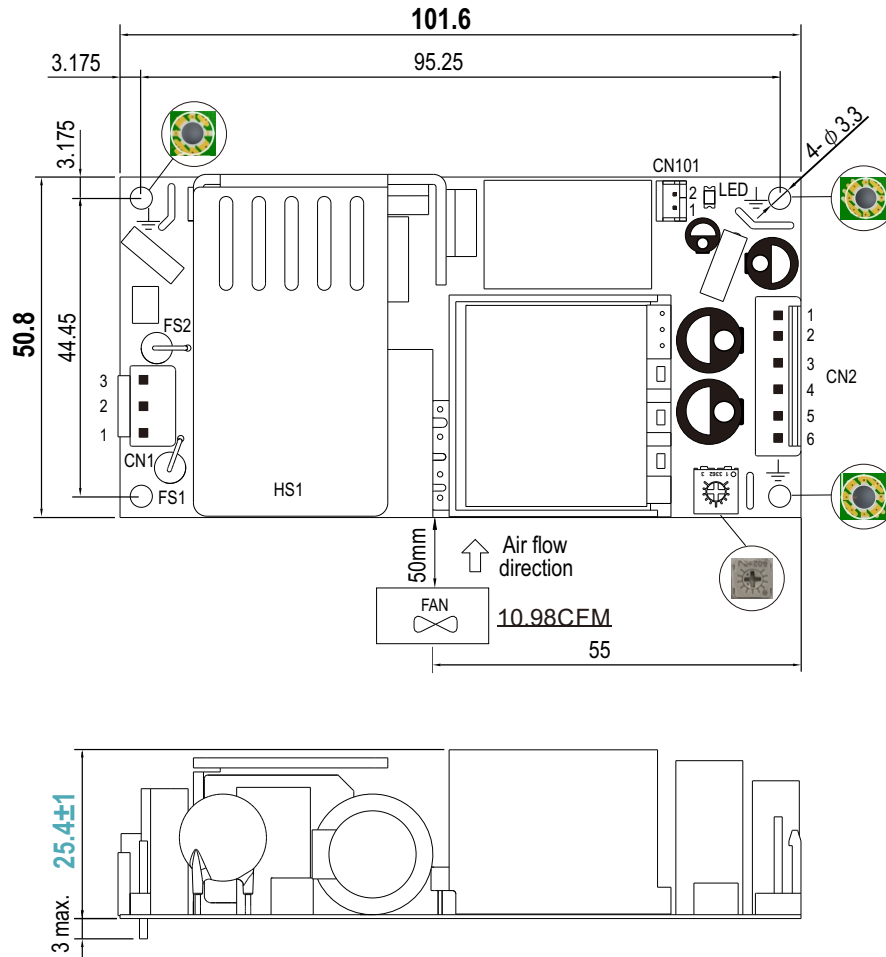
Cooling	Max. Output Power
Free air convection	180W
Force-cooled with external Fan	300W

Output Derating VS Input Voltage



Mechanical Specification

(Unit: mm , tolerance ± 1 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		

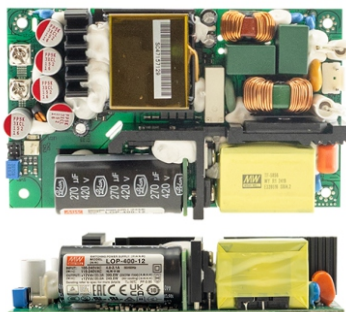
Note:

Class I System: Mounting holes marked with $\perp$ 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/manual.html>



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
- 5"×3" compact size with **low profile (27.5mm)**
- 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
- **250W** convection, **400W** 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, **2 x MOPP**, suitable for **BF** medical applications
- Operating altitude up to **5000 meters**
- Built-in 12V/0.5A for external FAN
- Built-in Remote sense
- 3 years warranty

Description

The LOP-400 is a 400W highly reliable, energy-efficient, low-profile open frame type power supply. With a high power density of 24.6W/in³ within the standard size of 5" x 3", 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/36V/48V/54V, and comes in a complete range of models.

