



AC-DC POWER SUPPLY

UP TO 300 WATTS

MEDICAL APPLICATIONS

MUIP300 SERIES

FEATURES

- 2XMOPP
- Peak Power
- 4,000 Vac Reinforced Insulation
- Adjustable Output Voltage
- Internal EN55032 Class B Filter
- Low Leakage Current
- Low Standby Power
- Operating Altitude 5,000 Meters
- Class I and Class II Protection
- Fan Speed Control
- Remote ON/OFF
- Power Good
- Output Current Protection
- Short Circuit Protection
- Over Voltage Protection
- Over Temperature Protection
- Safety Meets IEC/ EN/ ANSI/AAMI ES 60601-1, IEC/ EN/ UL 62368-1
- Compliant to RoHS and REACH

SELECTION GUIDE All specifications are typical at nominal input, full load and 25°C, unless otherwise noted.

Input Voltage Range Vdc	Output Voltage Vdc	Output Current Natural Convection A	Output Current Forced Air Cooling with 21 CFM mA	Input Power at No Load W	Efficiency %	Model Number	Maximum Capacitor Load µF
85 - 264	12	15	25	0.3	91	MUIP300-12S	20,000
85 - 264	15	12	20	0.3	92	MUIP300-15S	12,000
85 - 264	18	10	16.66	0.3	93	MUIP300-18S	9,000
85 - 264	24	7.5	12.5	0.3	93	MUIP300-24S	2,400
85 - 264	28	6.42	10.71	0.3	93	MUIP300-28S	2,000
85 - 264	36	5	8.33	0.3	93	MUIP300-36S	1,000
85 - 264	48	3.75	6.25	0.3	93	MUIP300-48S	650
85 - 264	53	3.4	5.67	0.3	93	MUIP300-53S	470

* Class I: Standard
 Class II: Suffix "B"
 Enclosed Type: Standard
 Open Type: MUIPO300
 Base Plate Type: MUIPU300
 DIN Rail Type: MUIPD300

No external FAN with fixed fan speed control: Suffix F3
 No External FAN with variable fan speed control: Suffix F4
 For Enclosed and DIN Rail Type Only:
 External Fan with variable speed control: Suffix F2
 External FAN with fixed fan speed control: Suffix F1

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Input Specifications			Output Specifications		
Operating input voltage range, Vdc	85 Min., 264 Max.	AC Input	Output power, W	300 Max.	Forced air cooling
	120 Min., 370 Max.	DC Input		180 Max.	Natural convection
Input frequency, Hz	47 Min., 63 Max.	AC Input	Output peak power, W	360 Max.	
Input current, A	3.9 Max.	100Vac and Full Load	Output peak power time, s	5 Typ.	
	1.6 Max.	240Vac and Full Load	Output leak power duty, %	20 Typ.	
No load input power, W	3 Typ.	230Vac, Option-F (with Fan)	Output peak power average operation, %	50 Typ.	% of Full Load
	0.3 Typ.	Others	Initial set voltage accuracy, %	-1 Min., 1 Max.	230Vac and Full Load
Leakage current, μ a	100 Max.	264Vac	Line regulation, %	-0.2 Min., 0.2 Max.	Low Line to High Line at Full Load
Power factor	0.9 Min.	230Vac and Full Load	Load regulation, %	-0.5 Min., 0.5 Max.	No Load to Full Load
				-0.4 Min., 0.4 Max.	10% Load to 90% Load
Start up time, ms	2,000 Max.		Voltage adjustability, %	-10 Min., 10 Max.	Maximum output deviation is inclusive of remote sense
			Minimum load, %	0 Typ.	
Rise time, ms	30 Typ.		Ripple and noise, mVp-p	Measured by 20MHz bandwidth with a 1 μ F/100V 1206 X7R MLCC	
				120 Typ.	12Vout
Hold up time, ms	10 Min.	115Vac and 225W		150 Typ.	15Vout
				180 Typ.	18Vout
Input inrush current, A	70 Max.	230Vac, Cold Start		240 Typ.	24Vout
				280 Typ.	28Vout
Input protection	Internal fuse, T5.0A/250VAC			360 Typ.	36Vout
				480 Typ.	48Vout
			530 Typ.	53Vout	
			Temperature coefficient, %/ $^{\circ}$ C	-0.02 Min., 0.02 Max.	
			Transient response peak deviation, %	3 Typ.	Load step from 50 ~ 75% change at 2.5A/ μ s, Vout
			Transient response recovery time, μ s	600 Typ.	Recovery within 1% Vout
			Over voltage protection, %	115 Min., 135 Max.	% of Vout(nom); Latch mode
			Over load protection, %	150 Typ.	% of Iout rated; Hiccup mode
			Short circuit protection	Continuous, automatic recovery	
			Main output remote control, mA	Open or 3 ~ 12 VDC	Positive Logic, Main power ON
				Short or 0 ~ 1.2VDC	Referenced to "-Control"; Main power OFF
				-0.5 Min., 1 Max.	Standby power always present, Input current of Control
			Main output Power Good signal	Power good, Low	Referenced to "GND"
				Power off, Open collector	
			Standby power supply, mA	1,000 Max.	Standby and fan power supply total power 8W, 5Vout
			Fan power supply, mA	500 Max.	12Vout

