POLYTRON DEVICES

DATA SHEET

AC-DC POWER SUPPLIES

UNIVERSAL INPUT, UP TO 40 WATTS

INDUSTRIAL APPLICATIONS

UI40 SERIES

FEATURES

- Universal Input Range
- Wide Input Voltage Range 85 - 264 Vac, 47 - 63 Hz
- Compact Package: 2.00” × 3.00”
- Built-In Class B EMI Filter
- Output Voltage Adjustable (Single Output Only)
- 3000 Vac Input to Output Reinforced Insulation
- Protection Type Class I and Class II
- Low Leakage Current Under 75μA
- Operating Altitude 5000M
- 3 Year Warranty
- Safety Meets: UL60950-1, EN60950-1, and IEC60950-1
- CE Marked: Design Meet IEC 61850-3
- Compliant to RoHS II & Reach

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

Input Range Vac	Output Voltage Vdc	Output Current at Convention Cooled 73ºC Ta A	Max. Output Power W	Input Power at No Load W	Efficiency %	Model Number*
85 - 264	5	8	40	0.11	90	UI40-5SB
85 - 264	7.5	5.34	40	0.11	90	UI40-7.5SB
85 - 264	9	4.45	40	0.11	91	UI40-9SB
85 - 264	12	3.34	40	0.11	92	UI40-12SB
85 - 264	12	3.34	40	0.11	90	UI40-12SHB
85 - 264	15	2.67	40	0.11	92	UI40-15SHB
85 - 264	15	2.67	40	0.11	90	UI40-15SB
85 - 264	24	1.67	40	0.11	92	UI40-24SB
85 - 264	28	1.43	40	0.11	91	UI40-28SB
85 - 264	36	1.12	40	0.11	92	UI40-36SB
85 - 264	48	0.84	40	0.11	93	UI40-48SB
85 - 264	53	0.77	40	0.11	92.5	UI40-53SB

* **Open Type: UIO**
Chassis Type: UIT
Din Rail: UID
Enclosed (Standard): UI

Screw Terminal: Suffix “T”
Class II Protection Type: Use Suffix “B”
Class I Protection Type: No Suffix

UI40 SINGLE SERIES

Input Specifications

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 Max.	100Vac and full load
	0.5 Max.	240Vac and full load
No load input power, Watts	0.11 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.	
Initial set voltage accuracy, %	-1 Min., 1 Max.	230Vac and Full Load
Line regulation, %	-0.2 Min., 0.2 Max.	Low Line to High Line at Full Load
Load regulation, %	-0.7 Min., 0.7 Max.	No Load to Full Load, 5Vout
	-0.5 Min., 0.5 Max.	Others
	-0.6 Min., 0.6 Max.	10% Load to 90% Load, 5Vout
	-0.4 Min., 0.4 Max.	Others
Voltage adjustability, %	-20 Min., 10 Max.	Single Output, 53Vout
	-10 Min., 10 Max.	Single Output, Others
Minimum load, %	0 Typ.	
Ripple and noise, mVp-p		Measured by 20MHz bandwidth
	75 Typ.	With a 10µF/25V 1206 X7R MLCC, 5Vout, 7.5Vout, 9Vout, 12Vout, 15Vout
	75 Typ.	With a 1µF/50V 1206 X7R MLCC, 24Vout, 28Vout, 36Vout
	150 Typ.	With a 0.1µF/100V 1206 X7R MLCC, 48Vout, 53Vout
Temperature coefficient, %/ºC	-0.02 Min., 0.02 Max.	
Transient response peak deviation, %	3Vout, Max.	Load step change from 50-75% at 2.5A/µs
Transient response recovery time, µs	600, Typ.	
Over voltage protection, %	125 Min., 140 Max.	% of Vout(nom); Latch mode
Over load protection, %	145 Typ.	% of Iout rated; Hiccup mode
Short curcuit protection	Continuous, automatic recovery	

General Specifications

Isolation voltage, Vac	1 minute (2MOPP isolation)	Input to Output	3000 Min.		
		Input (Output) to F.G.	2500 Min.		
Isolation resistance, GΩ	500Vdc		0.1 Min.		
Switching frequency, kHz	230Vac	5Vout		70 Typ.	
		Others		120 Typ.	

