POLYTRON DEVICES

DATA SHEET

AC-DC POWER SUPPLIES

UNIVERSAL INPUT, 40 WATT

MEDICAL APPLICATIONS, 2" × 3.5" PACKAGE

MUI40 DUAL AND TRIPLE OUTPUT

FEATURES

- 0.15 Watt Low Standby Power Consumption
- Ultra Low Cross Regulation Under 1.5%
- Universal Input Voltage Range 85 - 264 Vac, 47 - 63 Hz
- Built-in Class B EMI Filter
- Output Voltage Adjustable (Output 1 Only)
- 4000 Vac Input to Output 2MOPP Insulation
- Protection Type Class I and Class II
- Low Leakage Current Under 75 µA
- Operating Altitude 5000M
- 5 Year Warranty
- Safety Approvals: ANSI/AAMI ES60601-1, EN60601-1 and IEC60601-1 3rd Edition
- CE Marked: IEC60601-1-2 ED4.0
- Compliant to RoHS II & Reach
- Dimensions: 2" × 3.5" (50.8 mm × 88.9 mm)

SELECTION GUIDE

All specifications are typical at 230Vac input, full load and 25°C, unless otherwise noted.

Input Voltage Range Vac	Output 1			Output 2			Output3		Max. Output Power W	Efficiency %	Model Number*
	Voltage Vdc	Current (Normal) A	Max. Current A	Voltage Vdc	Current (Normal) A	Max. Current A	Voltage Vdc	Max. Current A			
85 - 264	5	5	8	3.3	4	6			40	89.5	MUI40-5S33SB
85 - 264	12	2.1	3.34	5	4	6			40	89	MUI40-1212S5SB
85 - 264	12	2.1	3.34	3.3	4	6			40	90	MUI40-12S33SB
85 - 264	15	1.7	2.67	5	4	6			40	88.5	MUI40-15S5SB
85 - 264	24	1.05	1.67	5	4	6			40	86	MUI40-24S5SB
85 - 264	28	0.72	1.43	5	4	6			40	85.5	MUI40-28S5SB
85 - 264	5	5	8	3.3	4	6	-5	0.5	40	89	MUI40-5S-33B
85 - 264	5	5	8	3.3	4	6	12	0.5	40	89	MUI40-5S33S12SB
85 - 264	5	5	8	3.3	4	6	-12	0.5	40	89	MUI40-5S33SN12SB
85 - 264	12	2.1	3.34	5	4	6	-5	0.5	40	88.5	MUI40-12S-5B
85 - 264	12	2.1	3.34	5	4	6	-12	0.5	40	88	MUI40-5S-12B
85 - 264	12	2.1	3.34	3.3	4	6	5	0.5	40	88.5	MUI40-12S33S5SB
85 - 264	12	2.1	3.34	3.3	4	6	-12	0.5	40	88	MUI40-33S-12B
85 - 264	15	1.7	2.67	5	4	6	-15	0.5	40	88	MUI40-5S-15B
85 - 264	24	1.05	1.67	5	4	6	12	0.5	40	86	MULI40-24S5S12SB
85 - 264	24	1.05	1.67	5	4	6	-12	0.5	40	86	MUI40-24S5SN12SB

* **MUIO: Open Type**
MUIT: Chassis Type
MUID: Din Rail
MUI: Enclosed (Standard)

B: Protection Type Class 11
No Suffix needed for Protection Type Class 1

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Input Specifications

Input voltage range	85 Min., 264 Max., Vac	AC input
	120 Min., 370 Max., Vdc	DC input
Input frequency, Hz	47 Min., 63 Max.	AC input
Input current, A	1.05 Max.	100Vac
	0.55 Max.	240Vac
No load input power, Watts	0.15 Typ.	230Vac
Leakage current, µA	75 Max.	264Vac
Start-up time, ms	1000 Max.	
Rise time, ms	20 Typ.	
Hold-up time, ms	25 Typ.	115Vac and full load
Input inrush current, A	60 Max.	230Vac
Input protection	T3.15A/250Vac	Internal fuse in line and neutral

