



# SMF31P1R Series

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

Date: 2/11/16

Rev: 021116

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The SMF31P1R Series open frame medical switch-mode power supply has 30 Watts convection cooled output in a 1.5" x 4" compact size, with UL/C-UL, IEC and EN 60601-1, 3<sup>rd</sup> Edition safety approvals.

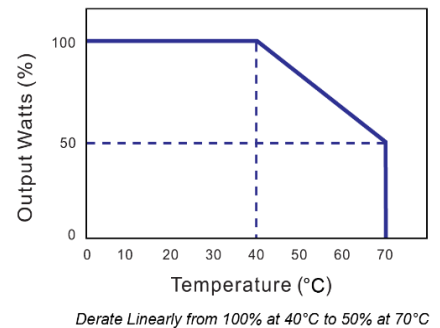


Input Voltage	90 to 264 Vac
Input Frequency	47 to 63 Hz
Input Current (Low Line)	0.8 A Max at 100 Vac
Input Current (High Line)	0.4 A Max at 240 Vac
Safety Ground Leakage Current	0.3 mA Max at 240 Vac, Full Load
Output Voltage & Current	See Table on Page 2
Ripple & Noise (P-P)	1 % Max., Full Load at 90 Vac Input
Over-Current Protection	110 – 150%
Temperature Coefficient	±0.04% / °C Max
Transient Response	50% Load Change at 100 Vac Input: 4 ms Max
Efficiency	72 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: 6,202 Vdc
Inrush Current	25 A @ 115 Vac Max. at 25°C Cold Start 50 A @ 230Vac 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
- 5 - 40 Vdc, Single Output
- Internal EMI Filter
- Over-Current Protection
- Over-Voltage Protection
- Short Circuit Protection
- 100% Burn-In
- RoHS 2 Compliant
- 2 MOPP Protection
- Class II

## Derating Curve



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## Output Voltage and Current Table

Output Voltage Range *	Max. Output Current Limited to Output Power †	Total Regulation	Maximum Output Power
5 Vdc	4.00 A	5%	20 W
6 - 7 Vdc	3.83 - 3.28 A	5%	23 W
8 - 11 Vdc	3.73 - 2.45 A	5%	27 W
12 - 13 Vdc	2.50 - 2.31 A	5%	30 W
14 - 16 Vdc	2.14 - 1.87 A	5%	30 W
17 - 21 Vdc	1.76 - 1.42 A	5%	30 W
22 - 27 Vdc	1.36 - 1.11 A	3%	30 W
28 - 33 Vdc	1.07 - 0.90 A	3%	30 W
34 - 40 Vdc	0.88 - 0.75 A	3%	30 W

\* Output Voltages between ranges are also available.

† To find Max. Output Current:  
 Max Output Current = Max Power ÷ Output Voltage  
 Example: Max Output Current for 5 Vdc Output  
 Max Output Current = 20 W ÷ 5 V  
 Max Output Current = 4 A

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Output Voltage: See Table

## Mechanical Specification (mm, [in])

102.0±0.5 [4.02±0.02]  
 94.0±0.5 [3.70±0.02]  
 38.1±0.5 [1.50±0.02]  
 30.1±0.5 [1.19±0.02]  
 Pitch=7.92 [0.31]  
 15.1±0.5 [0.59±0.02] AC INPUT  
 Ø4.0(MOUNTING HOLES)X4  
 LED  
 P1  
 P2  
 Pitch=3.96 [0.16]  
 13.0±0.5 [0.51±0.02]  
 DC OUTPUT  
 Max=21.0 [0.83]  
 Max=4.6 [0.18]

<ul style="list-style-type: none"> <li>Input Connector Mating:           <ul style="list-style-type: none"> <li>Molex Housing 09-50-3031 and Molex 2478 Series Crimp Terminals</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Output Connector Mating:           <ul style="list-style-type: none"> <li>Pin Header: Molex Housing 09-50-3041 and Molex 2478 Series Crimp Terminals</li> </ul> </li> </ul>
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