Environmental Specifications

Operating ambient temperature, ºC	Natural Convection with derating	-40 Min.		85 Max.
Storage temperature range, ºC		-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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UI40 SINGLE SERIES

Physical Specifications

Design meet safety standard	UL60950-1, EN60950-1, IEC60950-1	
Weight, g	114 (4.02oz)	UIO
	154 (5.43oz)	UIT
	169 (5.96oz)	UI
	190 (6.70oz)	UID
Dimensions	2.00" × 3.00" (50.8mm × 76.2mm)	
MTBF	3.010 × 10^6 hrs , MIL-HDBK-217F, Full load	

EMC Specifications

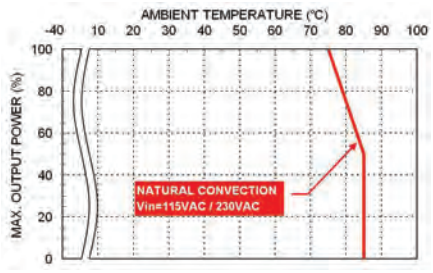
Specifications	Conditions		Level
EMI[1]	EN55011, EN55022 and FCC Part 15	Conducted	Class B
		Radiated	Class B
Harmonic currents	EN61000-3-2	Full load	Class A
Voltage flicker	EN61000-3-3		
ESD	EN61000-4-2	Air ±15KV and Contact ±6KV	Perf. Criteria A
Radiated immunity	EN61000-4-3	20V/m	Perf. Criteria A
Fast transient	EN61000-4-4	±4KV	Perf. Criteria B
Surge	EN61000-4-5	DM ±2KV and CM ±4KV	Perf. Criteria A
Conducted immunity	EN61000-4-6	20 Vr.m.s	Perf. Criteria A
Power frequency magnetic field	EN61000-4-8	100 A/M	Perf. Criteria A
Dip and interruptions	EN60600-4-11	230Vac 50Hz, 30%, 20mS	Perf. Criteria A
		230Vac 50Hz, 30%, 500mS	Perf. Criteria A
		230Vac 50Hz, 60%, 1000mS	Perf. Criteria A
		230Vac 50Hz, >95%, 10mS	Perf. Criteria A
		100Vac 50Hz, >95%, 5000mS	Perf. Criteria B
Damped Oscillatory Wave	EN61000-4-18	DM ±1kV and CM ± 2.5kV	Perf. Criteria A

Note:

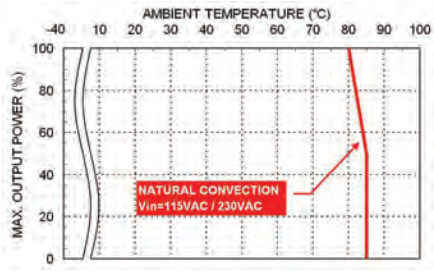
1. External components may be required for Class I application. For further information, please contact Polytron Devices, Inc.