Output Specifications

Output power, Watt	40 Max.	Pout1+Pout2+Pout3
Initial set voltage accuracy, %	-1 Min., 1 Max.	230Vac and Full Load, Vout 1
	-2 Min., 2 Max.	Vout 2, Vout 3
Line regulation, %	-0.2 Min., 0.2 Max.	Low Line to High Line at Full Load
Load regulation, %	-0.5 Min., 0.5 Max.	No Load to Full Load, Vout 1
	-0.7 Min., 0.7 Max.	Vout 3
	-1.5 Min., 1.5 Max.	No Load to Full Load, Vout 2
	-0.7 Min., 0.7 Max.	0.1W Load to Full Load, Vout 2
Cross regulation, %	-1.5 Min., 1.5 Max.	Asymmetrical load 25%/100% FL
Voltage adjustability, %	-10 Min., 10 Max.	Vout 1
Minimum load, %	0 Typ.	
	0.5 Typ.	Vout 3 is full load, Vout 1 + Vout 2
Ripple and noise, mVp-p		Measured by 20MHz bandwidth
	100 Typ.	With a 10µF/25V 1206 X7R MLCC, Vout 1, 5V
	120 Typ.	With a 1µF/50V 1206 X7R MLCC, Vout 1, 12V
	150 Typ.	With a 1µF/50V 1206 X7R MLCC, Vout 1, 15V
	240 Typ.	With a 1µF/50V 1206 X7R MLCC, Vout 1, 24V
	280 Typ.	With a 1µF/50V 1206 X7R MLCC, Vout 1, 28V
	100 Typ.	With a 10µF/25V 1206 X7R MLCC, Vout 2, All
	100 Typ.	With a 10µF/25V 1206 X7R MLCC, Vout 3, 5V
	120 Typ.	With a 10µF/25V 1206 X7R MLCC, 12V
	150 Typ.	With a 10µF/25V 1206 X7R MLCC, 15V
Temperature coefficient, %/°C	-0.02 Min., 0.02 Max.	
Transient response peak deviation, %	3Vout, Max.	Load step from 50-75% change at 2.5A/µs, Vout 1
Transient response recovery time, µs	600, Typ.	
Over voltage protection, %	125 Min., 140 Max.	% of Vout(nom); Latch mode, Vout 1
Over power protection, %	145 Typ.	% of nominal output power; Hiccup mode, Pout 1 + Pout 2
Short curcuit protection	Continuous, automatic recovery	

General Specifications

Isolation voltage, Vac	1 minute (2MOPP insulation)	Input to Output	4000 Min.		
		Input (Output) to F.G.	2500 Min.		
Isolation resistance, GΩ	500Vdc		0.1 Min.		
Switching frequency, kHz	230Vac	Vout 1, 5V		70 Typ.	
		Others		115 Typ.	
		Vout 2		750 Typ.	
		Vout 3		510 Typ.	

Environmental Specifications

Operating ambient temperature, °C	With derating	-40 Min.		85 Max.
Storage temperature range, °C		-40 Min.		85 Max.
Operating altitude, m				5000 Max.
Shock		IEC60068-2-27		
Vibration		IEC60068-2-6		
Relative humidity	Non-condensing	5% to 95% RH		

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MUI40 DUAL AND TRIPLE OUTPUT

Physical Specifications

Design meet safety standard	ANSI/AAMI, ES60601-1, IEC60601-1, EN60601-1	
Weight, g	150 (5.29oz)	MUIO
	198 (6.98oz)	MUIT
	216 (7.62oz)	MUI
	238 (8.40oz)	MUID
Dimensions	2” × 3.5” (50.8 mm × 88.9 mm)	
MTBF	1.716 × 10^6 hrs , MIL-HDBK-217F, Full load	

