



## MS40 Series

### 40 W Medical Open Frame Power Supply

- High Efficiency
- Wide Range AC Input
- Fully Regulated DC Output
- Lifetime Expectation >5 years
- Hold-up Time >16ms at full load
- Output Floating
- Safety Approval - EN60601-1 Class I
- RoHs Compliant

Elpac Part Number	Output Voltage	Output Current	Total Regulation	Typical Efficiency
MS4009F	9.0V	4.40A	±5%	84%
MS4012F	12.0V	3.30A	±5%	86%
MS4015F	15.0V	2.70A	±5%	87%
MS4018F	18.0V	2.20A	±5%	86%
MS4024F	24.0V	1.67A	±5%	88%

Input	
Input Voltage	85 - 264VAC 100 - 240VAC Nominal
Input Frequency	47 - 63Hz
Input Current	<1.0A rms
Inrush Current	<37A at 230VAC cold start
Zero Load Power Consumption	<0.5W
Earth Leakage Current	<50µA @ 132VAC @ 60Hz <75µA @ 264VAC @ 60Hz

Output
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Output Voltage	See Table
Total Regulation	+/-5%
Minimum Load	No minimum load required
Start-Up Delay	<150ms
Hold-Up Time	>16ms
Ripple & Noise	<1% pk-pk **
Over Voltage Protection	130-135%
Over Temperature Protection	Active - Recoverable; plus Passive - Non Recoverable
Over Current Protection	120 - 180%
Short Circuit Protection	shutdown, auto-restart (hiccup mode)

General	
Efficiency	Avg Efficiency 87.3% @ 115VAC; 86.9% @ 230VAC
MTBF	min. 200,000 hours demonstrated
Size	3.0
Weight	0.40 lbs (0.18 kg)
Power Density	2.9W/in <sup>3</sup>

Environmental	
Operating Temperature	0 – 50°C (Full load to 50°C, derate linearly to 50% load at 70°C)
Storage Temperature	-40°C to +85°C
Relative Humidity	5-95%, non-condensing
Cooling	Natural Convection
Vibration	All units production tested to 19.6m/s <sup>2</sup>

EMC & Safety	
Emissions	?
Immunity	EN60601-1-2??
Certified by UL to the following:	cRUus



	UL 60601-1
	CAN/CSA-22.2 No.601.1-M90
	CB per IEC60601-1
	CE marked to LVD

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