

# AC-DC CONVERTERS

## UNIVERSAL INPUT, 100 WATTS, 2" x 3" PACKAGE

### INDUSTRIAL APPLICATIONS

#### UI100 SERIES



#### FEATURES

- Package Size: 2" x 3" x 1.16"
- Efficiency to 92%
- ADJ. Output Voltage
- 3000 VAC Reinforced Insulation
- Internal EN55032 Class Filter B
- Low Leakage Current
- Low Standby Power
- Protection Class I, Class II
- Operating Altitude: 5000 meter
- Over Current Protection
- Over Voltage Protection
- Short Circuit Protection
- Safety Meets: IEC/UL/EN60950-1, CE Mark
- RoHS Compliant
- REACH Compliant

#### 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 Natural Convection A	Input Power at No Load W	Efficiency %	Model Number*
85 - 264	12	8.34	0.3	91	UI100-12S
85 - 264	15	6.67	0.3	92	UI100-15S
85 - 264	24	4.17	0.3	92	UI100-24S
85 - 264	28	3.58	0.3	92	UI100-28S
85 - 264	36	2.78	0.3	91	UI100-36S
85 - 264	48	2.09	0.3	91	UI100-48S

#### \* Prefix:

Enclosed Type (Standard): UI100-  
Open Type: UIO100-  
Chassis Type: UIU100-  
Din-rail Type: UID100-

#### Suffix:

JST (Standard): No Suffix Needed  
Molex: Suffix "M"  
Terminal Block: Suffix "T"

## UI100 SERIES

Input Specifications		
Operating input voltage range, Vdc or Vac	85 Min., 264 Max.	AC input, VAC
	120 Min., 370 Max.	DC input, VDC
Input frequency, Hz	47 Min., 63 Max.	AC input
Input current, A	1.15 Max.	115VAC and Full load
	0.55 Max.	230VAC and Full load
No load input power, Watts	0.3 Max.	230VAC
Leakage current, $\mu$ A	300 Max.	264VAC
Power factor	0.95 Min.	
Start up time, ms	1000 Max.	
Rise time, ms	20 Typ.	
Hold up time, ms	22 Min.	115VAC and Full load
Input inrush current, A	100 Max.	230VAC
Input protection	T3.15A/250VAC	Internal fuse

Output Specifications		
Output power, Watts	100 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
	-0.5 Min., 0.5 Max.	No load to full load
Load regulation, %	-0.4 Min., 0.4 Max.	10% load to 90% load
Voltage adjustability, %	-10 Min., 10 Max.	
Minimum load, %	0 Typ.	
Ripple and noise, mVp-p		20MHz bandwidth
		With a 10 $\mu$ F/25V 1206 X7R MLCC
	120 Typ.	12Vout
	150 Typ.	15Vout
		With a 1 $\mu$ F/50V 1206 X7R MLCC
	160 Typ.	24Vout
	180 Typ.	28Vout
	190 Typ.	36Vout
		With a 0.1 $\mu$ F/100V 1206 X7R MLCC
	340 Typ.	48Vout
Temperature coefficient, %/°C	-0.02 Min., 0.02 Max.	
Transient response, %Vout or $\mu$ s		Load step from 50-75% change at 2.5A/ $\mu$ s
	3 Max.	Peak deviation, %Vout
	500 Typ.	Recovery time, $\mu$ s
Over voltage protection, %	115 Min., 135 Max.	% of Vout(nom); Latch mode
Over load protection, %	115 Min., 150 Max.	% of Iout rated; Hiccup mode
Short circuit protection		Continuous, automatic recovery

General Specifications			
Isolation voltage, Vac	1 minute (reinforced insulation)	Input to output	3000 Min.
		Input (output) to F.G.	1500 Min.
Isolation resistance, G $\Omega$	500Vdc		0.1 Min.
Switching frequency, kHz			60 Typ.

## UI100 SERIES

### Environmental Specifications

Operating case temperature, °C	Natural convection and full load	With derating		
	-40°C start up: 80% load, max.	@ Vin > 100VAC	-40 Min.	85 Max.
	-40°C start up: 100% load, max.	@ Vin > 200VAC		
Storage temperature range, °C			-40 Min.	85 Max.
Operating altitude, m				5000 Max.
Thermal shock			MIL-STD-810F	
Shock			IEC60068-2-27	
Vibration			IEC60068-2-6	
Relative humidity	Non-condensing		5% to 95% RH	

### Physical Specifications

Design meet safety standard	IEC/UL/EN60950-1, UL:E193009, CB:UL(Demko)	
Weight, g	156g (5.50oz)	UI
	194g (6.84oz)	UIO
	210g (7.41oz)	UIOU
	232g (8.18oz)	UIOD
Dimensions	2" × 3" × 1.16" (50.8mm × 76.2mm × 29.5mm)	
MTBF	7.903 × 10 <sup>5</sup> hrs, MIL-HDBK-217F Ta=25°C, Full load	

### EMC Specifications

Specifications	Conditions	Level
EMI	EN55011, EN 55032 and FCC Part 15	External components may be required for class I application Conducted, Class B Radiated, Class A
Harmonic currents	EN61000-3-2	Full load Class A and D
Voltage flicker	EN61000-3-3	
EMS	EN55024	
ESD	EN61000-4-2	Air ±8kV and Contact ±6kV 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 and CM ±2KV Perf. Criteria A
Conducted immunity	EN61000-4-6	20 Vr.m.s Perf. Criteria A
Power frequency magnetic field	EN61000-4-8	10 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.