The main features of the LOP-400 include: low standby power (<0.5W), high efficiency (up to 95%), capable of providing 250W under natural air cooling and 400W 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 - 400 - 12

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

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>



SPECIFICATION

MODEL			LOP-400-12	LOP-400-15	LOP-400-18	LOP-400-24	LOP-400-27	LOP-400-36	LOP-400-48	LOP-400-54	
OUTPUT	DC VOLTAGE		12V	15V	18V	24V	27V	36V	48V	54V	
	CURRENT	Peak(3sec.)	50A	40A	33.3A	25A	22.2A	16.7A	12.5A	11.1A	
		23CFM	33.3A	26.7A	22.2A	16.7A	14.9A	11.2A	8.4A	7.5A	
		Convection	20.8A	16.7A	13.9A	10.5A	9.3A	7.1A	5.3A	4.75A	
	RATED POWER	Peak(3sec.)	600W	600W	599.4W	600W	599.4W	601.2W	600W	599.4W	
		23CFM	399.6W	400.5W	399.6W	400.8W	402.3W	403.2W	403.2W	405W	
		Convection	249.6W	250.5W	250.2W	252W	251.1W	255.6W	254.4W	256.5W	
	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 ~ 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%	
	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.)		30ms@250W load , 16ms@400W 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.)		94%	94.5%	95%	94.5%	95%	95%	95%	95%	
	AC CURRENT (Typ.)		4.2A/115VAC 2.1A/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 or re-power on to recover									
FUNCTION	EXTERNAL FAN SUPPLY		12V@0.5A for driving a fan (23CFM) / 12V@0.2A for without fan ; 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								



400W 5"×3" Low Profile Open Frame Power Supply

LOP-400 series

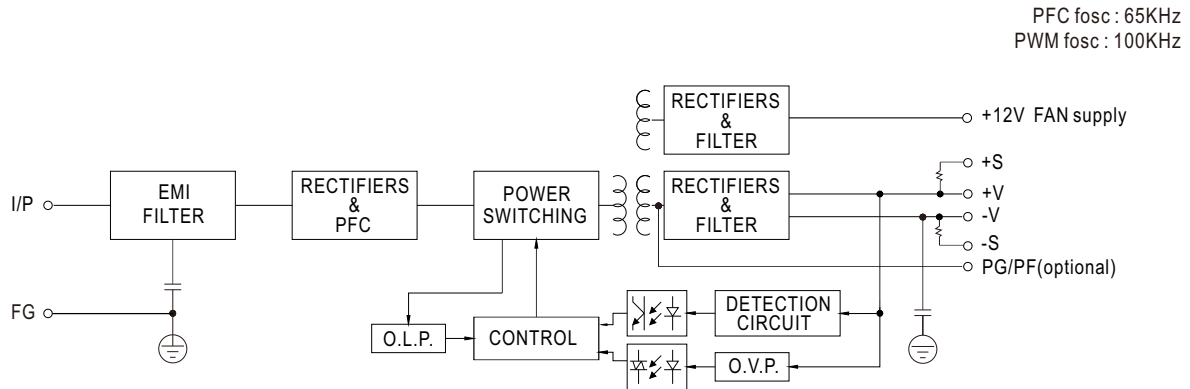
SAFETY & EMC (Note 5)	SAFETY STANDARDS	CB IEC62368-1, IEC60335-1, IEC61558-1/-2-16, IEC60601-1; TUV BS EN/EN62368-1, BS EN/EN60335-1, BS EN/EN61558-1/-2-16, BS EN/EN60601-1(3.2 Version); UL UL62368-1, ANSI / AAMI ES60601-1(3.2 Version) ; CCC GB4943.1 ; RCM AS/NZS 61558-1/-2-16; EAC TPTC 004 approved.		
	ISOLATION LEVEL	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, 12~48V) 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°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
		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	1696.4K hrs min. Telcordia SR-332 (Bellcore) ; 231.2K hrs min. MIL-HDBK-217F (25°C)		
	DIMENSION	127*76.2*27.5mm (L*W*H)		
	PACKING	0.39Kg; 24pcs/11.5Kg/1.0CUFT		
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C 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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf) ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx			