General Specifications

Isolation voltage, Vac	1 minute (Reinforced insulation)	Input to Output	4,000 Min.		
		Input (Output) to F.G.	2,500 Min.		
Isolation resistance, G Ω	500Vdc		0.1 Min.		
Switching frequency, kHz	230Vac, Full Load			140 Typ.	

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Environmental Specifications			
Operating ambient temperature, °C	With derating, Option –F (with Fan)	-40 Min.	80 Max.
	Others	-40 Min.	85 Max.
Storage temperature range, °C	With derating, Option –F (with Fan)	-40 Min.	80 Max.
	Others	-40 Min.	85 Max.
Over temperature protection, °C	Internal thermistor ; Hiccup mode	125 Typ.	
Operating altitude, m			5,000 Max.
Shock		IEC60068-2-27	
Vibration		IEC60068-2-6	
Relative humidity	Non-condensing	5% to 95% RH	

Physical Specifications		
Design meet safety standard	IEC/ EN/ ANSI/AAMI ES 60601-1, IEC/ EN/ UL 62368-1	
Weight, g (oz)	210g (7.40oz)	Open type
	318g (11.21oz)	Enclosed type
	260g (9.17oz)	Base plate type
	340g (11.99oz)	Din rail type
MTBF	MIL-HDBK-217F Ta=25°C, Full load, 1.056 x 10 ⁶ hrs	
Dimensions	2.09" × 4" × 1.26"	Open type
	2.44" × 4.6" × 2.32"	Enclosed type
	2.44" × 4.6" × 1.56"	Base plate type
	2.44" × 4.6" × 2.32"	Din rail type

EMC Specifications			
Specifications	Conditions		Level
EMI	EN55011, EN55032, EN60601-1-2 and FCC Part 18 / 15	Conducted	Class B
		Radiated	Class A
Harmonic currents	EN61000-3-2	Full Load	Class A
Voltage flicker	EN61000-3-3		
EMS	EN55035 and EN60601-1-2		
ESD	EN61000-4-2		Perf. Criteria A
Radiated immunity	EN61000-4-3	20 V/m	Perf. Criteria A
Fast transient	EN61000-4-4	±2kV	Perf. Criteria A
Surge	EN61000-4-5	DM±1kVandCM±2kV	Perf. Criteria A
Conducted immunity	EN61000-4-6	20 Vr.m.s	Perf. Criteria A
Power frequency magnetic field	EN61000-4-8	30 A/m	Perf. Criteria A
Dip and interruptions	EN61000-4-11		

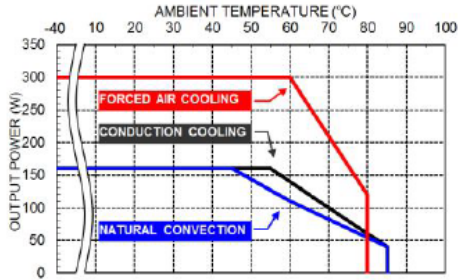
Note:

1. For further information, please contact Polytron Devices.

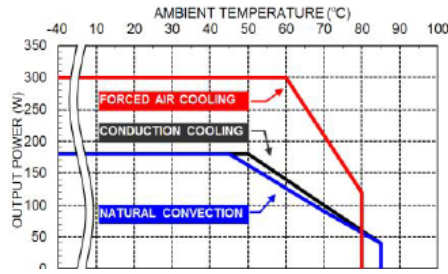
CAUTION: This power module is not internally fused. An input line fuse must always be used.

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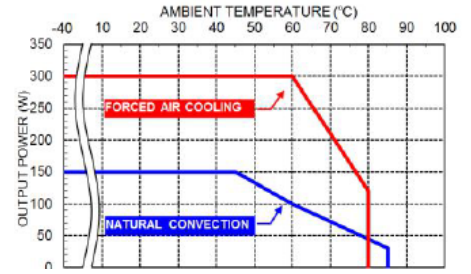
Characteristic Curve



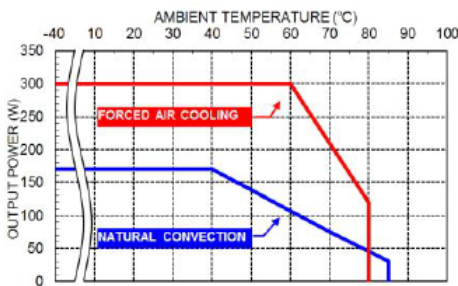
Derating Curve vs. Ambient Temperature
Vin=115VAC Open type



