



Medical Power Solutions

PRODUCT SELECTION GUIDE

2009

# Global Medical Power Solutions

- Worldwide sales of \$140 million
- London Stock Exchange listed
- Design, engineering & sales operations in 3 continents
- Technology leading product development group

## Engineering

We have one of the most powerful design teams in the power supply industry. Situated across three continents, we have over thirty power engineers focused on designing new power supplies for our target customers.

- Design sites in North America, Europe and Asia
- Reliable design – component safety and lifetime derating, DVT, HALT testing
- Modified standard & customer-specific engineered solutions
- Innovative, leading edge and low cost design



## Manufacturing

All our new product releases are manufactured in our factory in Kunshan, China. This class-leading, high volume, ISO9001 facility enables us to deliver products meeting the requirements of our medical customers.

- High volume low cost manufacturing capability
- 20 years of experience in Asian manufacturing
- Asia centric material control
- Flexibility from low volume local capabilities



## Global Support

XP Power has the ability to manage a program from design to production across the globe. Our regional sales and applications teams are available to support customers throughout North America, Europe & Asia.

- Internationally networked sales support team
- Global logistics and local continent stocking capability
- Strategic customer management offering beta sample availability
- EMC, immunity & thermal verification resources available to customers



## Quality

The nature of the medical market demands high quality product. To ensure this quality XP Power products are designed to rigorous standards and undergo extensive testing as part of the design cycle. Our integrated management system covers all processes to ensure our end goal of consistently delivering reliable solutions to our customers.

- ISO9001:2000 approval
- SMTL status for safety approvals
- Design and process FMEA
- Regular product verification process



# Product Overview - IEC60601-1 Approved



## CCM250:

**250 Watts**

- Very high efficiency - 93%
- Convection-cooled
- 80 - 275 VAC operation
- Compact design
- 5 V standby



## JHM03-06:

**3-6 Watts**

- BF and CF approved DC-DC converter
- 2  $\mu$ A patient leakage current
- IEC60601-1 approved
- Basic isolation 1600 VAC
- Defibrillation-proof acc to IEC60601-1



## CU-15M:

**15 Watts**

- AC-DC PCB mount
- Single output 3.3 to 24 VDC
- Peak load capability
- Small size
- Class II



## ECM40-140:

**40-148 Watts**

- Single and multiple output versions
- Class I and class II applications
- Convection-cooled
- Robust design, low component count
- Award-winning design



## AMM/PDM:

**30-150 Watts**

- Small size / high power density
- Class I and class II versions
- High efficiency
- Energy Star, CEC & EISA compliant
- Non-standard connectors available



## RCL175:

**175 Watts**

- 200 W peak rating
- Up to 120 W convection-cooled
- Low leakage current
- Class I and class II applications
- Flexible output configurations



## SMM400:

**400 Watts**

- Low profile for 1U applications
- Fan covered and U channel versions
- IEC inlet option
- 250 W convection-cooled
- 12 V fan supply



## LP-MD:

**250-450 Watts**

- Configurable for fast time to market
- Low profile for 1U applications
- Wide voltage adjustment range
- Flexible output configurations
- Rugged compact design



## fleXPower:

**400-2400 Watts**

- Configurable for fast time to market
- Status signals
- Flexible series & parallel capability
- Extra power available at high line
- Flexible output configurations

# Solutions for a New Generation

XP Power understands the challenges faced by medical device manufacturers due to legislation and market demands. Our products are designed to meet these challenges and provide cost-effective solutions for use in both the hospital and non-hospital environments. Understanding the requirements of our target customers has led to product features that are incorporated for a reason, such as class II approvals for homecare devices, highly efficient convection-cooled designs for low noise patient area devices and defibrillator-proof DC-DC converters for applied part applications.