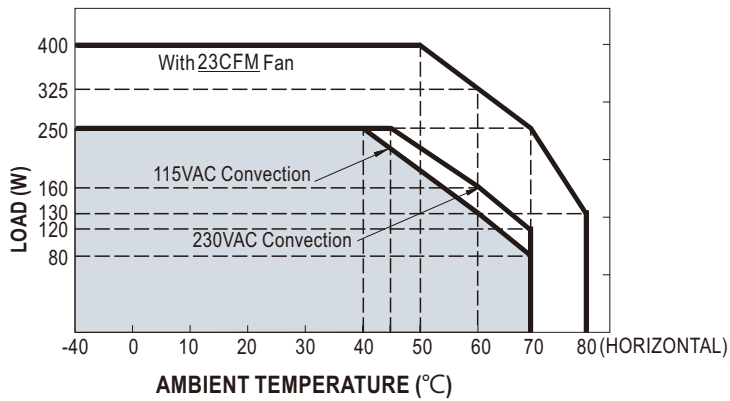
400W 5"×3" Low Profile Open Frame Power Supply

LOP-400 series

Block Diagram

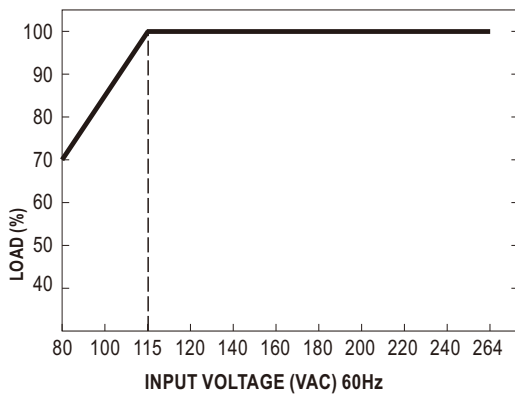


Derating Curve

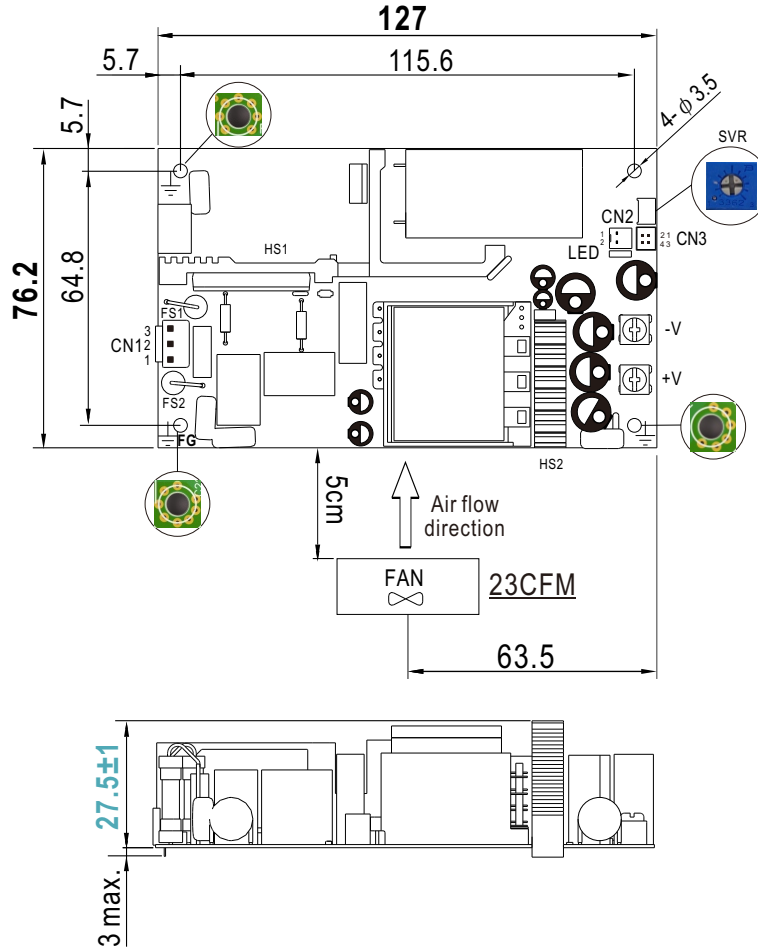


Cooling	Max. Output Power
Free air convection	250W
Force-cooled with external Fan	400W

Output Derating VS Input Voltage



Mechanical Specification

(Unit: mm , tolerance ± 1 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

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

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 cannot be shorted

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

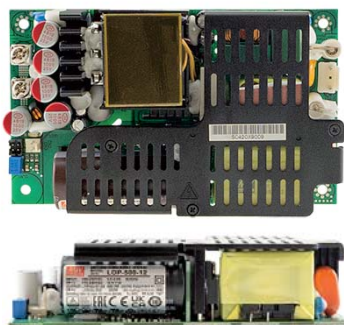
Pin No.	Assignment	Mating Housing	Terminal
1	DC COM	TKP 2502 or equivalent	TKP 8811 or equivalent
2	+12Vaux		

