



# SMF61P1R Series

UL, EN, IEC 60601-1 3<sup>rd</sup> Edition Medical  
60 Watt AC - DC Open Frame Power Supply

Date: 10/21/13

Rev: 093014

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The SMF61P1R Series open frame medical switch mode power supply offers 60 Watts convection cooled power in a compact 2" x 4" size, with UL/ C-UL, IEC and EN 60601-1, 3<sup>rd</sup> Edition safety approvals.

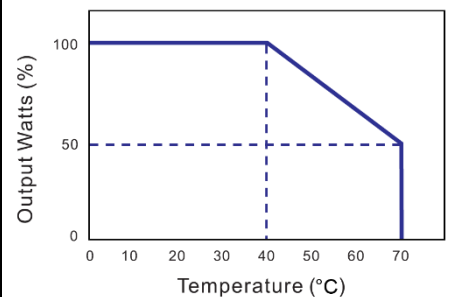


Input Voltage	90 to 264 Vac
Input Frequency	47 to 63 Hz
Input Current (Low Line)	1.62 A Max at 100 Vac
Input Current (High Line)	0.72 A Max at 240 Vac
Safety Ground Leakage Current	0.25 mA Max at 240 VAC, Full Load
Output Voltage & Current	See Table on Page 2
Ripple & Noise (P-P)	1 % Max., Full Load at 90 Vac Input
Over-Voltage Protection	112 – 132%
Over-Current Protection	110 – 150%
Temperature Coefficient	± 0.04% / °C Max
Transient Response	50% Load Change at 100 VAC Input: 4 ms Max
Efficiency	78.4 to 89%
No Load Power Consumption	≤ 0.5 Watts
Line Regulation	± 1% Max at Full Load
Load Regulation	± 5% Max. at 230 Vac
Start-Up Time	0.25 to 0.5 s
Hold-Up Time	12 ms Min
Withstanding Voltage	Primary to Secondary: 6,492 Vdc Min Primary to Ground: 2,121 Vdc Min
Insulation Resistance	Output to Ground: 50 MΩ Min
Inrush Current	31 A @ 115 Vac Max. at 25°C Cold Start 62 A @ 230 Vac Max. at 25°C Cold Start
Mean Time Between Failure	Full Load at 25°C Ambient: 100,000 Hours Min
Operating Temperature	See Derating Curve
Storage Temperature	-40 to 85 °C
Industry Compliance	Directive 2011/65/EU (RoHS 2)
EMI Requirements	Meets Conduction Limits of: CISPR-11 Class B, FCC Part 18 Class B, and EN 55011 Class B
Safety Compliance	ANSI/AAMI ES 60601-1:2005 (UR Listed 3rd Edition), EN 60601-1:2006 (TUV/T-mark 3rd Edition), CE, CB, FCC

## Features:

- Universal Input 100 - 240 Vac
- 12 - 40 Vdc, Single Output
- Over-Voltage, Over-Current, and Short Circuit Protection
- Input Surge Current Protection
- 100% Burn-In
- RoHS 2 Compliant
- 2 MOPP Protection
- Class I

## Derating Curve



Derate Linearly from 100% at 40°C to 50% at 70°C



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## Output Voltage and Current Table

Output Voltage Range *	Output Current Limited to Output Power †	Total Regulation	Maximum Output Power
12 - 13 Vdc	5.00 – 4.61 A	5%	60 W
14 - 16 Vdc	4.28 – 3.75 A	5%	60 W
17 - 21 Vdc	3.52 – 2.85 A	5%	60 W
22 - 27 Vdc	2.72 – 2.22 A	3%	60 W
28 - 33 Vdc	2.14 – 1.81 A	3%	60 W
34 - 40 Vdc	1.76 – 1.50 A	3%	60 W

\* Output Voltages between ranges are also available.

† To find Output Current:  
Output Current = Max Power ÷ Output Voltage  
Example: Output Current for 12 Vdc Output  
Output Current = 60 W ÷ 12 V  
Output Current = 5 A

## Mechanical Specification (mm, [in])

Dimensions (mm, [in]):

- Overall width: 101.0±0.5 [3.98±0.02]
- Mounting holes distance: 93.0±0.5 [3.66±0.02]
- AC Input connector offset: 29.8±0.5 [1.18±0.02]
- DC Output connector offset: 17.6±0.5 [0.70±0.02]
- AC Input height: 50.8±0.5 [2.00±0.02]
- DC Output height: 25.4 [1.00]
- Mounting hole diameter: H1~H4: Ø4.0
- Pin pitch: PITCH=7.92 [0.31] (AC), PITCH=3.96 [0.16] (DC)

6-Pin Header	
Pin	Output
1 - 3	+V
4 - 6	Return

- Input Connector Mating:
  - Molex Housing 09-50-3031/35977-0300 and Molex 2478/35922 Series Crimp Terminal
- Output Connector Mating:
  - Molex Housing 09-50-3061/35977-0600 and Molex 2478/35922 Series Crimp Terminal