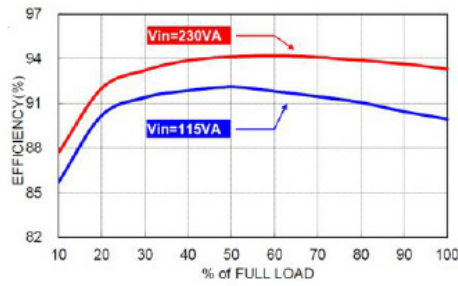
Derating Curve vs. Ambient Temperature
Vin=230VAC Open type



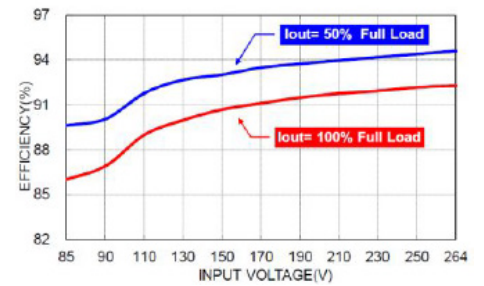
Derating Curve vs. Ambient Temperature
Vin=115VAC Enclosed type / Din rail type



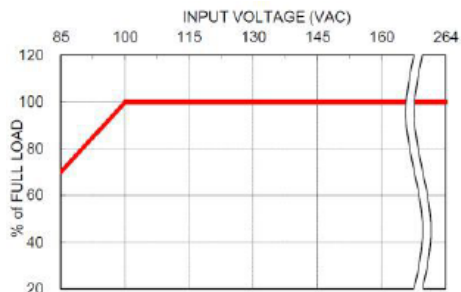
Derating Curve vs. Ambient Temperature
Vin=230VAC Enclosed type / Din rail type



Efficiency vs. Output Load
MUIP300-24S with Forced air cooling



Efficiency vs. Input Voltage
MUIP300-24S with Forced air cooling

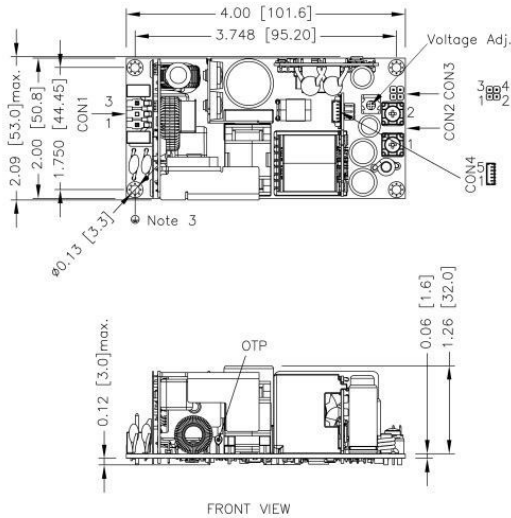


Derating Curve vs. Input Voltage

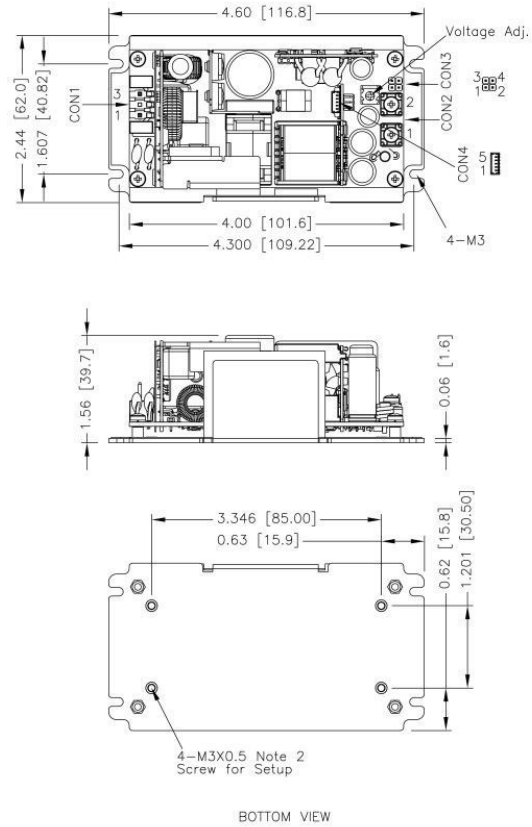
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Mechanical Drawing

