



AC-DC  
Power Supplies



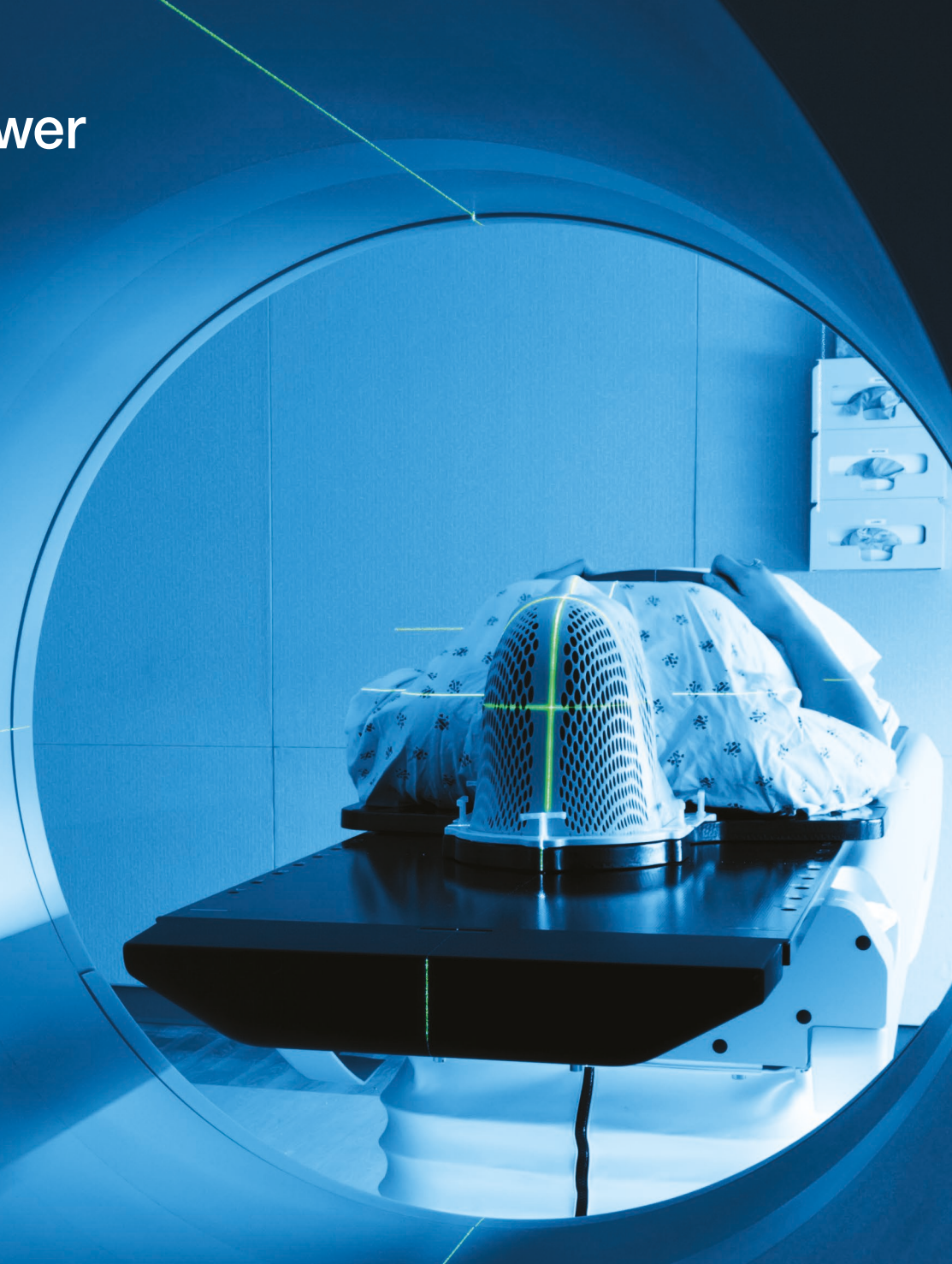
DC-DC  
Converters



High Voltage  
Power



Custom Power  
Solutions



**HELIOS**  
POWER SOLUTIONS



## OUR VISION

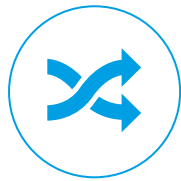
The **first choice** power solutions provider delivering the **ultimate experience** for **our customers** and **our people**



## OUR CORE VALUES



KNOWLEDGE



FLEXIBILITY



CUSTOMER  
FOCUS



SPEED



INTEGRITY

XP Power is a leading international provider of power solutions to the healthcare equipment market. With over 30 percent of revenue coming from healthcare applications, we have been providing power solutions for over 40 years.

We offer the broadest portfolio of standard power supplies designed for both patient vicinity and laboratory applications. Serving a large proportion of the world's leading healthcare equipment manufacturers, we deliver total quality from design, engineering and manufacturing in Asia, Europe and North America through to dedicated support from our 32 sales offices around the world. We provide the best power supply design and customer support in the industry.

- Broadest healthcare product portfolio to meet all your critical power requirements
- Largest regional technical support and customer service teams located close to our customers
- Best in class manufacturing ensuring excellent quality, reliability and competitive cost
- Engineering on three continents providing exceptional design support throughout the process to reduce time to market

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POWERING THE WORLD'S CRITICAL SYSTEMS

# Healthcare

## Reliable power supplies when failure isn't an option

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 customers has enabled us to develop key features which address the challenges, including class II approvals for home-care devices, highly efficient convection-cooled designs for low noise patient area devices and defibrillator-proof DC-DC converters for applied part applications.



### Dental

- CAD/CAM Systems
- X-Ray Machines
- Digital Radiography
- Lighting
- Chairs



### Home Healthcare

- Oxygen Therapy
- Portable Dialysis
- Telemedicine
- Respiratory Equipment (CPAP, DPAP & BiPAP)
- Infusion Pumps



### Imaging

- Magnetic Resonance Imaging (MRI)
- Positron Emission Tomography (PET)
- Single Photon Emission Computer Tomography & Computer Tomography (SPECT & CT)
- Ultrasound



### Laboratory/Bio Sciences

- Immunoassay Systems
- In Vitro Diagnostics (IVD)
- Clinical Chemistry
- Blood Analysers
- Lab Automation Equipment



### Medical/Clinical Devices

- Dialysis Equipment
- Patient Monitoring & Ventilators
- Robotics & Surgical Systems
- Operating Theatre Equipment
- Infusion Pumps

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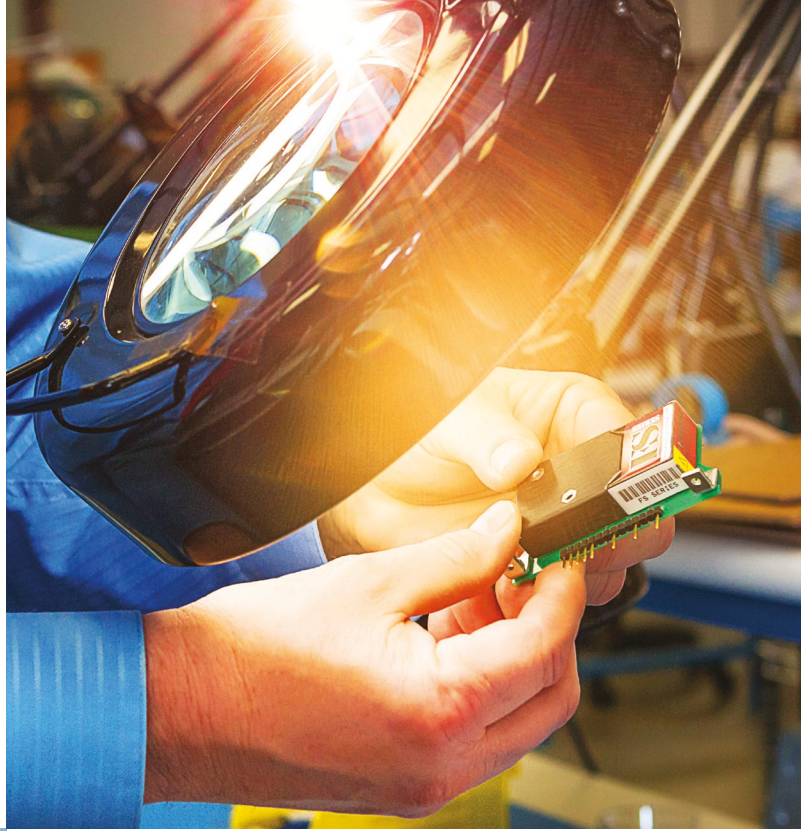


## QUALITY

Medical devices, used to treat and diagnose medical conditions, employ stringent safety regulations which are designed to mitigate risk. To ensure full confidence in their products, medical device manufacturers demand that their suppliers have robust quality systems.