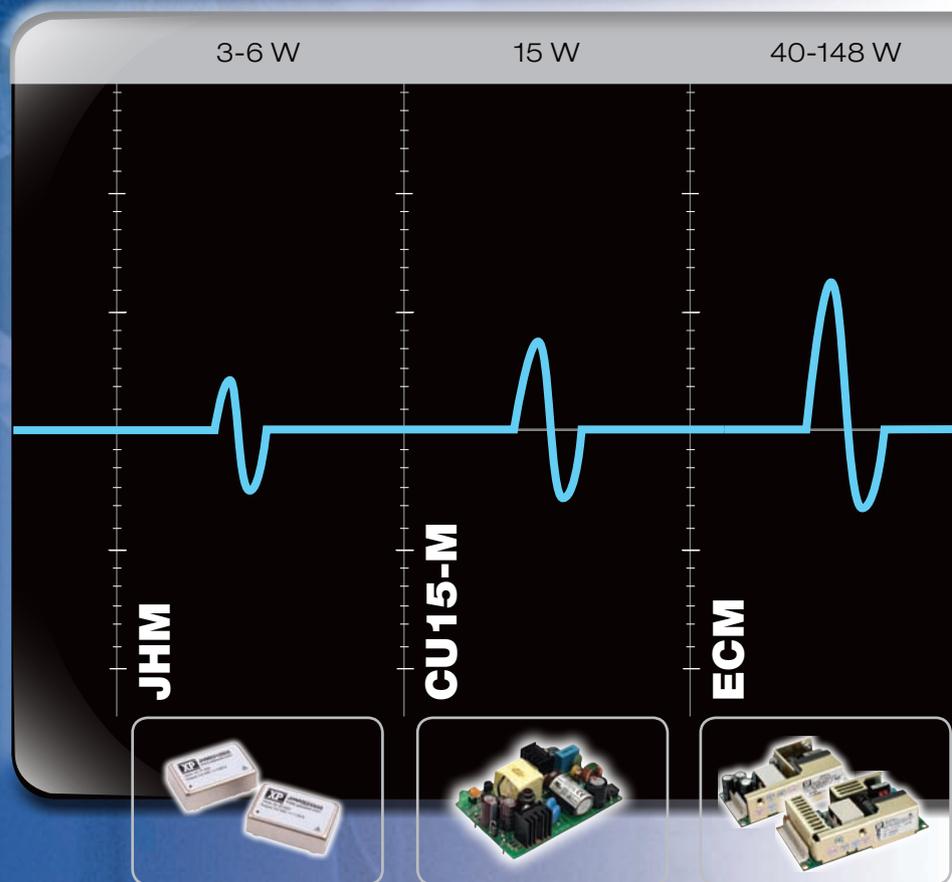
## Product Highlights

- High power density
- Class I and Class II solutions
- Highly efficient convection-cooled designs
- Fan speed controlled low noise solutions
- Defibrillator-proof, high isolation DC-DCs
- Dual-fused input circuits

## Engineered Solutions

XP Engineering Services offer solutions to power requirements that cannot be satisfied by our standard product range. Custom output combinations, unique control/status signals and specific mechanical packaging can be implemented by our engineering teams.

- Total customer-specific solutions
- Custom mechanical & electrical design
- Thermal modelling & environmental testing
- 3-D modelling speeds design process
- Full legislative verification to IEC60601-1



## Reference Information

### Safety Approvals

#### IEC60601-1

Medical electrical equipment – Safety requirements for medical electrical systems.