Function Connector(CN3): TKP DH21-2X2 or equivalent

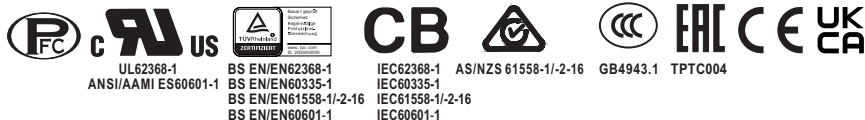
Pin No.	Assignment	Mating Housing	Terminal
1	-R.S	TKP DH2 or equivalent	TKP or equivalent
2	+R.S		
3	DC COM		
4	PG(optional)		

Installation Manual

Please refer to : <http://www.meanwell.com/manual.html>



User's Manual



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, **2 x MOPP**, suitable for **BF** medical applications
- Operating altitude up to **5000 meters**
- Built-in 12V/0.5A for external FAN
- Built-in Remote sense
- 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-500 is a 500W highly reliable, energy-efficient, low-profile open frame type power supply. With a high power density of 27.8W/in³ within the standard size of 5" x 3", 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/36V/48V/54V, and comes in a complete range of models.

The main features of the LOP-500 include: low standby power (<0.5W), high efficiency (up to 95%), capable of providing 320W under natural air cooling and 500W 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 - 500 - 12

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



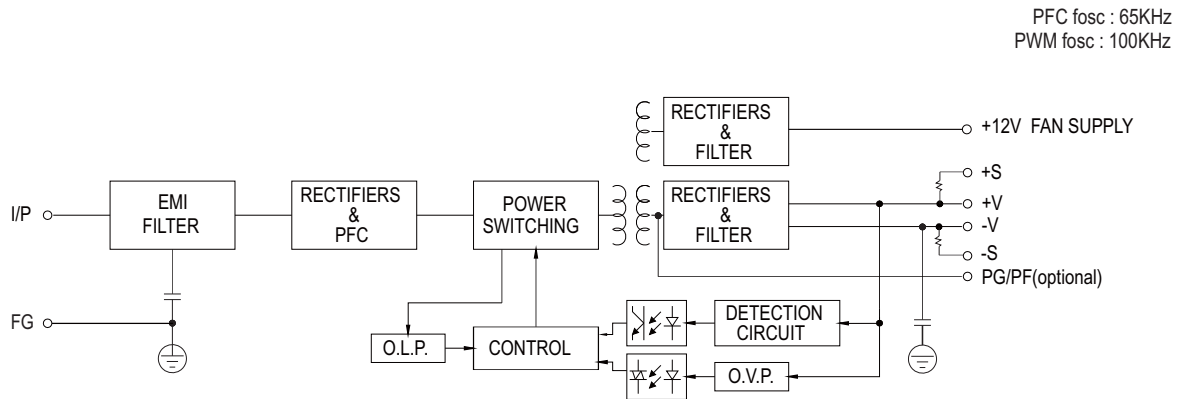
SPECIFICATION

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
	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%
	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.)		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%
	AC CURRENT (Typ.)		5.2A/115VAC 2.9A/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 or re-power on to recover							
FUNCTION	EXTERNAL FAN SUPPLY		12V@0.5A for driving a fan (23CFM) / 12V@0.2A for without fan ; 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							