At XP Power, we have taken a step further by gaining ISO13485, the quality management system for medical devices, ensuring that every power supply produced is safe and fit for purpose.

During development, our products are subject to strict design controls. DFMEA (Design Failure Mode Effects Analysis), PFMEA (Process Failure Mode Effects Analysis) and ISO14971 (risk management for medical devices) are combined to ensure our products are both reliable and safe.



## MANUFACTURING

We bring low cost, fast delivery, reliable products to market while limiting impact on the natural environment. With seven manufacturing facilities across Asia, Europe and North America, we produce high quality, energy efficient power supplies to internationally recognised standards, controlled and audited within XP Power.

Throughout the manufacturing process, we use the latest technology to improve throughput and enhance product reliability. This includes the latest automatic pick and place technology, computer-controlled wave soldering, automatic optical inspection, in-process testing, full product burn-in and full function automatic testing of the completed product.





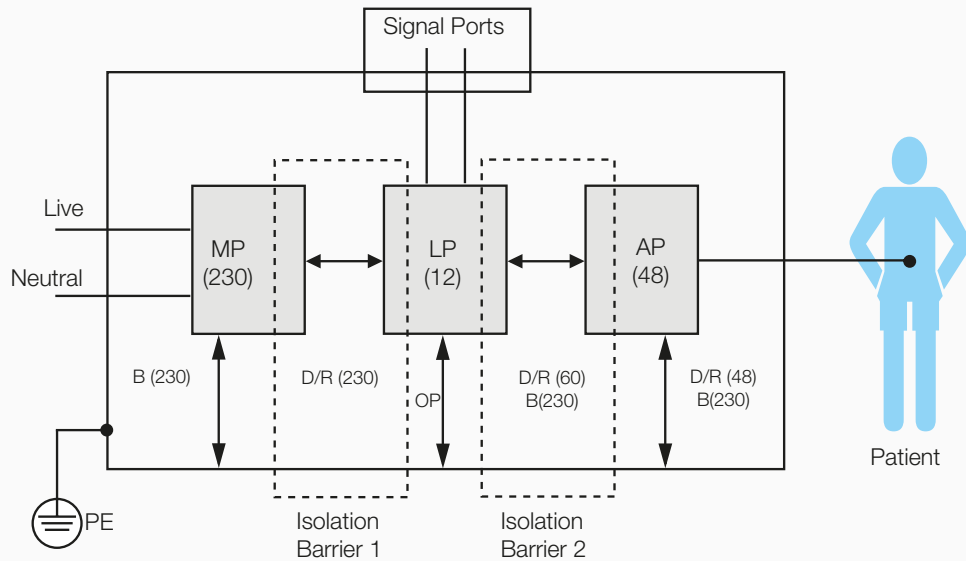
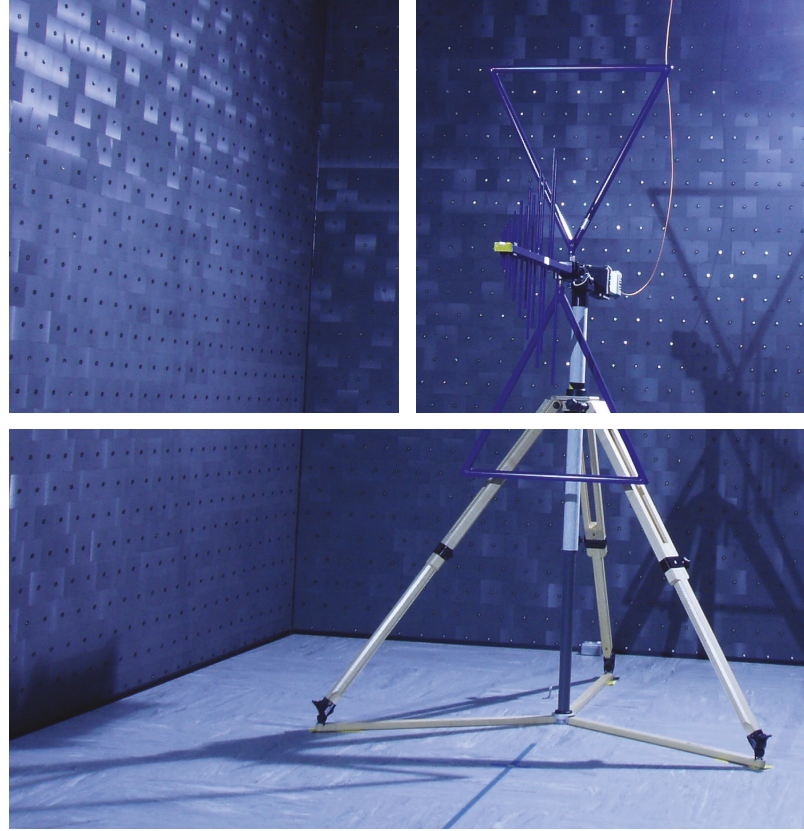
# COMPLIANCE

Our main manufacturing facilities are located in Vietnam & China providing 230,000 square feet of high quality manufacturing space. With certification to ISO9001, ISO14001 and ISO13485 we provide low risk power solutions to the healthcare industry through manufacturing capabilities that are truly class leading.

Our products are qualified for EMC compliance across a wide range of input and load conditions to ensure end equipment compliance with the latest 4th edition of IEC60601-1-2. To aid system development, pre-compliance EMC testing facilities within Europe and North America are available free of charge.

For equipment used within laboratory environments, compliance with EN55032 (EMC) & IEC60950/62368-1 (Safety) is normally sufficient, involving less stringent isolation and leakage current requirements, although careful attention to isolation barriers is still needed.

The diagram below illustrates isolation for a typical medical device with an applied part.