EMC Specifications

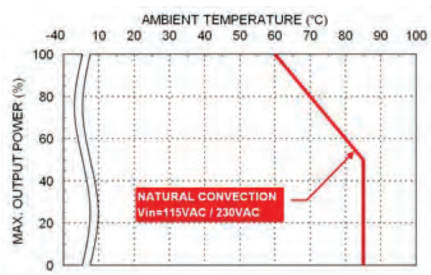
Specifications	Conditions		Level
EMI[1]	EN55011, EN55022 and FCC Part 18	Conducted	Class B
		Radiated	Class B
Harmonic currents	EN61000-3-2	Full load	Class A
Voltage flicker	EN61000-3-3		
ESD	EN61000-4-2	Air ±15kV and Contact ±8kV	Perf. Criteria A
Radiated immunity	EN61000-4-3	20V/m	Perf. Criteria A
Fast transient	EN61000-4-4	±2kV	Perf. Criteria A
Surge	EN61000-4-5	DM ±1kV	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	EN60601-1-2	0% of 240 Vac, 0.5 cycle	Perf. Criteria A
	EN61000-4-11	0% of 240 Vac, 1 cycle	Perf. Criteria A
		70% of 240 Vac, 25/30 cycle	Perf. Criteria A
		0% of 240 Vac, Single phase	Perf. Criteria B
		0% of 100 Vac, 0.5 cycle	Perf. Criteria A
		0% of 100 Vac, 1 cycle	Perf. Criteria B
		70% of 100 Vac, 25/30 cycle	Perf. Criteria A
		0% of 100 Vac, Single phase	Perf. Criteria B

Note:

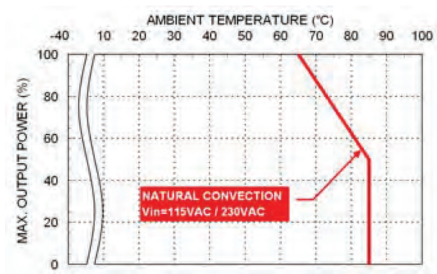
1. External components may be required for Class I application. For further information, please contact Polytron Devices, Inc.

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

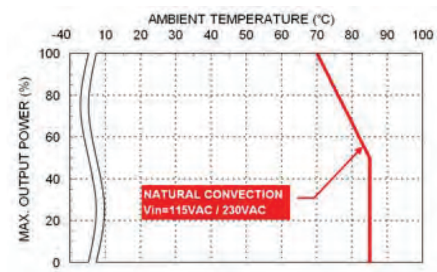
Characteristic Curve



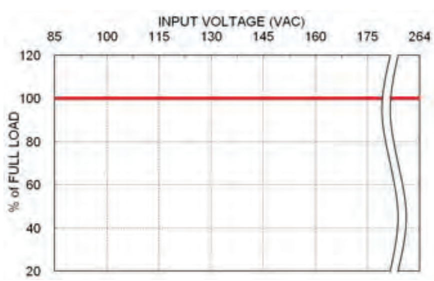
Derating Curve vs. Ambient Temperature



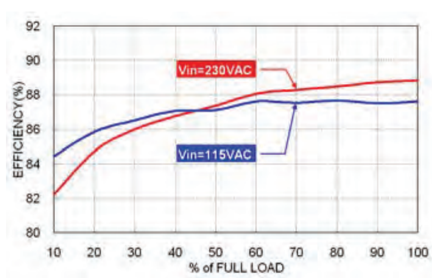
Derating Curve vs. Ambient Temperature



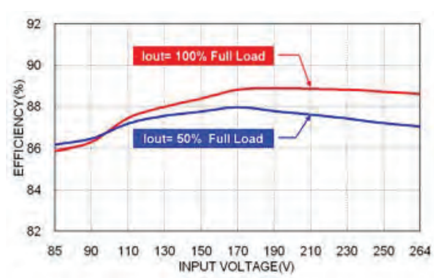
Derating Curve vs. Ambient Temperature



Derating Curve vs. Input Voltage



Efficiency vs. Output Load



Efficiency vs. Input Voltage

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MUI40 DUAL AND TRIPLE OUTPUT