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

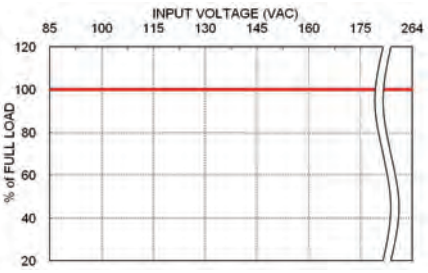
Characteristic Curve



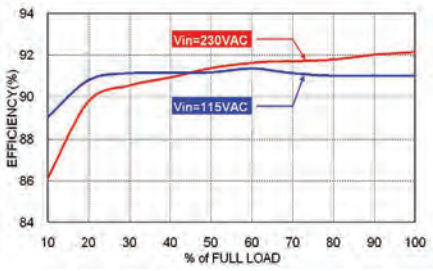
Derating Curve vs. Ambient Temperature



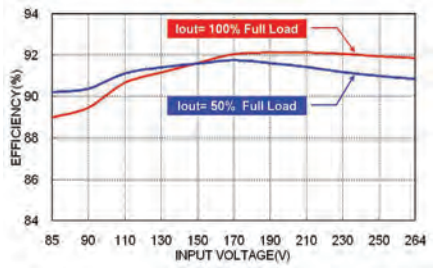
Derating Curve vs. Ambient Temperature



Derating Curve vs. Input Voltage



Efficiency vs. Output Load



Efficiency vs. Input Voltage

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, 2	-Vout
3, 4	+Vout

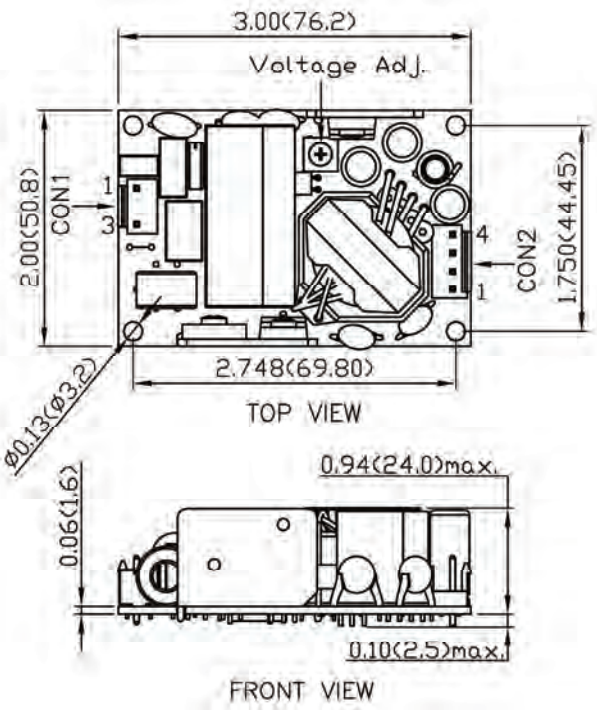
MATES WITH	
JST Housing	VHR-4N
JST Crimp Terminals	SVH-21T-P1.1

Note:

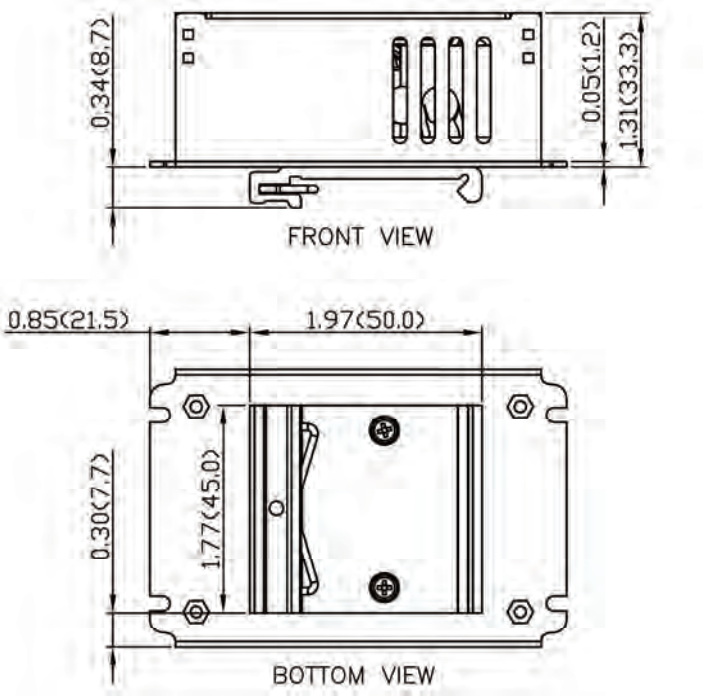
1. Either one of four screws holes of Open/ Chassis Type can be considered as PE connection for Class I application.

