

## AC-DC POWER SUPPLIES

### UNIVERSAL INPUT, 30 WATT

#### MEDICAL APPLICATIONS

#### MUI30 SERIES



#### FEATURES

- Universal Input Range
- 2.89" × 1.50" × 1.00" Encapsulated Package (Pin Type)
- Operating Temperature Range: -40°C to +85°C (with derating)
- High Efficiency (up to 91.5%)
- Terminal Block and Din Rail Options
- Safety Approvals: EN, IEC, ANSI, AAMI ES60601-1 UL, EN, IEC60950-1
- 2 X MOPP
- 4000 VAC Reinforced Insulation
- Low Leakage Current
- Adjustable Output Voltage
- Operating Altitude: 5000 meter

#### 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 Natural Convection A	Max. Output Power W	Efficiency %	Model Number
85 - 264	3.3	6	20	84	MUI30-33S
85 - 264	5	6	30	87	MUI30-5S
85 - 264	7.5	4	30	87	MUI30-7.5S
85 - 264	9	3.34	30	88	MUI30-9S
85 - 264	12	2.5	30	90.5	MUI30-12SH
85 - 264	12	2.5	30	88	MUI30-12S
85 - 264	15	2	30	90.5	MUI30-15SH
85 - 264	15	2	30	88	MUI30-15S
85 - 264	18	1.67	30	88	MUI30-18S
85 - 264	24	1.25	30	89.5	MUI30-24S
85 - 264	28	1.08	30	89.5	MUI30-28S
85 - 264	36	0.84	30	90	MUI30-36S
85 - 264	48	0.63	30	91.5	MUI30-48S
85 - 264	53	0.58	30	91	MU30-53S

## MUI30 SERIES

Input Specifications			Output Specifications		
Voltage range	85-264Vac	AC input	Output power, Watt	30 Max.	
	120-370Vdc	DC input	Initial set voltage accuracy, %	±1.0	230Vac and Full Load
Input frequency, Hz	47 Min., 63 Max.	AC input	Line regulation, %	±0.2	Low Line to High Line at Full Load
Input current, A	0.8 Max.	100Vac and full load	Load regulation, %	±0.7	No Load to Full Load, 3.3 Vout, 5 Vout
	0.4 Max.	240Vac and full load		±0.5	Others
No load input power, Watts	40 Typ.	230Vac	±0.6	10% Load to 90% Load, 3.3 Vout, 5 Vout	
Leakage current, $\mu$ A	100 Max.	264Vac	±0.4	Others	
Start-up time, ms	1500 Max.		Voltage adjustability, %	±10	
Rise time, ms	20 Typ.	Others	Minimum load, %	0	
	40 Typ.	24 Vout, 28 Vout, 36 Vout	Ripple and noise, mVp-p	Measured by 20MHz bandwidth	
	50 Typ.	48 Vout, 53 Vout		50 Typ.	With a 10 $\mu$ F/25V 1206 X7R MLCC, 3.3 Vout, 5 Vout
		50 Typ.		With a 10 $\mu$ F/25V 1206 X7R MLCC, 7.5 Vout, 9 Vout	
		50 Typ.		With a 1 $\mu$ F/50V 1206 X7R MLCC, 12 Vout, 15 Vout, 18 Vout	
		50 Typ.		With a 1 $\mu$ F/50V 1206 X7R MLCC, 24 Vout, 28Vout, 36 Vout	
Hold-up time, ms	16 Typ.	115Vac and full load	Temperature coefficient, %/°C	±0.02	
Input inrush current, A	40 Max.	230Vac	Transient response peak deviation, %	3 Max.	Load step change from 50-75% at 2.5A/ $\mu$ s
Input protection	T1.6A/250Vac	Internal fuse inline and neutral	Transient response recovery time, $\mu$ s	500 Typ.	Load step change from 50-75% at 2.5A/ $\mu$ s
			Over voltage protection, %	125 Min., 140 Max.	% of Vout(nom); Automatics recovery
			Over load protection, %	140 Typ.	% of Iout rated; Hiccup mode
			Short circuit protection	Continuous, automatic recovery	
			Fan power supply	12V at 500mA	

### General Specifications

Isolation voltage, Vac	1 minute (2MOPP insulation)	Input to Output	4000 Min.		
Isolation resistance, G $\Omega$	500Vdc		0.1 Min.		
Switching frequency, kHz	230 Vac and Full Load		30 Min.	40 Typ.	60 Max.