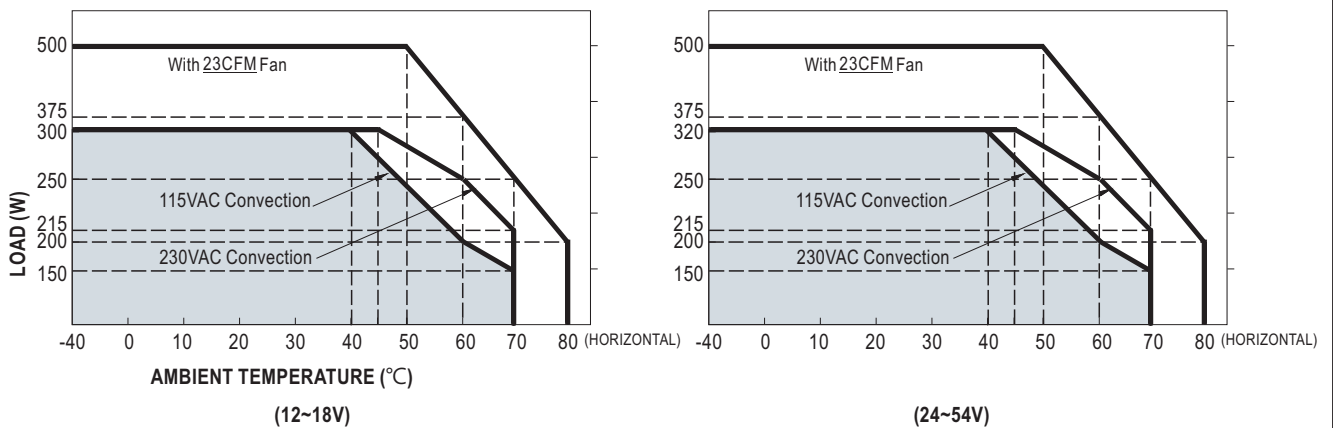


SAFETY & EMC (Note 5)	SAFETY STANDARDS	CB IEC62368-1, IEC60335-1, IEC61558-1/-2-16, IEC60601-1; TUV BS EN/EN62368-1, BS EN/EN60335-1, BS EN/EN61558-1/-2-16, BS EN/EN60601-1(3.2 Version); UL UL62368-1, ANSI / AAMI ES60601-1(3.2 Version) ; CCC GB4943.1 ; RCM AS/NZS 61558-1/-2-16; EAC TPTC 004 approved.		
	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, 12~48V) 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°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	0.42Kg; 24pcs/12Kg/1.02CUFT		
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C 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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf) ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx			

Block Diagram



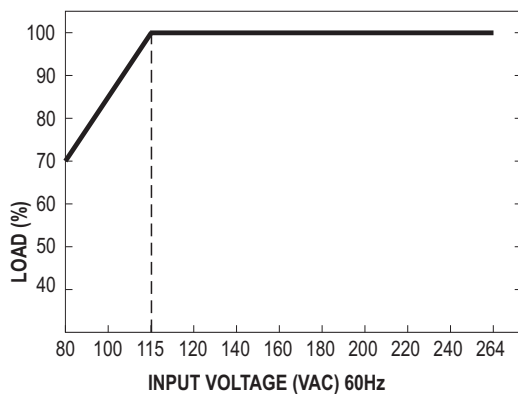
Derating Curve



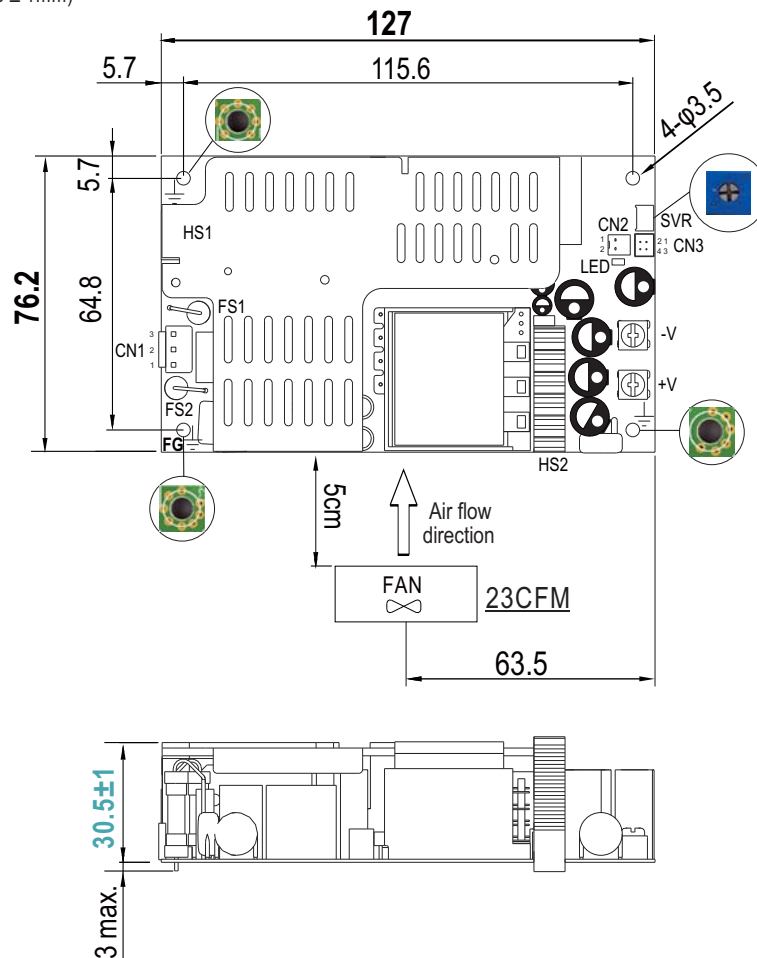
Cooling	Max. Output Power
Free air convection	300W
Force air with external Fan	500W