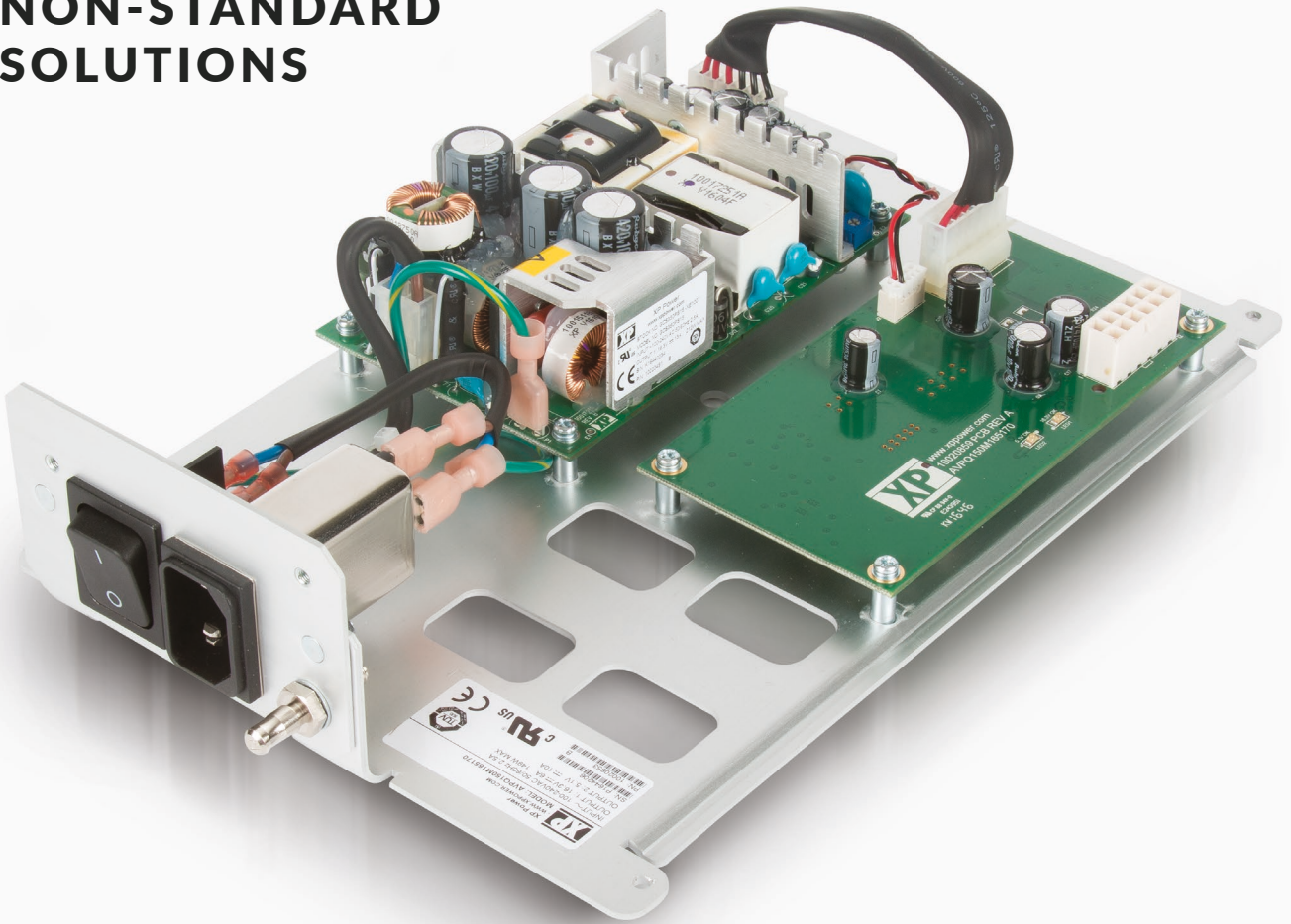


- |   |                              |  |
|---|------------------------------|--|
| <b>AP</b> = Applied Part                          | <b>D</b> = Double insulation | <b>OP</b> = Operational insulation                 |
| <b>B(xx)</b> = Basic insulation (working voltage) | <b>LP</b> = Live part        | <b>R</b> = Reinforced insulation (working voltage) |
|   | <b>MP</b> = Mains part       |  |

Two isolation barriers are required to ensure that the applied part is isolated from the ground and meets the patient leakage current limits during normal and single fault conditions. The primary isolation barrier for this type of equipment can be provided by an XP Power AC-DC power supply, while the secondary isolation barrier is provided by another system component or a certified XP Power DC-DC solution.



# NON-STANDARD SOLUTIONS



Off the shelf power supplies do not always meet the specific requirements of the target application. Many systems require custom output voltage combinations, unique control/status signals and specific mechanical packaging for optimal performance and integration. XP Power offers the world's strongest standard product portfolio, providing us with a vast selection of power platforms to deliver modified power solutions. Our power supplies and modules are manufactured in volume for many customers providing cost effective and proven building blocks for modified designs.

With local engineering design teams throughout North America, Europe & Asia, XP Power is the ideal choice for your modified standard solution. Whatever the system power requirements, we design and manufacture cost effective application specific solutions that meet your electrical, mechanical, safety, EMC and thermal management requirements, while ensuring a fast time to market.

## Medical Power Control System

350W AC-DC PSU with bespoke DC-DC converter built in to a custom chassis for a medical application.



- Low development cost
- Low risk, proven technology
- World class design
- Short development times
- Worldwide local engineering support
- Low cost manufacturing in Asia
- ISO9001/ISO13485 certified quality management systems





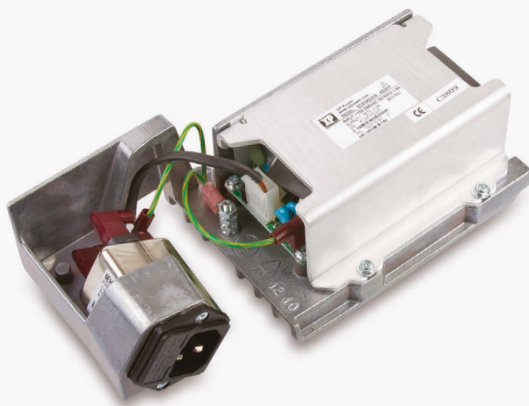


## APPLICATION

Surgical Equipment

## SOLUTION

Based around an off the shelf 1000W AC-DC power supply, the solution provides multiple outputs that are battery backed in case of mains failure. The product also provides status indicators for power availability and battery status.



## APPLICATION

Multi-Parameter Patient Monitor

## SOLUTION

Utilising an off the shelf 100W medical power supply, a solution was created in conjunction with the customer to remove heat from the patient monitor by conduction cooling the power supply. This ensured the power supply could operate in a high ambient temperature whilst meeting the component lifetime expectations.



## APPLICATION

Cardiac Diagnostic Device

## SOLUTION

The starting point is a standard 350W AC-DC power supply, this is used to charge an external 100A/hr lead acid battery. The end system requires that the PSU is switched off during the patient diagnosis so additional circuitry to monitor the battery is included.





# AC-DC POWER SUPPLIES SELECTOR

## 5W to 60W

### EME05



- 5 Watts
- 1.50" x 1.00" x 0.60"
- Class II
- PCB Mount
- Encapsulated or Open Frame 12

### EML15



- 15 Watts
- 2.44" x 1.21" x 0.95"
- Single Output
- PCB or Chassis Mount
- Class II 12

### EML30



- 30 Watts
- 2.96" x 1.36" x 1.05"
- Single Output
- PCB or Chassis Mount
- Class II 12

### ECF40



- 40 Watts
- 3.00" x 1.50" x 1.10"
- Single Output
- Ultra Compact
- Convection-cooled 13

### FCS40



- 40 Watts
- 3.00" x 2.00" x 1.03"
- Single Output
- <0.15W Standby Power
- Class I & II 13

### ECS60



- 60 Watts
- 3.00" x 2.00" x 1.05"
- Low Leakage Current
- <0.5W Standby Power
- Class I & II 13

### FCS60



- 60 Watts
- 4.00" x 2.00" x 1.04"
- Single Output
- <0.15W Standby Power
- Class I & II 14

## 100W to 150W

### ECS100



- 100 Watts
- 4.00" x 2.00" x 1.25"
- Low Profile
- <0.5W Standby Power
- Class I & II 14

### ECP130



- 130 Watts
- 100W Convection-cooled
- 3.00" x 2.00" x 1.10"
- Up to 95% Efficiency
- Low Profile 14

### ECS130



- 130 Watts
- 100W Convection-cooled
- 4.00" x 2.00" x 1.25"
- Class I & II
- High Efficiency 15

### EPL150



- 150 Watts
- 100W Convection-cooled
- BF Compliant
- 4.00" x 2.00" x 0.99"
- Class I & II 15

### GCS150



- 150 Watts
- 110W Convection-cooled
- 5.00" x 3.00" x 1.42"
- Class I & II
- High Efficiency 16

## 175W to 200W

### RCL175



- 175 Watts
- 5.50" x 3.70" x 1.28"
- Single & Multi Outputs
- Class II
- Mechanical Options 15

### ECP180



- 180 Watts
- 120W Convection-cooled
- 4.00" x 2.00" x 1.00"
- Single Output
- Up to 95% Efficiency 16

### GCS180



- 180 Watts
- 150W Convection-cooled
- 5.00" x 3.00" x 1.42"
- Class I & II
- Remote On/Off Option 16

### UCP180



- 180 Watts
- 120W Convection-cooled
- BF Compliant
- 4.24" x 2.47" x 1.16"
- 12V/0.5A Fan Output 16

### CCB200



- 200 Watts
- Convection-cooled
- 5.00" x 3.00" x 1.43"
- Full Power to +70 °C
- Up to 95% Efficiency 17

## 225W to 250W

### ECP225-A



- 225 Watts
- 150W Convection-cooled
- 5.00" x 3.00" x 1.00"
- 5V/2A Standby
- 12V/0.5A Fan Output 17

### EPL225



- 225 Watts
- 150W Convection-cooled
- 4.00" x 2.00" x 1.26"
- 12V/0.5A Fan Output
- Up to 95% Efficiency 17

### UCP225



- 225 Watts
- 150W Convection-cooled
- 5.00" x 3.12" x 1.18"
- 5V/2A Standby
- 12V/0.5A Fan Output 18

### CCM250



- 250 Watts
- Convection-cooled
- 6.00" x 4.00" x 1.50"
- Single Output
- Up to 95% Efficiency 18

### CHD250



- 250 Watts
- Convection-cooled
- BF Compliant
- 5.00" x 3.00" x 1.43"
- 5V/0.5A Standby Option 18

### CMP250



- 500W Peak
- 250W Convection-cooled
- BF Compliant
- 7.50" x 4.00" x 1.57"
- 5V/1.5A Standby 19

### GCS250



- 250 Watts
- 180W Convection-cooled
- 5.00" x 3.00" x 1.42"
- Class I & II
- Remote On/Off Option 19

## 265W to 400W

### GCS265



- 265 Watts
- 180W Convection-cooled
- 5.00" x 3.50" x 1.43"
- 5V/3A Standby
- Class I & II

19

### GCS350



- 350 Watts
- 200W Convection-cooled
- 5.00" x 3.00" x 1.42"
- Fan Cover Options
- Remote On/Off