### Connector Options

#### JST TYPE

MATES WITH HOUSING:	
CON1	VHR-3N
CON2	VHR-4N

#### CRIMP TERMINALS:

CON1	SVH-21T-P1.1
CON2	SVH-21T-P1.1

#### MOLEX TYPE

MATES WITH HOUSING:	
CON1	09-50-8031
CON2	09-50-8041

#### CRIMP TERMINALS:

CON1	SD-2478
CON2	SD-2478

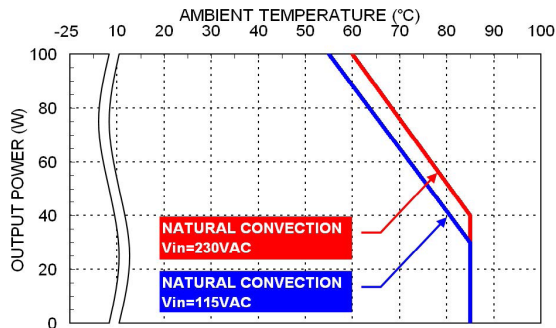
#### TERMINAL BLOCK

Screw locked torque	MAX 2Kgf.cm/0.2N.m
Wire dimension range	26 ~ 16AWG

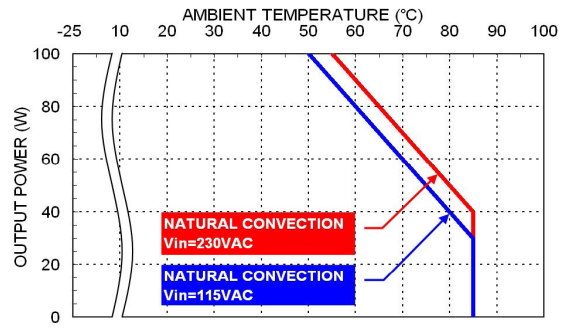


**UI100 SERIES**

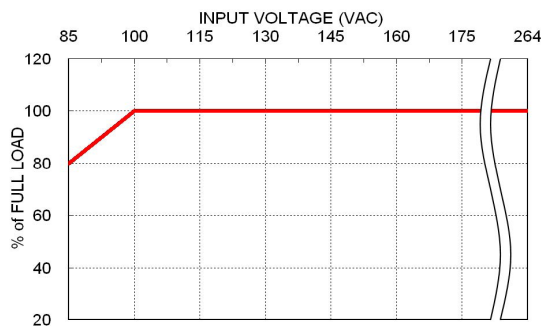
**Characteristic Curve**



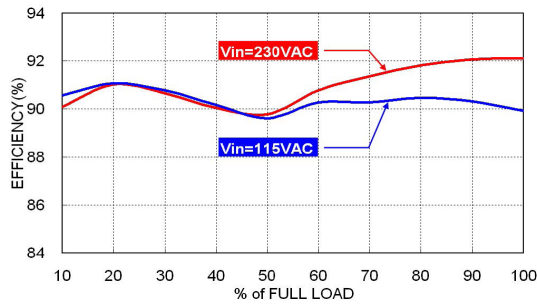
UIU100 Derating Curve vs. Ambient Temperature



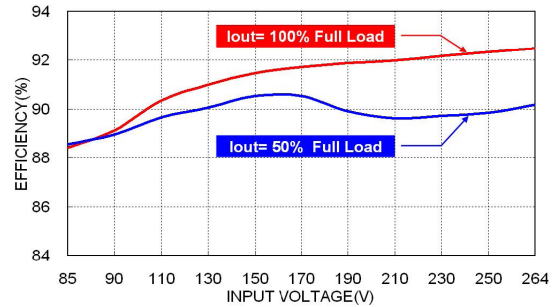
UI100 & UI0100 Derating Curve vs. Ambient Temperature