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

Output Derating VS Input Voltage



Mechanical Specification

(Unit: mm , tolerance ± 1 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

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

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	+12Vaux		

Function Connector(CN3): TKP DH2I-2X2 or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	-R.S	TKP DH2 or equivalent	TKP or equivalent
2	+R.S		
3	DC COM		
4	PG(optional)		

Note:

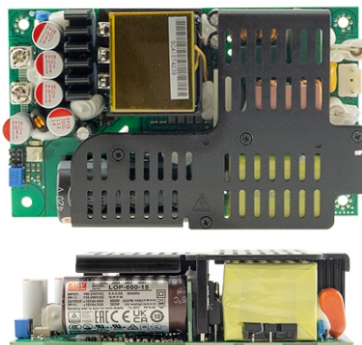
Class I System: Mounting holes marked with $\perp$ have to be connected to safety earth.

Class II System: Unnecessary to connect with safety earth.

⚠ HS1,HS2 cannot be shorted

Installation Manual

Please refer to : <http://www.meanwell.com/manual.html>



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
- 5"×3" compact size with **low profile** (12V: 35mm ,15~54V: 33.5mm)
- 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
- **400W** convection, **600W** 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, **2 x MOPP**, suitable for **BF** medical applications
- Operating altitude up to **5000 meters**
- Built-in 12V/0.5A for external FAN
- Built-in Remote sense
- 3 years warranty

Description

The LOP-600 is a 600W highly reliable, energy-efficient, low-profile open frame type power supply. With a high power density of 30.3W/in³ within the standard size of 5" x 3", 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/36V/48V/54V, and comes in a complete range of models.

The main features of the LOP-600 include: low standby power (<0.5W), high efficiency (up to 95%), capable of providing 400W under natural air cooling and 600W 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 - 600 - 12