19

### SMP350



- 350 Watts
- 7.00" x 3.60" x 1.70"
- Single Output
- Low Leakage Current
- High Efficiency

20

### CCL400



- 400 Watts
- Convection-cooled
- 7.00" x 3.95" x 1.57"
- 94% Efficiency
- 5V/0.5A Standby

20

## 500W to 650W

### GCU500



- 500 Watts
- 250W Convection-cooled
- 6.50" x 3.30" x 1.55"
- 5V/0.2A Standby
- Mechanical Options

20

### GSP500



- 500 Watts
- 6.00" x 4.00" x 1.65"
- <0.5W Standby Power
- Remote On/Off
- 5V/2A Standby

21

### PBR500



- 500 Watts
- 400W Convection-cooled
- 7.00" x 4.00" x 1.70"
- BF Compliant
- 5V/0.5A Standby

21

### PBR650



- 650 Watts
- 8.00" x 4.00" x 2.58"
- BF Compliant
- Class B Radiated
- 5V/0.5A Standby

21

### MHP650



- 650 Watts
- 9.18" x 4.00" x 2.50"
- Single Output
- Remote On/Off
- Mechanical Options

21

## 750W to 5kW

### GSP750



- 750 Watts
- Up to 900W Peak Power
- 10.00" x 4.00" x 1.65"
- Remote On/Off
- 5V/3A Standby

22

### MHP1000



- 1000 Watts
- 1200W High Line
- 9.55" x 5.90" x 2.40"
- Single Output
- Remote On/Off

22

### HPU1K5



- 1500 Watts
- 12.75" x 4.00" x 1.70"
- Low Profile
- Current Share
- Programmable Voltage

22

### HPT5K0



- 5000 Watts
- 13.00" x 5.00" x 5.00"
- Programmable Voltage
- Programmable Current
- Parallel Up To 5 Units

23

## CONFIGURABLE

### nanoflex



- 850 - 1200 Watts
- Low 1U Profile
- Programmable Voltage
- Programmable Current
- PC Interface

24

### flexPower



- XM4,5&7: 400 - 900 Watts
- 10.00" x 5.00" x 2.50"
- 1 - 10 Outputs
- Fully Featured Signals
- Fan Control Option

25

### flexPower



- XM9: 900 - 1100 Watts
- 10.00" x 6.00" x 2.50"
- 1 - 12 Outputs
- Fully Featured Signals
- Fan Control Option

25

### flexPower



- XM10: 1000 - 1200 Watts
- 10.00" x 7.00" x 2.50"
- 1 - 14 Outputs
- Fully Featured Signals
- Fan Control Option

25

### flexPower



- XM15: 1500 - 2500 Watts
- 11.00" x 5.00" x 5.00"
- 1 - 20 Outputs
- Fully Featured Signals
- Fan Control Option

25



# AC-DC EXTERNAL/DESKTOP SELECTOR

## 6W to 18W

### ACM06

- 6 Watts
- Level VI & CoC Tier 2
- 2.88" x 1.67" x 1.21"
- Optional White Case
- Class II



26

## 24W to 36W

### ACM24

- 24 Watts
- Level VI & CoC Tier 2
- 3.46" x 1.18" x 2.24"
- Optional White Case
- Class II



26

## 45W to 85W

### AKM45

- 45 Watts
- Level VI & CoC Tier 2
- 4.82" x 2.02" x 1.24"
- Optional White Case
- Class I & II Versions



27

## 120W to 200W

### ALM120

- 120 Watts
- Level VI & CoC Tier 2
- 6.61" x 2.80" x 1.48"
- Class I & II Versions
- IP32 Rating



27

### ACM12

- 12 Watts
- Level VI & CoC Tier 2
- 2.99" x 1.19" x 1.91"
- Optional White Case
- Class II



26

### ACM36

- 36 Watts
- Level VI & CoC Tier 2
- 3.81" x 1.30" x 2.34"
- Optional White Case
- Class II



26

### ALM65

- 65 Watts
- Level VI
- 4.94" x 2.19" x 1.32"
- Class I & II Versions
- IP32 Rating



27

### ALM150

- 150 Watts
- Level VI & CoC Tier 2
- 7.32" x 2.84" x 1.49"
- Class I & II Versions
- IP32 Rating



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### ACM18

- 18 Watts
- Level VI & CoC Tier 2
- 3.46" x 1.18" x 1.95"
- Optional White Case
- Class II



26

### AKM36

- 36 Watts
- Level VI & CoC Tier 2
- 4.25" x 1.97" x 1.33"
- Optional White Case
- Class II



26

### ALM85

- 85 Watts
- Level VI & CoC Tier 2
- 5.31" x 2.44" x 1.45"
- Class I & II Versions
- IP32 Rating



27

### ALM200

- 200 Watts
- Level VI & CoC Tier 2
- 8.23" x 3.32" x 1.69"
- Class I & II Versions
- IP32 Rating



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# EMI FILTER SELECTOR

## IEC INLET

### FASM

- IEC320-C14 Inlet
- Screw Mount
- 1, 3, 6 & 10A Ratings
- Faston Load Terminals
- Low Leakage Current, 5 $\mu$ A



32

## POWER ENTRY

### FDMM

- IEC320-C14 Inlet
- Dual 5 x 20mm Fuse Holder
- Screw Mount, Compact Design
- 1, 3, 6 & 10A Ratings
- Faston Load Terminals
- Low Leakage Current, 5 $\mu$ A



32

## CHASSIS MOUNT

### FHSM

- Single Stage Design
- Compact Dimensions
- 1, 3, 6, 10, 15 & 20A Ratings
- Faston Terminals
- Low Leakage Current, 5 $\mu$ A



32

### FGSM

- IEC320-C14 Inlet
- Dual 5 x 20mm Fuse Holder
- Input Switch
- Screw Mount, Compact Design
- 1, 2, 4, 6 & 10A Ratings
- Faston Load Terminals
- Low Leakage Current, 5 $\mu$ A



32














### FIHM

- Dual Stage Design
- Compact Dimensions
- 1, 3, 6, 10, 15 & 20A Ratings
- Faston Terminals
- Low Leakage Current, 5 $\mu$ A













32

# DC-DC CONVERTERS SELECTOR

1W	2W	3W to 6W	10W to 20W
<p><b>IMA01</b></p> <ul style="list-style-type: none"> <li>• ±10% Input</li> <li>• Unregulated</li> <li>• SIP7 Package</li> <li>• 4kVAC Isolation</li> <li>• 1 x MOPP at 250VAC</li> </ul>  <p>(28)</p>	<p><b>IML02</b></p> <ul style="list-style-type: none"> <li>• ±10% Input</li> <li>• Unregulated</li> <li>• SIP7 Package</li> <li>• 4kVAC Isolation</li> <li>• 1 x MOPP at 250VAC</li> </ul>  <p>(30)</p>	<p><b>JHL03</b></p> <ul style="list-style-type: none"> <li>• 1.5:1 Input</li> <li>• Regulated</li> <li>• DIP24 Package</li> <li>• 4kVAC Isolation</li> <li>• 2 x MOPP at 250VAC</li> </ul>  <p>(31)</p>	<p><b>JHM10</b></p> <ul style="list-style-type: none"> <li>• 2:1 Input</li> <li>• Regulated</li> <li>• DIP24 Package</li> <li>• 4kVAC Isolation</li> <li>• 2 x MOPP at 250VAC</li> </ul>  <p>(31)</p>
<p><b>IMB01</b></p> <ul style="list-style-type: none"> <li>• ±10% Input</li> <li>• Unregulated</li> <li>• SIP7 Package</li> <li>• 4kVAC Isolation</li> <li>• 2 x MOPP at 300VAC</li> </ul>  <p>(29)</p>	<p><b>IMM02</b></p> <ul style="list-style-type: none"> <li>• 2:1 Input</li> <li>• Regulated</li> <li>• SIP8 Package</li> <li>• 1.5kVAC Isolation</li> <li>• 1 x MOPP at 250VAC</li> </ul>  <p>(30)</p>	<p><b>IMM05</b></p> <ul style="list-style-type: none"> <li>• 2:1 Input</li> <li>• Regulated</li> <li>• SIP9 Package</li> <li>• 1.5kVAC Isolation</li> <li>• 1 x MOPP at 250VAC</li> </ul>  <p>(31)</p>	<p><b>JHM15</b></p> <ul style="list-style-type: none"> <li>• 2:1 Input</li> <li>• Regulated</li> <li>• 1.6" x 1" Package</li> <li>• 4kVAC Isolation</li> <li>• 2 x MOPP at 250VAC</li> </ul>  <p>(31)</p>
<p><b>IMM01</b></p> <ul style="list-style-type: none"> <li>• 2:1 Input</li> <li>• Regulated</li> <li>• SIP7 Package</li> <li>• 1.5kVAC Isolation</li> <li>• 1 x MOPP at 250VAC</li> </ul>  <p>(29)</p>	<p><b>ISM02</b></p> <ul style="list-style-type: none"> <li>• ±10% Input</li> <li>• Unregulated</li> <li>• SMD Package</li> <li>• 4kVAC Isolation</li> <li>• 1 x MOPP at 300VAC</li> </ul>  <p>(30)</p>	<p><b>JHL06</b></p> <ul style="list-style-type: none"> <li>• 1.5:1 Input</li> <li>• Regulated</li> <li>• DIP24 Package</li> <li>• 4kVAC Isolation</li> <li>• 2 x MOPP at 250VAC</li> </ul>  <p>(31)</p>	<p><b>JHM20</b></p> <ul style="list-style-type: none"> <li>• 2:1 Input</li> <li>• Regulated</li> <li>• 2" x 1" Package</li> <li>• 4kVAC Isolation</li> <li>• 2 x MOPP at 250VAC</li> </ul>  <p>(32)</p>
<p><b>ISM01</b></p> <ul style="list-style-type: none"> <li>• ±10% Input</li> <li>• Unregulated</li> <li>• SMD Package</li> <li>• 4kVAC Isolation</li> <li>• 2 x MOPP at 250VAC</li> </ul>  <p>(29)</p>			