Pin Connectors

CON1: INPUT CONNECTOR

PIN	
1	Line
3	Neutral

MATES WITH	
JST Housing	VHR-3N
JST Crimp Terminals	SVH-21T-P1.1

CON2: OUTPUT CONNECTOR

PIN	
1	Vout 3
2, 3	Com
4, 5	Vout 2
6	Vout 1

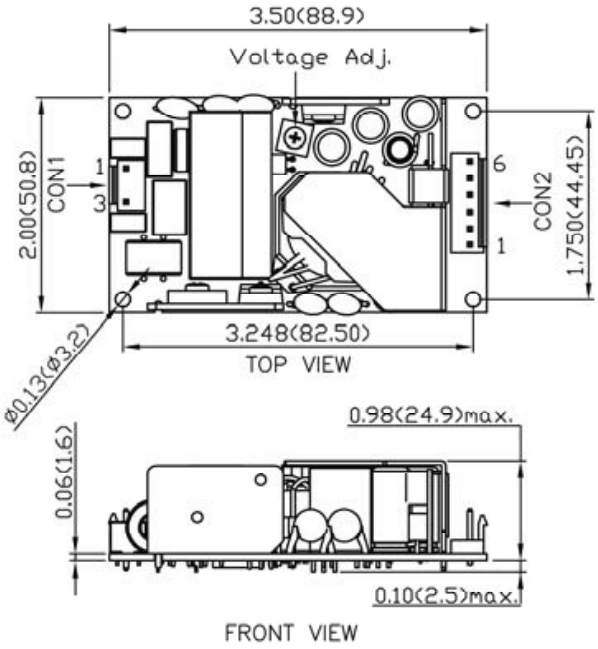
MATES WITH	
JST Housing	VHR-4N
JST Crimp Terminals	SVH-21T-P1.1

Note:

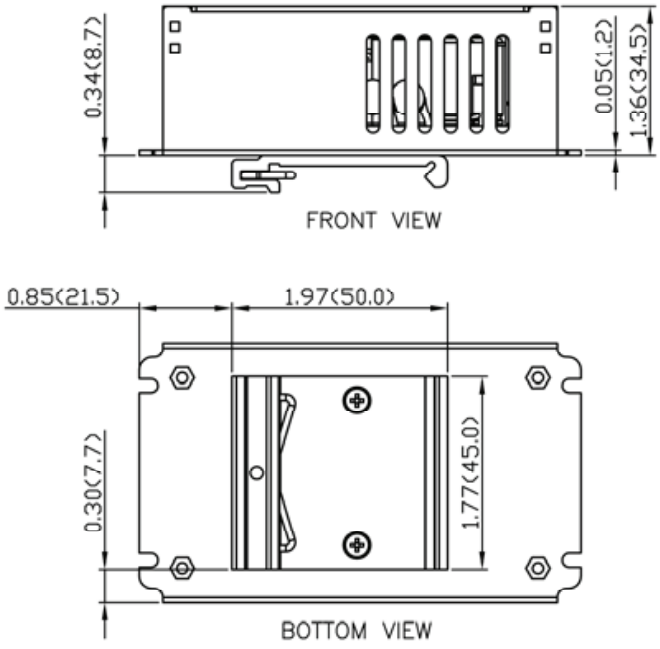
1. Either one of four screws holes of Open/ Chassis Type can be considered as PE connection for Class I application.