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

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>



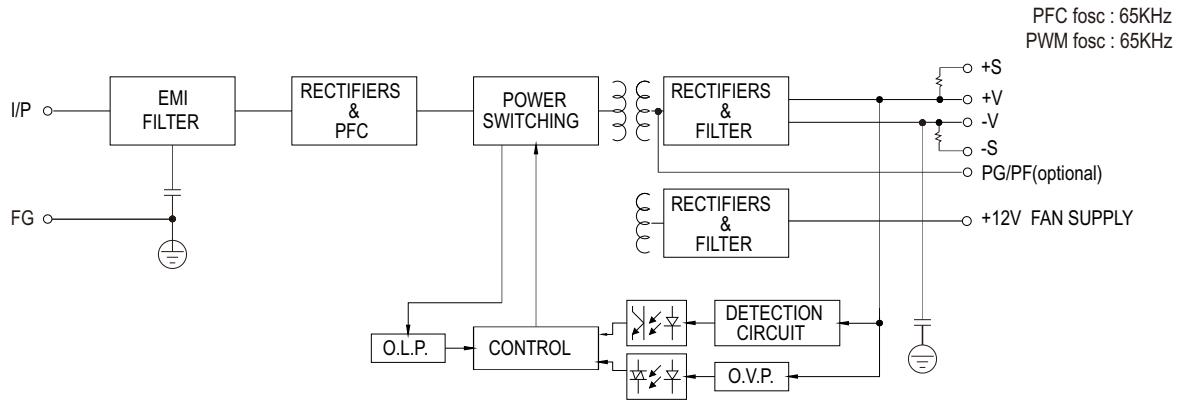
SPECIFICATION

MODEL			LOP-600-12	LOP-600-15	LOP-600-18	LOP-600-24	LOP-600-27	LOP-600-36	LOP-600-48	LOP-600-54
OUTPUT	DC VOLTAGE		12V	15V	18V	24V	27V	36V	48V	54V
	CURRENT	Peak(3sec.)	75A	60A	50A	37.5A	33.3A	25A	18.8A	16.7A
		23CFM	50A	40A	33.3A	25A	22.3A	16.7A	12.5A	11.2A
		Convection	30A	24A	20A	16.7A	14.8A	11.1A	8.3A	7.4A
	RATED POWER	Peak(3sec.)	900W	900W	900W	900W	899.1W	900W	902.4W	901.8W
		23CFM	600W	600W	599.4W	600W	602.1W	601.2W	600W	604.8W
		Convection	360W	360W	360W	400.8W	399.6W	399.6W	398.4W	399.6W
	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	25.6~28.4V	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%
	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, 50ms/230VAC 1500ms, 50ms/115VAC at full load							
	HOLD UP TIME (Typ.)		12ms@400W load , 8ms@600W 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%	93.5%	94%	94%	95%	95%	95%	95%
	AC CURRENT (Typ.)		6.4A/115VAC 3.2A/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 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							
FUNCTION	OVER TEMPERATURE		Protection type : Shut down o/p voltage, recovers automatically after temperature goes down or re-power on to recover							
	EXTERNAL FAN SUPPLY		12V@0.5A for driving a fan (23CFM) / 12V@0.2A for without fan; 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							
ENVIRONMENT	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)							
	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)							
ENVIRONMENT	VIBRATION		10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes							

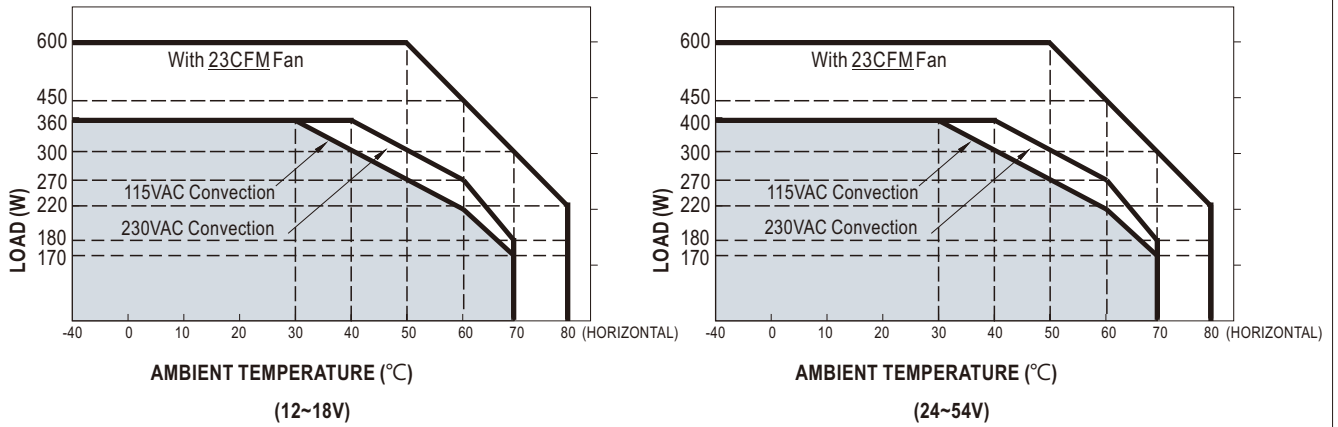


SAFETY & EMC (Note 5)	SAFETY STANDARDS	CB IEC62368-1, IEC60335-1, IEC61558-1/-2-16, IEC60601-1; TUV BS EN/EN62368-1, BS EN/EN60335-1, BS EN/EN61558-1/-2-16, BS EN/EN60601-1(3.2 Version); UL UL62368-1, ANSI / AAMI ES60601-1(3.2 Version) ; CCC GB4943.1 ; RCM AS/NZS 61558-1/-2-16; EAC TPTC 004 approved.		
	ISOLATION LEVEL	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, 12~48V) 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°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
		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	1963.2K hrs min. Telcordia SR-332 (Bellcore) ; 310.9K hrs min. MIL-HDBK-217F (25°C)		
	DIMENSION	12V: 127*76.2*35mm (L*W*H) , 15~54V: 127*76.2*33.5mm (L*W*H)		
	PACKING	0.48Kg; 24pcs/13.7Kg/1.10CUFT		
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C 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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf) ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx			