*National deviations:*

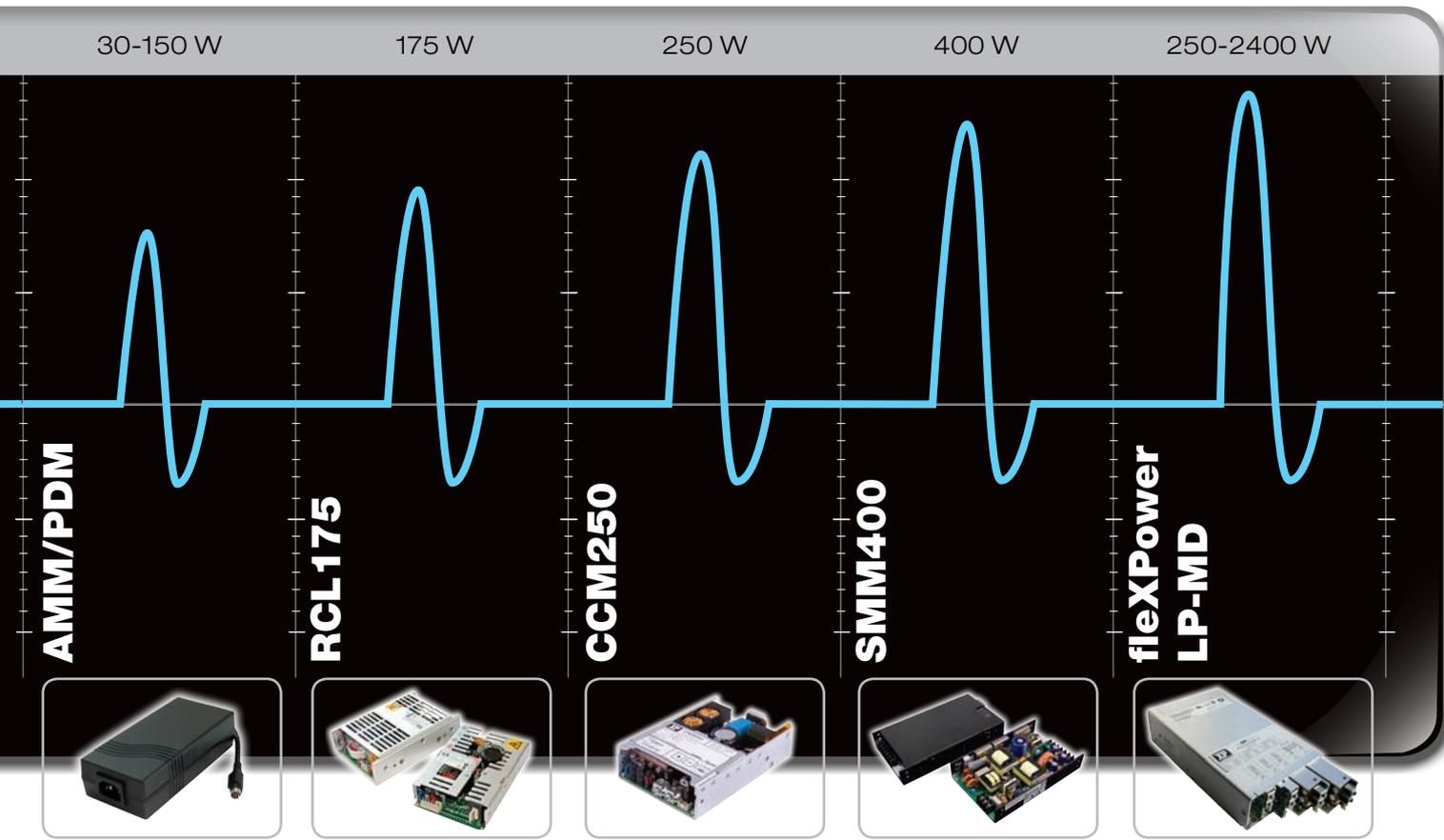
EN60601-1: Europe  
UL60601-1: USA  
CSA 22.2 No 601.1: Canada

#### IEC60601-1-2

Medical electrical equipment – Electromagnetic compatibility requirements and tests.

*National Deviation:*

EN60601-1-2: Europe



### Emission and Immunity Specifications

- IEC55011/55022** Limits for conducted and radiated emissions
- IEC61000-3-2** Limits for harmonic current emissions
- IEC61000-3-3** Limitation of voltage changes, voltage variations & flicker
- IEC61000-4-2** Electrostatic discharge immunity
- IEC61000-4-3** Radiated immunity
- IEC61000-4-4** Electrical fast transient immunity
- IEC61000-4-5** Electrical surge immunity
- IEC61000-4-6** Conducted disturbance immunity
- IEC61000-4-8** Immunity to power frequency magnetic field
- IEC61000-4-11** Immunity to voltage dips, short interruptions and variations on supply line

### Leakage Currents

- Earth leakage** Current flowing in the earth conductor.
- Enclosure leakage** Current flowing to earth via the patient from the enclosure.
- Patient leakage** Current flowing to earth via the patient from an applied part.
- Patient auxiliary** Current flowing between two applied parts.

Leakage Current	TYPE B		TYPE BF		TYPE CF	
	NC	SFC	NC	SFC	NC	SFC
<b>Earth*</b>	500 $\mu$ A	1 mA	500 $\mu$ A	1 mA	500 $\mu$ A	1 mA
<b>Enclosure*</b>	100 $\mu$ A	500 $\mu$ A	100 $\mu$ A	500 $\mu$ A	100 $\mu$ A	500 $\mu$ A
<b>Patient</b>	100 $\mu$ A	500 $\mu$ A	100 $\mu$ A	500 $\mu$ A	10 $\mu$ A	50 $\mu$ A

NC = Normal Conditions SFC = Single Fault Conditions  
 \*Patient care equipment maximum earth and enclosure leakage current for the US is 300  $\mu$ A.  
 Figures quoted are for portable equipment.

### Isolation & Separation - IEC60601-1

Insulation Type	MOOP			MOPP		
	Air Clearance	Creepage Distance	Test Voltage	Air Clearance	Creepage Distance	Test Voltage
<b>Basic (1 x MOP)</b>	2.0 mm	3.2 mm	1500 VAC	2.5 mm	4.0 mm	1500 VAC
<b>Double or Reinforced (2 x MOP)</b>	4.0 mm	6.4 mm	3000 VAC	5.0 mm	8.0 mm	4000 VAC

Insulation test voltages based on 250 VAC working voltage. MOP = Means of protection MOOP = Means of operation protection MOPP = Means of patient protection.



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