Derating Curve vs. Input Voltage



Efficiency vs. Output Load

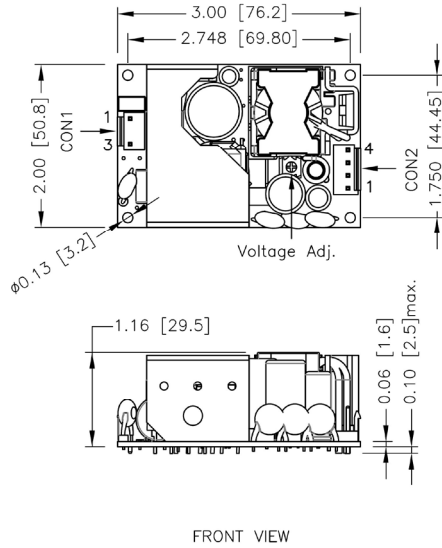


Efficiency vs. Input Voltage

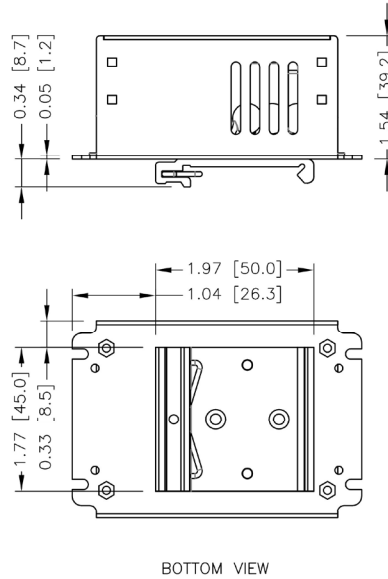
# UI100 SERIES

## Mechanical Drawing

### Open Type: UIO100-XXX



### Din Rail Type: UID100-XXX



### PIN CONNECTION

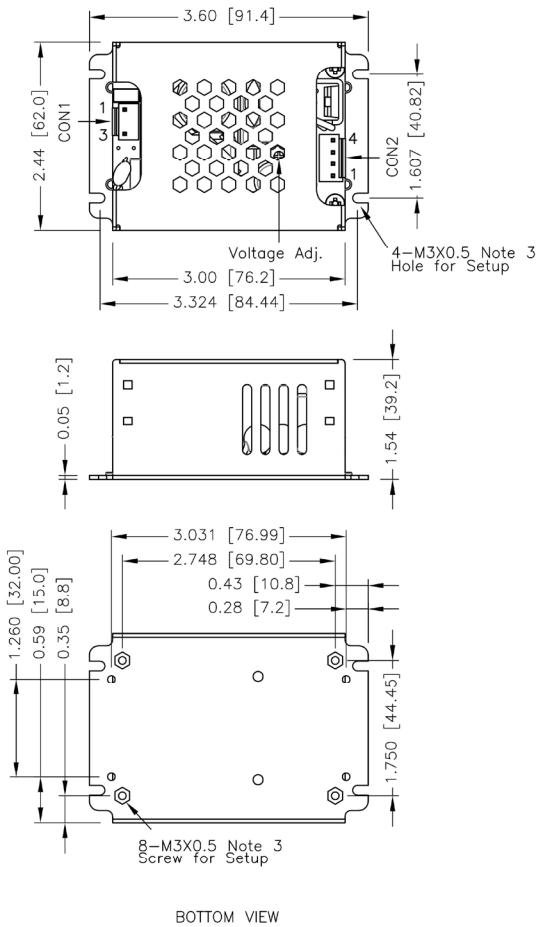
PIN	CON1-INPUT
1	Line
3	Neutral

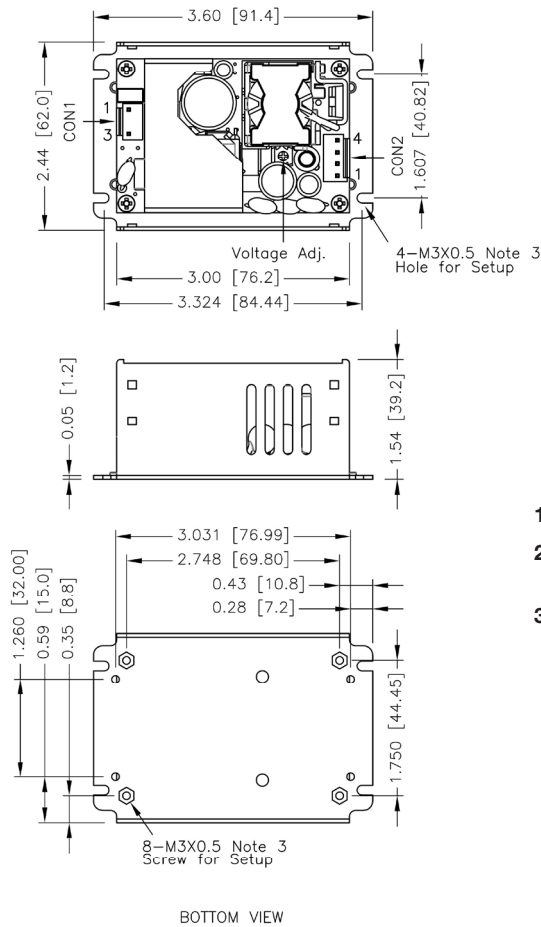
	CON2-OUTPUT
1	-Vout
2	-Vout
3	+Vout
4	+Vout

\* Either one of four screws holes of Open/Chassis type can be considered as PE connection for CLASS I application.

### Enclosed Type: UI100-XXX



### Chassis Type: UIU100-XXX



- All dimensions in inch (mm)
- Tolerance:  $x.xx \pm 0.02$  ( $x.x \pm 0.5$ )  
 $x.xxx \pm 0.01$  ( $x.xxx \pm 0.25$ )
- M3x0.5 screw locked torque  
MAX 5Kgf.cm/0.49N.m