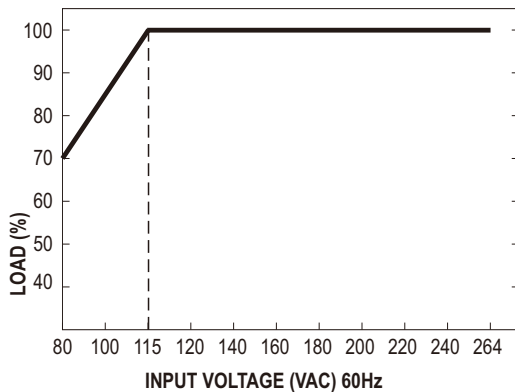
Block Diagram



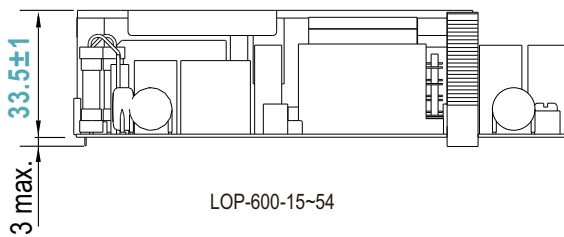
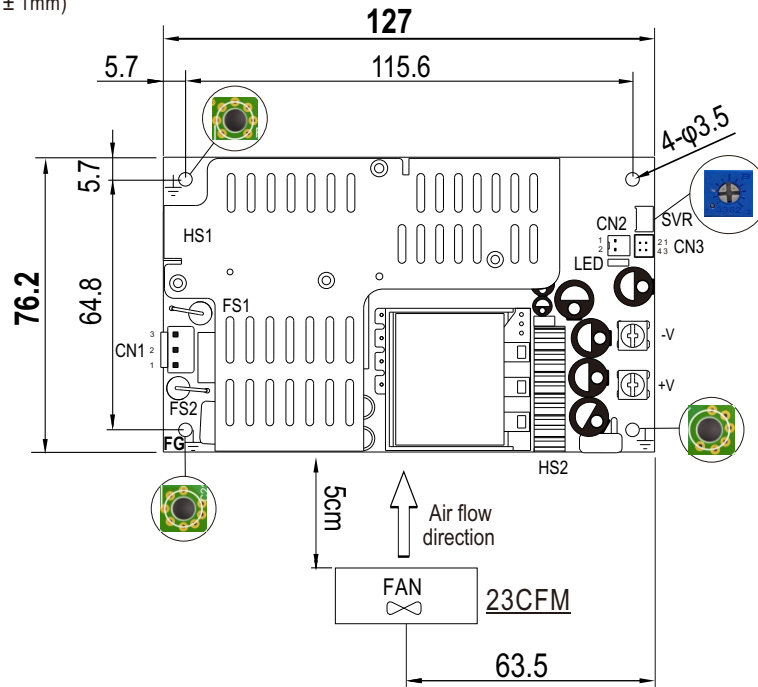
Derating Curve



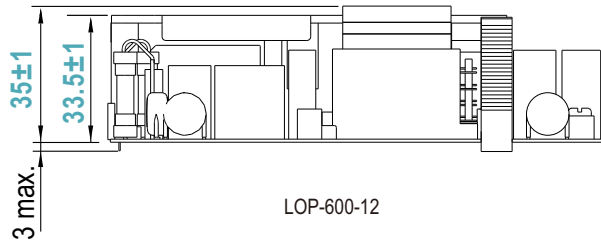
Output Derating VS Input Voltage



Mechanical Specification

(Unit: mm , tolerance ± 1 mm)


LOP-600-15~54



LOP-600-12

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	+12Vaux		

DC Output Connector

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

Function Connector(CN3): TKP DH2I-2X2 or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	-R.S	TKP DH2 or equivalent	TKP or equivalent
2	+R.S		
3	DC COM		
4	PG(optional)		

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 cannot be shorted

Installation Manual

Please refer to : <http://www.meanwell.com/manual.html>