Mechanical Drawing

Open Type



DIN Rail Type

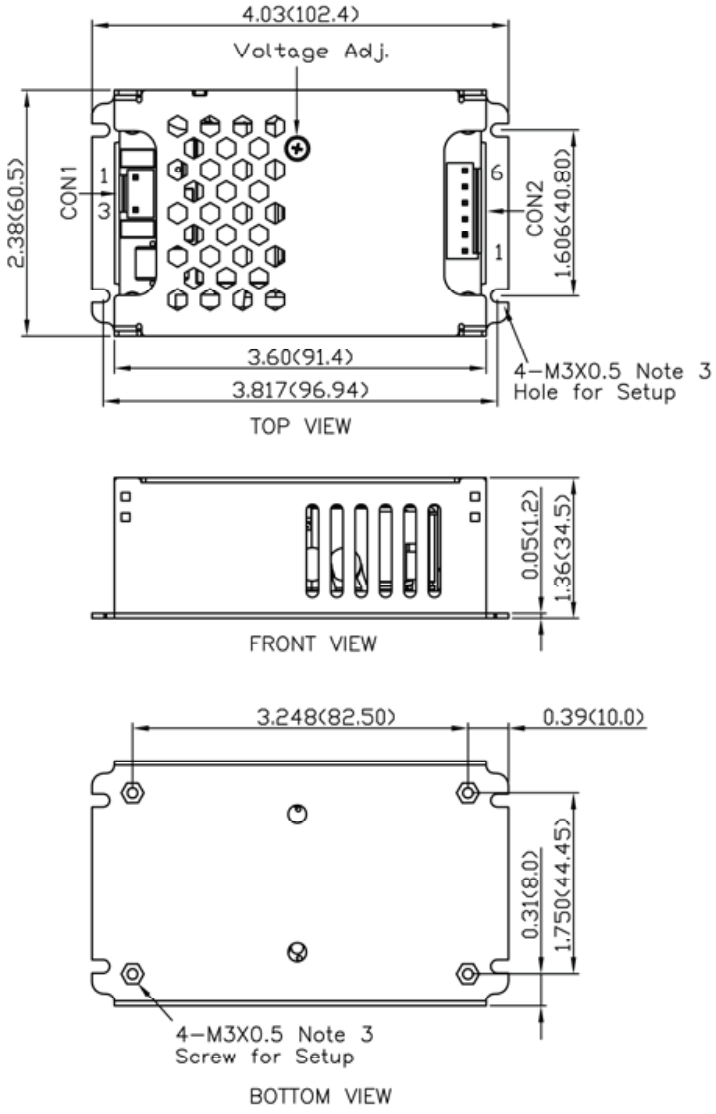


1. **All dimensions in inch (mm)**
2. **Tolerance :x.xx±0.02 (x.x±0.5)**
   x.xxx±0.01 (x.xx±0.25)
3. **M3 × 0.5 screw locked torque MAX 5Kgf.cm/0.49N.m**

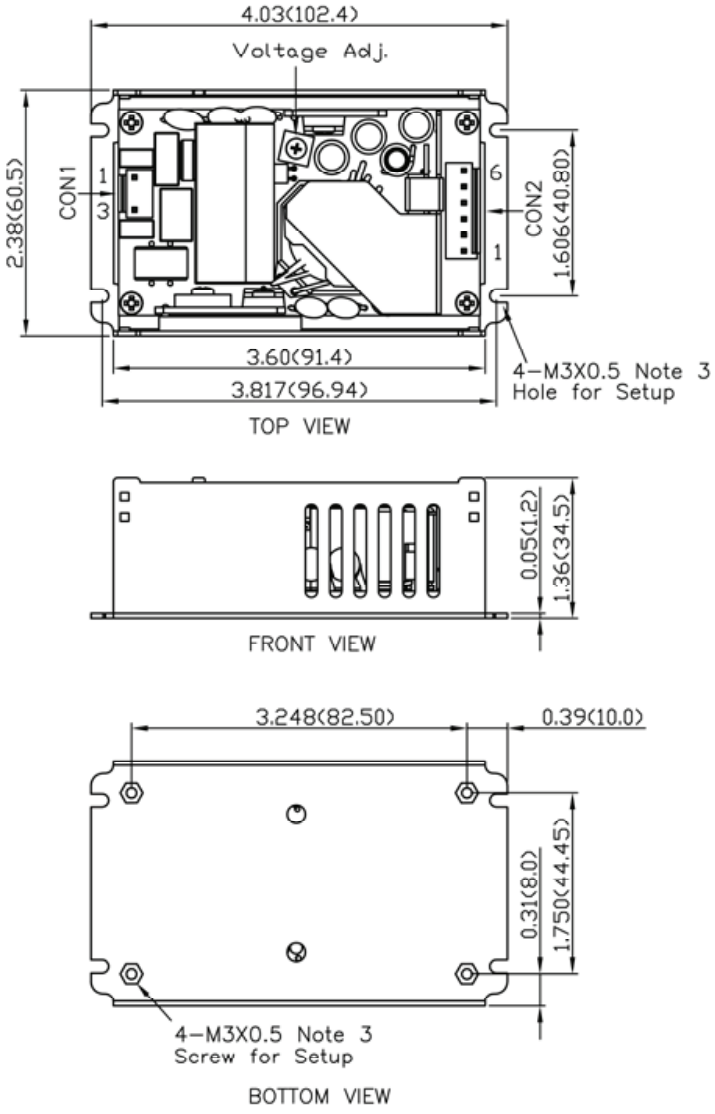
MUI40 DUAL AND TRIPLE OUTPUT

Mechanical Drawing

Enclosed Type



U Chassis Type



1. **All dimensions in inch (mm)**
2. **Tolerance :x.xx±0.02 (x.x±0.5)**
   x.xxx±0.01 (x.xx±0.25)
3. **M3 × 0.5 screw locked torque MAX 5Kgf.cm/0.49N.m**