# — HIGH VOLTAGE/LOW POWER DC-DC SELECTOR





















PROPORTIONAL		REGULATED	
<p><b>Q SERIES</b></p> <ul style="list-style-type: none"> <li>• 0.5W, <math>\pm 100V</math> to <math>\pm 10kVDC</math></li> <li>• 0 to 5/12/15/24VDC Input</li> <li>• Optional Dual Output/ Center Tap (Up to 900V)</li> <li>• External Copper Shield Option</li> <li>• Control Pin Option</li> <li>• Standard &amp; Extended Temperature Ranges</li> <li>• Input/Output Isolation</li> <li>• UL Recognized</li> </ul> 	<p><b>G SERIES</b></p> <ul style="list-style-type: none"> <li>• 1.5W, <math>\pm 100V</math> to <math>\pm 6kVDC</math></li> <li>• 0 to 12VDC Input</li> <li>• External Mounting Box/Shield (AB Option)</li> <li>• Optional Dual Output/Center Tap</li> <li>• Input/Output Isolation</li> <li>• Short Circuit Protection</li> <li>• Low EMI/RFI</li> <li>• UL Recognized</li> </ul> 	<p><b>P SERIES</b></p> <ul style="list-style-type: none"> <li>• 2mW, <math>\pm 2kV</math>, 2.4mW, <math>\pm 1.2kVDC</math></li> <li>• 5 to 12VDC Input</li> <li>• Low Power, Low Profile</li> <li>• Ultra-low Noise Magnetic-free Design &amp; EMI/RFI</li> <li>• 0-100% Programmable</li> <li>• Standard &amp; Extended Temperature Ranges</li> <li>• Voltage Monitor</li> <li>• Reference Voltage</li> </ul> 	<p><b>CB SERIES</b></p> <ul style="list-style-type: none"> <li>• 1W, 100V to <math>\pm 10kVDC</math></li> <li>• 11.5 to 16VDC Input</li> <li>• Low Noise, Quasi-sinewave Oscillator</li> <li>• Very Low EMI/RFI</li> <li>• Programming Voltage Over-voltage Protection</li> <li>• Voltage &amp; Current Monitor Outputs</li> <li>• External Gain Adjust for Calibration</li> <li>• Thermal Shutdown</li> </ul> 
<p><b>A/AH SERIES</b></p> <ul style="list-style-type: none"> <li>• A: 1W, <math>\pm 100V</math> to <math>\pm 6kVDC</math></li> <li>• AH: 1.5W, <math>\pm 100V</math> to <math>\pm 6kVDC</math></li> <li>• 0 to 5/12/24VDC Input</li> <li>• Low Profile (0.25 in/6.35 mm)</li> <li>• Control Pin Standard</li> <li>• Standard &amp; Extended Temperature Ranges</li> <li>• Input/Output Isolation</li> <li>• UL Recognized</li> </ul> 	<p><b>E SERIES</b></p> <ul style="list-style-type: none"> <li>• 3W, <math>\pm 200V</math> to <math>\pm 7kV</math>, 2W, <math>\pm 8kVDC</math></li> <li>• 0 to 12/15VDC Input</li> <li>• Low Ripple, EMI/RFI</li> <li>• External Mounting Box/Shield (AB Option)</li> <li>• Optional Dual Output/Center Tap &amp; Mounting Holes</li> <li>• Alternate Pin Patterns Available</li> <li>• Input/Output Isolation</li> <li>• Low Leakage Current</li> </ul> 	<p><b>C SERIES</b></p> <ul style="list-style-type: none"> <li>• 1W, <math>\pm 100V</math> to <math>\pm 8kVDC</math></li> <li>• 11.5 to 16VDC Input</li> <li>• Very Low Ripple, EMI/RFI</li> <li>• Low Noise, Quasi-sinewave Oscillator</li> <li>• Shield Case with Isolated Case Ground</li> <li>• Analog Voltage Programming: 0 to 5VDC</li> <li>• External Gain Adjust for Calibration</li> <li>• UL Recognized</li> </ul> 	<p><b>SIP SERIES</b></p> <ul style="list-style-type: none"> <li>• 0.1W, 25V to 90V, 1W, 25V to 100VDC</li> <li>• 3 to 6.7VDC Input</li> <li>• SIL Package</li> <li>• Low Ripple, High Stability</li> <li>• Ultra-thin (0.16in/4mm)</li> <li>• Analog Voltage Programming</li> <li>• Remote Disable/Enable</li> <li>• Epoxy Coated</li> </ul> 
<p><b>AG/AGH SERIES</b></p> <ul style="list-style-type: none"> <li>• AG: 1W, <math>\pm 100V</math> to <math>\pm 6kVDC</math></li> <li>• AGH: 1.5W, <math>\pm 100V</math> to <math>\pm 6kVDC</math></li> <li>• 0 to 5/12/24VDC Input</li> <li>• Low Profile (0.128 in/3.25 mm)</li> <li>• Control Pin Standard</li> <li>• Surface Mount</li> <li>• Input/Output Isolation</li> <li>• UL Recognized</li> </ul> 	<p><b>F SERIES</b></p> <ul style="list-style-type: none"> <li>• 10W, <math>\pm 200V</math> to <math>\pm 8kVDC</math></li> <li>• 0 to 12/15VDC Input</li> <li>• Low Ripple, EMI/RFI</li> <li>• Optional Dual Output/Center Tap &amp; Mounting Holes</li> <li>• Input/Output Filtering</li> <li>• 5-sided Metal Enclosure</li> <li>• Input/Output Isolation</li> <li>• Short Circuit Protection</li> </ul> 	<p><b>CA SERIES</b></p> <ul style="list-style-type: none"> <li>• 1W, <math>\pm 200V</math> to <math>\pm 2kVDC</math></li> <li>• 4.75 to 5.25/11.5 to 15.5VDC Input</li> <li>• Precision Regulated</li> <li>• Very Low Ripple, EMI/RFI</li> <li>• Voltage Monitor Output</li> <li>• Analog Voltage Programming</li> <li>• Short Circuit Protection</li> <li>• UL Recognized</li> </ul> 	<p><b>HRL30 SERIES</b></p> <ul style="list-style-type: none"> <li>• 30W, <math>\pm 100V</math> to <math>\pm 6kVDC</math></li> <li>• 22 to 30VDC Input</li> <li>• Output Voltage &amp; Current Regulated</li> <li>• 0 to 100% Programmable Voltage &amp; Current</li> <li>• Voltage &amp; Current Monitor Outputs</li> <li>• Short Circuit, Arc &amp; Overload Protections</li> <li>• Efficiency &gt;80%</li> <li>• Low Ripple and Noise</li> </ul> 
<p><b>GP SERIES</b></p> <ul style="list-style-type: none"> <li>• 1W, <math>\pm 100V</math> to <math>\pm 6kVDC</math></li> <li>• 0 to 12VDC Input</li> <li>• External Mounting Box/Shield (AB Option)</li> <li>• User-selectable Output Polarity</li> <li>• Low Power Consumption</li> <li>• Input/Output Isolation</li> <li>• Short Circuit Protection</li> <li>• Low EMI/RFI</li> </ul> 	<p><b>FS SERIES</b></p> <ul style="list-style-type: none"> <li>• 10W, <math>\pm 200V</math> to <math>\pm 6kVDC</math></li> <li>• 0 to 12/15/24/28VDC Input</li> <li>• Optional Dual Output/Center Tap</li> <li>• Standard &amp; Extended Temperature Ranges</li> <li>• Input/Output Isolation</li> <li>• Mounting Holes for Chassis Mount or Heat Sink</li> <li>• Arc, Short Circuit Protection, Disable Pin, Alarm Signal</li> <li>• Low EMI/RFI</li> </ul> 	<p><b>CA-T SERIES</b></p> <ul style="list-style-type: none"> <li>• 1W, <math>\pm 200V</math> to <math>\pm 2kVDC</math></li> <li>• 4.75 to 5.25/11.5 to 15.5VDC Input</li> <li>• Precision Regulated</li> <li>• Very Low Ripple, EMI/RFI</li> <li>• Voltage Monitor Output</li> <li>• Analog Voltage Programming</li> <li>• Extended Temperature Range</li> <li>• Short Circuit Protection</li> </ul> 	