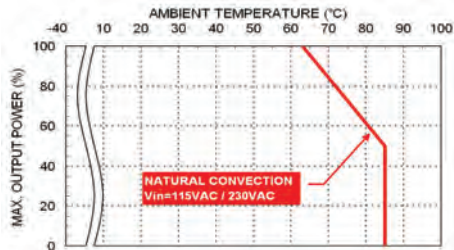
### Environmental Specifications

Operating ambient temperature, °C	Natural convection	With derating	-40 Min.	+85 Max.	
Storage temperature range, °C			-40 Min.	+85 Max.	
Operating altitude, m				5000 Max.	
Shock			IEC68-2-27		
Vibration			IEC60068-2-6		
Relative humidity	Non-condensing		5% to 95% RH		

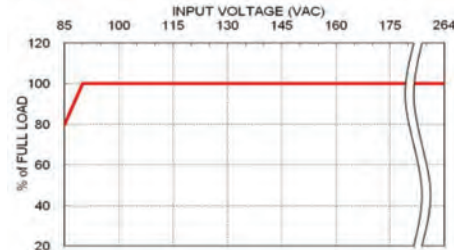
## MUI30 SERIES

Physical Specifications			EMC Specifications			
Design meet safety standard	EN, IEC, ANSI, AAMI ES60601-1, UL, EN, IEC60950-1		Specifications	Conditions		Level
Weight, g	119 (4.20oz)	Connector Type	EMI	EN55011, EN55032 and FCC Part 18	Conducted	Class B
	106 (3.74oz)	Pin Type			Radiated	Class B
Dimensions	2.89" × 1.50" × 1.00" (73.3 × 38.1 × 25.4 mm)	Pin Type	Harmonic currents	EN61000-3-2	Full load	Class A
	3.95" × 1.50" × 1.00" (100.3 × 38.1 × 25.4 mm)	Terminal Block Type	Voltage flicker	EN61000-3-3		
	3.95" × 1.50" × 1.112" (100.3 × 38.1 × 28.4 mm)	Din Rail Type	ESD	EN61000-4-2	Air ±15KV and Contact ±8KV	Perf. Criteria A
MTBF	3.341 × 10 <sup>6</sup> hrs, MIL-HDBK-217F, Full load		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	30A/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 cycle	Perf. Criteria A
	0% of 240 Vac, 250 cycle	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 cycle	Perf. Criteria B			
		0% of 100 Vac, 250 cycle	Perf. Criteria B			