Open Type



Base Plate Type



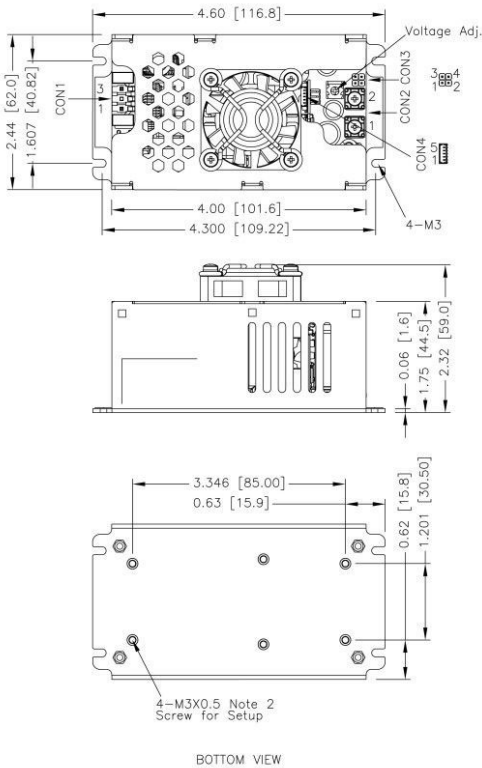
1. All dimensions in inch (mm)
2. Tolerance: $x.xx \pm 0.02$ ($x.x \pm 0.5$) $x.xxx \pm 0.01$ ($x.xx \pm 0.25$)
3. The CON2 locked torque: MAX 16.8Kgf.cm/1.65N.m
4. The screws holes can be considered as PE connection for CLASS I application.

1. All dimensions in inch (mm)
2. Tolerance: $x.xx \pm 0.02$ ($x.x \pm 0.5$) $x.xxx \pm 0.01$ ($x.xx \pm 0.25$)
3. The screw locked torque: MAX 5Kgf.cm/0.49N.m
4. The CON2 locked torque: MAX 16.8Kgf.cm/1.65N.m

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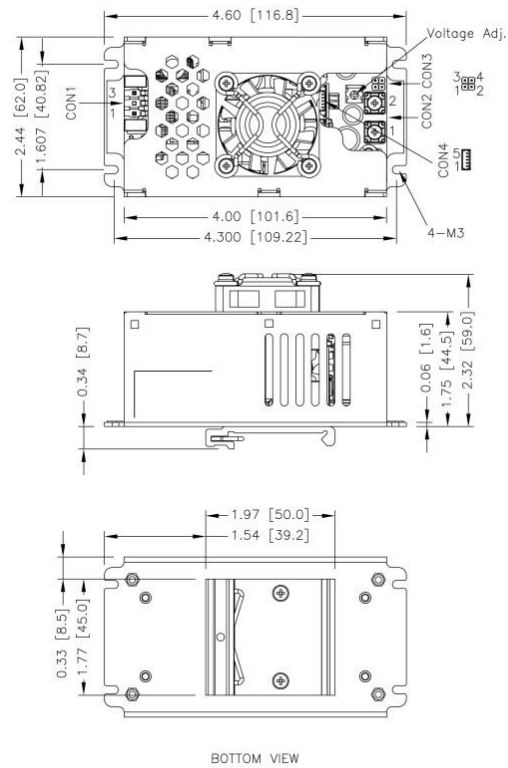
Mechanical Drawing (continued)

Enclosed type with FAN



1. All dimensions in inch (mm)
2. Tolerance: $x.xx \pm 0.02$ ($x.x \pm 0.5$) $x.xxx \pm 0.01$ ($x.xx \pm 0.25$)
3. The screw locked torque: MAX 5Kgf.cm/0.49N.m
4. The CON2 locked torque: MAX 16.8Kgf.cm/1.65N.m

Din rail type with FAN



1. All dimensions in inch (mm)
2. Tolerance: $x.xx \pm 0.02$ ($x.x \pm 0.5$) $x.xxx \pm 0.01$ ($x.xx \pm 0.25$)
3. The CON2 locked torque: MAX 16.8Kgf.cm/1.65N.m

Connector Connections

CON1 - Input Connector

Pin 3	Line	DC+
Pin 1	Neutral	DC-

Mates with:

Molex housing : 09-93-0300, 09-50-3031, 09-50-8031
Molex crimp terminals : 2478

CON3 - Aux Connector

Pin 1	+Fan
Pin 2	-Fan
Pin 3	+V Sense
Pin 4	-V Sense

Mates with:

Molex housing : 90143-0004
Molex crimp terminals : 90119

CON2 - Output Connector

Pin 1	+Vout
Pin 2	-Vout

Mates with:

KST ring terminal : RVS2-3.7

CON4 - Aux Connector

Pin 1	+Standby
Pin 2	-Standby
Pin 3	+PG
Pin 4	-Control
Pin 5	+Control

Mates with:

Molex housing : 51021-0500
Molex crimp terminals : 50058,50079