# — HIGH VOLTAGE HEALTHCARE

XP Power helps further the advancement of medical high voltage technologies by delivering compact, reliable, economical products that can be produced in high volume with consistent dependability. Through the use of sophisticated filtering and shielding techniques, our power supplies exhibit exceedingly low ripple, noise, and EMI/RFI. High stability, low ripple, and well-regulated output levels make XP Power's high voltage power supplies perfect for integration into precision measurement devices and other high sensitivity equipment.



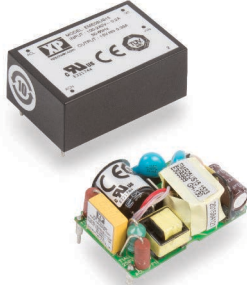
# — HIGH VOLTAGE/HIGH POWER AC-DC SELECTOR

<b>MODULES</b> (up to 60kV) 15W to 300W	<b>RACK MOUNT</b> (up to 150kV) 120W to 1.2kW      1.5kW to 3kW      5kW to 200kW		
<b>MJ SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-3kV to 0-30kVDC</li> <li>• Single Phase Input, Multiple Options</li> <li>• Output Power: 15W</li> <li>• Precision Control &amp; Monitoring</li> <li>• Multimode Output Control</li> <li>• Chassis Mount Module</li> </ul>	<b>FJ SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-1kV to 0-60kV</li> <li>• Single Phase Input, Multiple Options</li> <li>• Output Power: 120W</li> <li>• 1U Rack Mount</li> <li>• RS232/USB &amp; Optional Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>	<b>FL SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-750V to 0-1.5kV</li> <li>• Single Phase Input, Multiple Options</li> <li>• Floating Output up to 1.5kV</li> <li>• Output Power: 1.5kW</li> <li>• Field Strappable Parallel Operation</li> <li>• 1U Rack Mount</li> <li>• RS232/485/USB &amp; Optional Ethernet Control</li> </ul>	<b>LH SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-1kV to 0-150kV</li> <li>• Three Phase Input, Multiple Options</li> <li>• Output Power: 5kW</li> <li>• Parallelable to 25kW</li> <li>• 6U Rack Mount</li> <li>• Optional RS232/USB &amp; Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>
<b>MK SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-1kV to 0-60kV</li> <li>• Single Phase Input, Multiple Options</li> <li>• Output Power: 75W</li> <li>• Precision Control &amp; Monitoring</li> <li>• Multimode Output Control</li> <li>• Chassis Mount Module</li> </ul>	<b>FR SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-1kV to 0-60kV</li> <li>• Single Phase Input, Multiple Options</li> <li>• Output Power: 300W</li> <li>• 1U Rack Mount</li> <li>• RS232/USB &amp; Optional Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>	<b>ET SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-1kV to 0-60kV</li> <li>• Single Phase Input, Multiple Options</li> <li>• Output Power: 2kW</li> <li>• 2U Rack Mount</li> <li>• RS232/USB &amp; Optional Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>	<b>SH SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-1kV to 0-100kV</li> <li>• Three Phase Input, Multiple Options</li> <li>• Output Power: 8kW</li> <li>• Parallelable to 40kW</li> <li>• 8U Rack Mount</li> <li>• Optional RS232/USB &amp; Ethernet control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>
<b>MQ SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-1kV to 0-60kV</li> <li>• Single Phase Input, Multiple Options</li> <li>• Output Power: 300W</li> <li>• Precision Control &amp; Monitoring</li> <li>• RS232/USB &amp; Optional Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> <li>• Chassis Mount Module</li> </ul>	<b>EJ SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-1kV to 0-60kV</li> <li>• Single Phase Input, Multiple Options</li> <li>• Output Power: 600W</li> <li>• 2U Rack Mount</li> <li>• RS232/USB &amp; Optional Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>	<b>KT SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-70kV to 0-150kV</li> <li>• Single Phase Input, Multiple Options</li> <li>• Output Power: 2kW</li> <li>• 4U Rack Mount</li> <li>• RS232/USB &amp; Optional Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>	<b>LQ SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-1kV to 0-12kV</li> <li>• Three Phase Input, Multiple Options</li> <li>• Output Power: 10kW</li> <li>• Parallelable to 50kW</li> <li>• 5U Rack Mount</li> <li>• Optional RS232/USB &amp; Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>
<b>WJ SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-70kV to 0-125kV</li> <li>• Single Phase Input, Multiple Options</li> <li>• Output Power: 600W</li> <li>• 3U Rack Mount</li> <li>• RS232/USB &amp; Optional Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>	<b>EV SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-750V to 0-1.5kV</li> <li>• Single Phase Input, Multiple Options</li> <li>• Floating Output up to 1.5kV</li> <li>• Output Power: 3kW</li> <li>• Field Strappable Parallel Operation</li> <li>• 2U Rack Mount</li> <li>• RS232/485/USB &amp; Optional Ethernet Control</li> </ul>	<b>GX SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-1kV to 0-100kV</li> <li>• Three Phase Input, Multiple Options</li> <li>• Output Power: 25kW</li> <li>• Parallelable to 200kW</li> <li>• 11U Rack Mount</li> <li>• RS232/USB &amp; Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>	
<b>EY SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-1kV to 0-60kV</li> <li>• Single Phase Input, Multiple Options</li> <li>• Output Power: 1.2kW</li> <li>• 2U Rack Mount</li> <li>• RS232/USB &amp; Optional Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>	<b>KR SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-2kV to 0-100kV</li> <li>• Single Phase Input, Multiple Options</li> <li>• Output Power: 3kW</li> <li>• 4U Rack Mount</li> <li>• RS232/USB &amp; Optional Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>		
<b>OPEN STACK</b> (up to 500kV) 2kW to 40kW			
<b>OS SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-200kV to 0-450kV</li> <li>• Single Phase Input, Multiple Options</li> <li>• Output Power: 2kW</li> <li>• Open Stack with Remote Control Panel</li> <li>• Optional RS232/USB &amp; Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>	<b>LH SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-200kV to 0-500kV</li> <li>• Three Phase Input, Multiple Options</li> <li>• Output Power: 5kW</li> <li>• Parallelable to 20kW</li> <li>• Open Stack with Remote Control Panel</li> <li>• Optional RS232/USB &amp; Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>	<b>OQ SERIES</b>  <ul style="list-style-type: none"> <li>• Output Voltages from 0-200kV to 0-500kV</li> <li>• Three Phase Input, Multiple Options</li> <li>• Output Power: 8kW</li> <li>• Parallelable to 40kW</li> <li>• Open Stack with Remote Control Panel</li> <li>• RS232/USB &amp; Optional Ethernet Control</li> <li>• Arc Quench &amp; Arc Count</li> </ul>	



## EME05

5 Watts



- Ultra Compact
- Medical Approvals (2 x MOPP)
- Single Outputs from 3.3 to 48VDC
- Board Mount
- Open Frame or Encapsulated
- Class II
- Peak Load Capability
- No External Components Required
- 3 Year Warranty

**Dimensions:**

**EME05:** 1.50 x 1.00 x 0.60 in (36.1 x 25.4 x 15.2 mm)  
**EME05-P:** 1.40 x 0.94 x 0.69 in (35.6 x 23.7 x 17.6 mm)

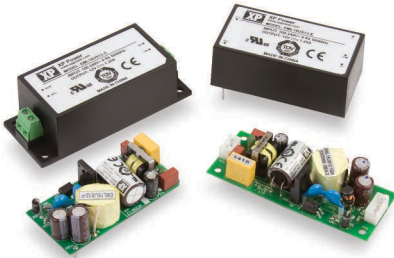
Power	Output Voltage	Output Current		Model
		Nom.	Peak	
5 W	3.3 VDC	1510 mA	1960 mA	EME05US03
5 W	5.0 VDC	1000 mA	1300 mA	EME05US05
5 W	9.0 VDC	555 mA	722 mA	EME05US09
5 W	12.0 VDC	416 mA	541 mA	EME05US12
5 W	15.0 VDC	333 mA	433 mA	EME05US15
5 W	24.0 VDC	208 mA	270 mA	EME05US24
5 W	36.0 VDC	138 mA	180 mA	EME05US36
5 W	48.0 VDC	104 mA	135 mA	EME05US48

**Notes:**

Peak load lasting <30s with a maximum duty cycle of 10%, average output power not to exceed nominal. For open frame version add suffix 'P' to model number, e.g. EME05US12-P.