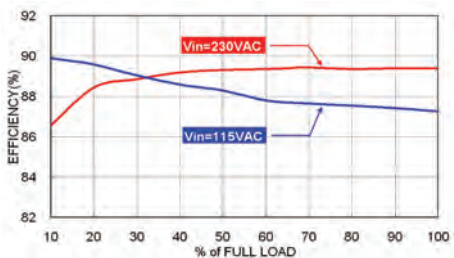
## Characteristic Curve



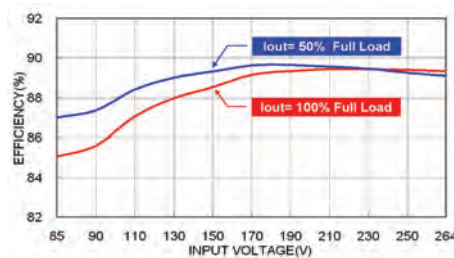
Derating Curve vs. Ambient Temperature



Derating Curve vs. Input Voltage



Efficiency vs. Output Load

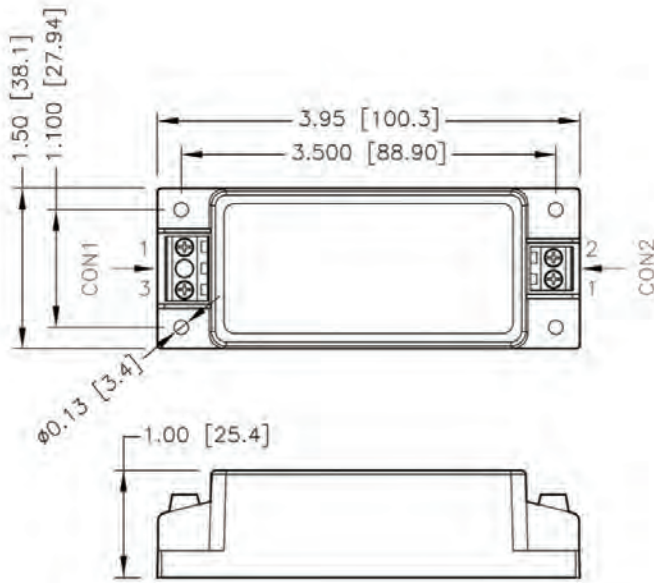


Efficiency vs. Input Voltage

**MUI30 SERIES**

**Mechanical Drawing**

**Connector Type**



FRONT VIEW

**CON1-INPUT CONNECTOR**

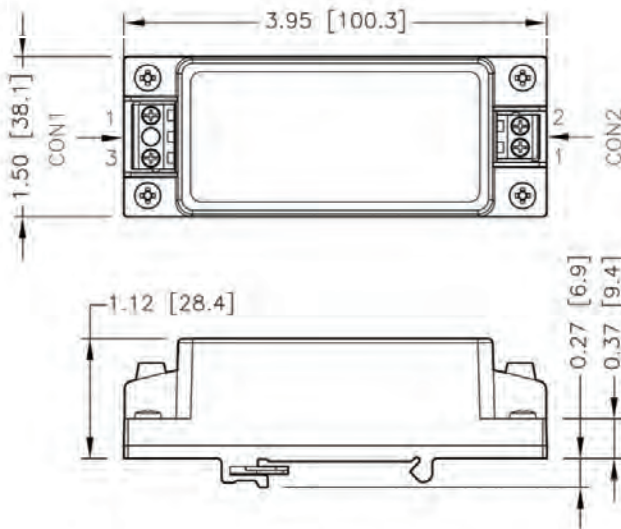
PIN	
1	Line
3	Neutral

**CON2-OUTPUT CONNECTOR**

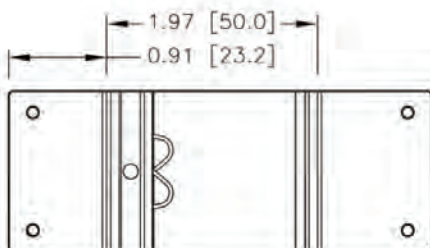
PIN	
1	+Vout
2	-Vout

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

**Din Rail Type**



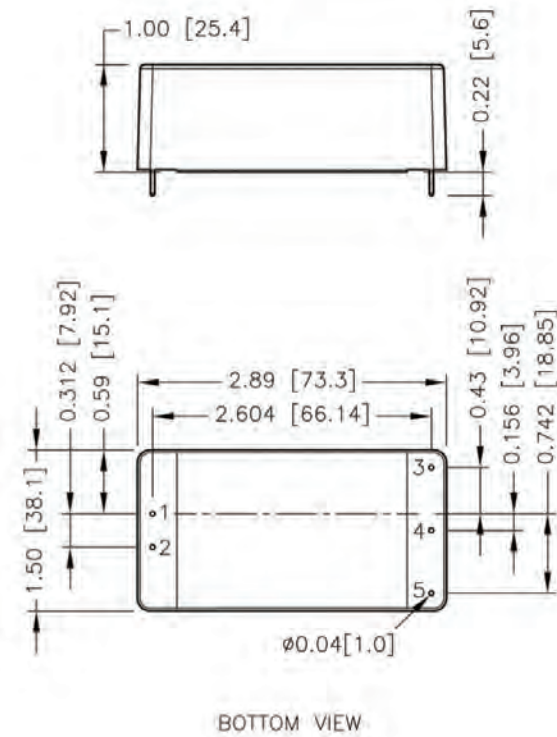
FRONT VIEW



## MUI30 SERIES

### Mechanical Drawing

#### Pin Type

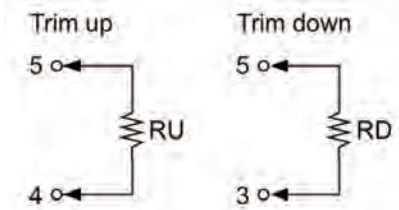


#### PIN CONNECTION

PIN	SINGLE
1	Neutral
2	Line
3	+Vout
4	-Vout
5	Trim

#### EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method shown below.



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. Pin pitch tolerance ±0.01(0.25)
4. Pin dimension tolerance ±0.004(0.10)