Mechanical Drawing

Open Type



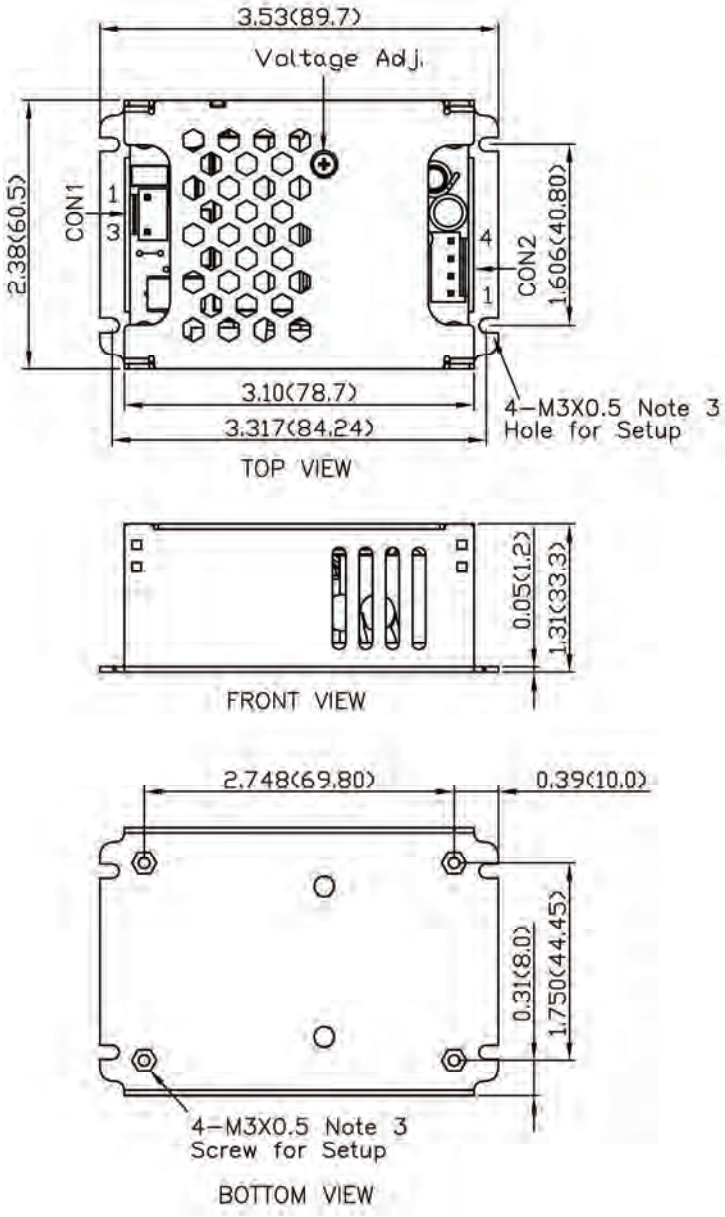
DIN Rail Type



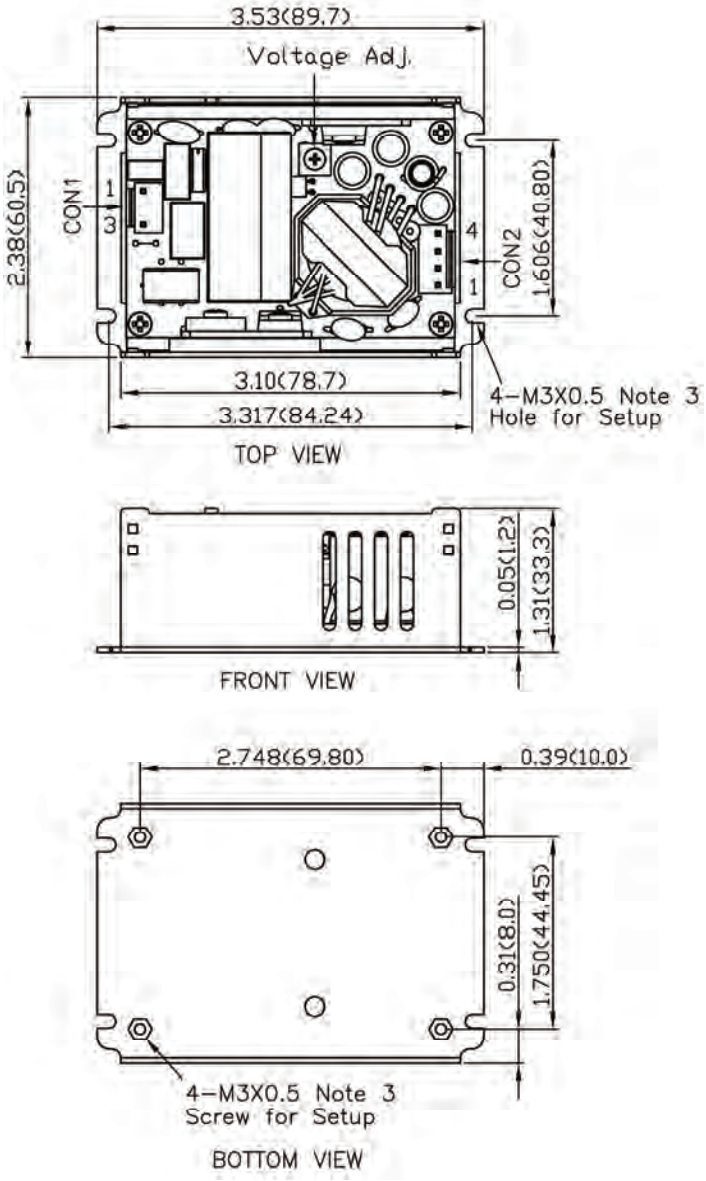
1. **All dimensions in inch (mm)**
2. **Tolerance :x.xx±0.02 (x.x±0.5) x.xxx±0.01 (x.xx±0.25)**
3. **M3 × 0.5 screw locked torque MAX 5Kgf.cm/0.49N.m**

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