## EML15

15 Watts



- Compact Size
- Medical Approvals (2 x MOPP)
- Single Outputs from 3.3 to 48VDC
- Open Frame Board or Chassis Mount
- Encapsulated Board or Chassis Mount
- DIN Rail Version Available
- Class II
- Peak Load Capability
- 3 Year Warranty

**Dimensions:**

**EML15-P:** 2.44 x 1.21 x 0.95 in (62.0 x 30.7 x 24.1 mm)  
**EML15-T:** 3.10 x 1.25 x 0.91 in (78.7 x 31.8 x 23.1 mm)  
**EML15-E:** 2.56 x 1.31 x 0.96 in (65.0 x 33.3 x 24.4 mm)  
**EML15-S:** 3.30 x 1.36 x 1.04 in (84.0 x 34.5 x 26.4 mm)

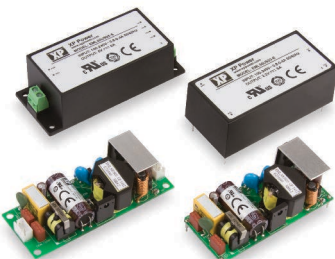
Power	Output Voltage	Output Current		Model
		Nom.	Peak	
10 W	3.3 VDC	3.00 A	3.90 A	EML15US03
15 W	5.0 VDC	3.00 A	3.90 A	EML15US05
15 W	9.0 VDC	1.67 A	2.17 A	EML15US09
15 W	12.0 VDC	1.25 A	1.62 A	EML15US12
15 W	15.0 VDC	1.00 A	1.30 A	EML15US15
15 W	24.0 VDC	0.63 A	0.82 A	EML15US24
15 W	36.0 VDC	0.42 A	0.54 A	EML15US36
15 W	48.0 VDC	0.32 A	0.41 A	EML15US48

**Notes:**

Peak load lasting <30s with a maximum duty cycle of 10%, average output power not to exceed nominal. Add suffix 'P' for PCB mount, add 'T' for chassis mount, add 'E' for encapsulated, add 'S' for screw terminals. A screw terminal version (-S) is available with DIN clip attached, add suffix 'D'. DIN rail mounting kit is available as a separate item, order code ECL15 DIN CLIP.

## EML30

30 Watts



- Compact Size
- Medical Approvals (2 x MOPP)
- Single Outputs from 3.3 to 48VDC
- Open Frame Board or Chassis Mount
- Encapsulated Board or Chassis Mount
- DIN Rail Version Available
- Class II
- Peak Load Capability
- 3 Year Warranty

**Dimensions:**

**EML30-P:** 2.96 x 1.36 x 1.05 in (75.2 x 34.6 x 26.7 mm)  
**EML30-T:** 3.46 x 1.36 x 1.00 in (87.9 x 34.6 x 25.4 mm)  
**EML30-E:** 3.10 x 1.50 x 1.10 in (78.7 x 38.1 x 27.9 mm)  
**EML30-S:** 3.78 x 1.57 x 1.12 in (96.0 x 40.0 x 28.5 mm)

Power	Output Voltage	Output Current		Model
		Nom.	Peak	
20 W	3.3 VDC	6.00 A	7.80 A	EML30US03
30 W	5.0 VDC	6.00 A	7.80 A	EML30US05
30 W	9.0 VDC	3.33 A	4.33 A	EML30US09
30 W	12.0 VDC	2.50 A	3.25 A	EML30US12
30 W	15.0 VDC	2.00 A	2.60 A	EML30US15
30 W	24.0 VDC	1.25 A	1.63 A	EML30US24
30 W	36.0 VDC	0.83 A	1.08 A	EML30US36
30 W	48.0 VDC	0.62 A	0.81 A	EML30US48

**Notes:**

Peak load lasting <30s with a maximum duty cycle of 10%, average output power not to exceed nominal. Add suffix 'P' for PCB mount, add 'T' for chassis mount, add 'E' for encapsulated, add 'S' for screw terminals. A screw terminal version (-S) is available with DIN clip attached, add suffix 'D'. e.g. EML30US24-SD, DIN rail mounting kit is available as a separate item, order code ECL25/30 DIN CLIP.



## ECF40

40 Watts



- 40W Convection-cooled
- Ultra Compact Size
- 3" x 1.5" Footprint & Low 1.1" Profile
- High Efficiency
- ITE & Medical (2 x MOPP) Approvals
- High Power Density
- Class I & Class II Installations
- <0.15W No Load Input Power
- 3 Year Warranty

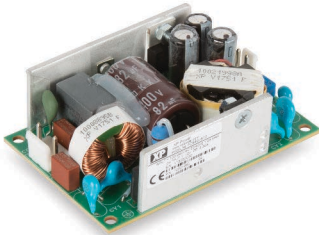
Power	Output Voltage	Output Current	Model
40 W	12.0 VDC	3.34 A	ECF40US12
40 W	15.0 VDC	2.67 A	ECF40US15
40 W	18.0 VDC	2.23 A	ECF40US18
40 W	24.0 VDC	1.67 A	ECF40US24
40 W	36.0 VDC	1.11 A	ECF40US36
40 W	48.0 VDC	0.83 A	ECF40US48

**Dimensions:**

**ECF40:** 3.00 x 1.50 x 1.11 in (76.2 x 38.1 x 28.14 mm)

## FCS40

40 Watts



- 40W Convection-cooled
- Compact Package, 3"x 2"x 1.1"
- ITE & Medical (2 x MOPP) Approvals
- Single Output
- <0.15W No Load Input Power
- Class I & Class II Installations
- 3 Year Warranty

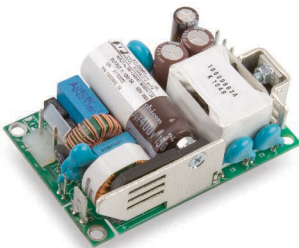
Power	Output Voltage	Output Current	Model
40 W	12.0 VDC	3.34 A	FCS40US12
40 W	15.0 VDC	2.67 A	FCS40US15
40 W	18.0 VDC	2.23 A	FCS40US18
40 W	24.0 VDC	1.67 A	FCS40US24
40 W	36.0 VDC	1.11 A	FCS40US36
40 W	48.0 VDC	0.83 A	FCS40US48

**Dimensions:**

**FCS40:** 3.00 x 2.00 x 1.10 in (76.2 x 50.8 x 27.94 mm)

## ECS60

60 Watts



- 60W Convection-cooled
- Very Small 3"x 2"x 1.05" Package
- ITE & Medical (2 x MOPP) Approvals
- <0.5W No Load Input Power
- Class I & Class II Installations
- -20 °C to +70 °C Operation
- 3 Year Warranty

Power	Output Voltage	Output Current	Model
40 W	5.0 VDC	8.00 A	ECS60US05
60 W	12.0 VDC	5.00 A	ECS60US12
60 W	15.0 VDC	4.00 A	ECS60US15
60 W	24.0 VDC	2.50 A	ECS60US24
60 W	48.0 VDC	1.25 A	ECS60US48

**Dimensions:**

**ECS60:**  
3.00 x 2.00 x 1.05 in (76.2 x 50.8 x 26.7 mm)

**Notes:**

For covered versions, add suffix '-C' to model number or order part number ECS25-60 COVER KIT for standalone cover. Not suitable for use in class II installations, derate output power by 20% with cover.





## FCS60

60 Watts



- 60W Convection-cooled
- Compact Package, 4" x 2" x 1.1"
- ITE & Medical (2 x MOPP) Approvals
- Single Output
- <0.15W No Load Input Power
- Class I & Class II Installations
- 3 Year Warranty

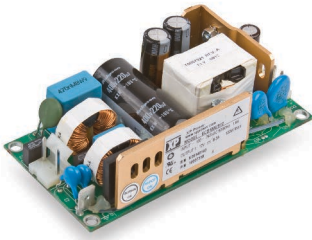
Power	Output Voltage	Output Current	Model
60 W	12.0 VDC	5.00 A	FCS60US12
60 W	15.0 VDC	4.00 A	FCS60US15
60 W	18.0 VDC	3.33 A	FCS60US18
60 W	24.0 VDC	2.50 A	FCS60US24
60 W	36.0 VDC	1.67 A	FCS60US36
60 W	48.0 VDC	1.25 A	FCS60US48

**Dimensions:**

**FCS60:** 4.00 x 2.00 x 1.10 in (101.6 x 50.8 x 27.94 mm)

## ECS100

100 Watts



- 80W Convection-cooled
- 100W Forced-air Cooled
- Industry Standard 4" x 2" Footprint
- ITE & Medical (2 x MOPP) Approvals
- Class I & Class II Construction
- <0.5W No Load Input Power
- Low Leakage Current
- 3 Year Warranty

Power	Output Voltage		Output Current	Model
	Conv.	Forced		
80 W	100 W	12.0 VDC	8.3 A	ECS100US12
80 W	100 W	15.0 VDC	6.7 A	ECS100US15
80 W	100 W	18.5 VDC	5.5 A	ECS100US18
80 W	100 W	24.0 VDC	4.2 A	ECS100US24
80 W	100 W	28.0 VDC	3.6 A	ECS100US28
80 W	100 W	48.0 VDC	2.1 A	ECS100US48

**Dimensions:**

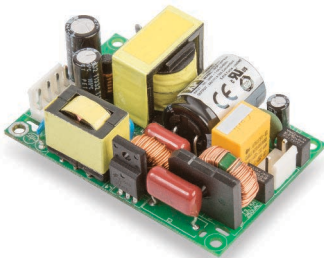
**ECS100:** 4.00 x 2.00 x 1.25 in (101.6 x 50.8 x 31.8 mm)  
**ECS100-B:** 4.50 x 2.00 x 1.25 in (114.3 x 50.8 x 31.8 mm)

**Notes:**

For Class B radiated emissions models, add suffix -B to model number. For covered versions, add suffix '-C' to model number or order part no. ECM40/60 COVER for standalone cover. Derate output power by 20% with cover. The cover is not suitable for Class II installations. For ECS100 forced-air cooled output requires 10CFM.

## ECP130

130 Watts



- 100W Convection-cooled
- 130W Forced-air Cooled
- Ultra Compact 3" x 2" Footprint
- Low 1.1" Profile
- High Efficiency - up to 95%
- ITE & Medical (2 x MOPP) Approvals
- <0.5W No Load Input Power
- 3 Year Warranty

Power	Output Voltage	Output Current		Model
		Conv.	Forced	
130 W	12.0 VDC	8.33 A	10.83 A	ECP130PS12
130 W	15.0 VDC	6.66 A	8.66 A	ECP130PS15
130 W	18.0 VDC	5.55 A	7.22 A	ECP130PS18
130 W	24.0 VDC	4.16 A	5.41 A	ECP130PS24
130 W	28.0 VDC	3.57 A	4.64 A	ECP130PS28
130 W	36.0 VDC	2.77 A	3.61 A	ECP130PS36
130 W	48.0 VDC	2.08 A	2.70 A	ECP130PS48

**Dimensions:**

**ECP130:** 3.00 x 2.00 x 1.10 in (76.2 x 50.8 x 28.0 mm)

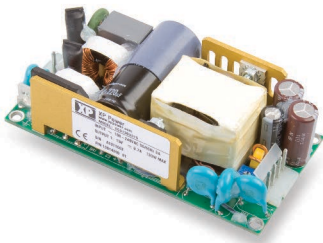
**Notes:**

Add suffix '-S' for input and output screw terminals e.g. ECP130PS24-S. Forced-air cooled output requires 10CFM.



# ECS130

130 Watts



- 100W Convection-cooled
- 130W Forced-air Cooled
- Industry Standard 4" x 2" Footprint
- ITE & Medical (2 x MOPP) Approvals
- Class I & Class II Installations
- <0.5W No Load Input Power
- Low Leakage Current
- 3 Year Warranty

**Dimensions:**

**ECS130:** 4.00 x 2.00 x 1.28 in (101.6 x 50.8 x 32.5 mm)

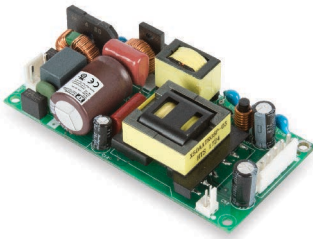
Power	Output Voltage	Output Current		Model
		Conv.	Forced	
130 W	12.0 VDC	8.33 A	10.9 A	ECS130US12
130 W	15.0 VDC	6.67 A	8.7 A	ECS130US15
130 W	18.0 VDC	5.56 A	7.3 A	ECS130US18
130 W	24.0 VDC	4.16 A	5.4 A	ECS130US24
130 W	28.0 VDC	3.57 A	4.7 A	ECS130US28
130 W	48.0 VDC	2.08 A	2.7 A	ECS130US48

**Notes:**

For covered versions, add suffix '-C' to model number or order part no. ECM40/60 COVER for standalone cover, see derating curve. The cover is not suitable for Class II installations. Forced-air cooled output requires 10CFM.

# EPL150

150 Watts



- 100W Convection-cooled
- 150W Forced-air Cooled
- Ultra Compact 4" x 2" Footprint
- Low 0.99" Profile
- Class I & Class II Operation
- 12V Fan Output
- High Efficiency - up to 95%
- ITE and Medical (BF) Approvals
- 3 Year Warranty

**Dimensions:**

**EPL150:** 4.00 x 2.00 x 0.99 in (101.6 x 50.8 x 25.1 mm)

Power	Output Voltage	Output Current		Model
		Conv.	Forced	
150 W	12.0 VDC	8.33 A	12.50 A	EPL150PS12
150 W	15.0 VDC	6.67 A	10.00 A	EPL150PS15
150 W	18.0 VDC	5.56 A	8.33 A	EPL150PS18
150 W	24.0 VDC	4.17 A	6.25 A	EPL150PS24
150 W	28.0 VDC	3.50 A	5.40 A	EPL150PS28
150 W	36.0 VDC	2.78 A	4.17 A	EPL150PS36
150 W	48.0 VDC	2.08 A	3.10 A	EPL150PS48

**Notes:**

Forced-air cooled output requires 10CFM.

# RCL175

175 Watts



- 200W Peak Rating
- Up to 120W Convection-cooled
- Dual, Triple & Quad Outputs
- ITE & Medical Approvals
- Class I & Class II Installations
- Connector & Mechanical Options
- 3 Year Warranty

**Dimensions:**

**RCL175 (Open-frame):**  
5.50 x 3.70 x 1.38 in (139.7 x 93.9 x 34.9 mm)  
**RCL175 (U-channel):**  
5.71 x 3.90 x 1.50 in (145.0 x 99.0 x 38.1 mm)

Power	Output Voltage		Output Current	Model
	Conv.	Forced		
110 W	175 W	5.0/12.0 VDC	15.0/8.3 A	RCL175PD22
110 W	175 W	5.0/12.0/F12 VDC	15/6.3/2 A	RCL175PT31
110 W	175 W	5.0/15.0/F15 VDC	15/4.6/2 A	RCL175PT32
90 W	175 W	5/3.3/F15/F15 VDC	15/15/2/2 A	RCL175PQ43
90 W	175 W	5/12/F5/F12 VDC	15/5.5/2/2 A	RCL175PQ44
90 W	175 W	5/15/F5/F15 VDC	15/4/2/2 A	RCL175PQ45
90 W	175 W	5/24/F12/F12 VDC	15/3.2/2/2 A	RCL175PQ46
90 W	175 W	5/24/F15/F15 VDC	15/3/2/2 A	RCL175PQ47

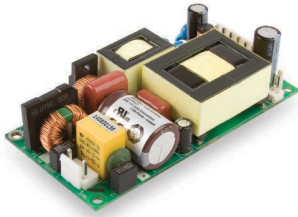
**Notes:**

Standard is open frame. For U-channel version, add suffix '-U'. For U-channel & cover, add suffix '-C'. For U-channel & fan cover, add suffix '-F'. For screw terminals, add suffix '-S'. Outputs 3 & 4 are floating, they can be connected externally for positive or negative output. Forced-air cooled output requires 12CFM.



# ECP180

180 Watts



- 120W Convection-cooled
- 180W Forced-air Cooled
- Low 1" Profile with 4" x 2" Footprint
- Very High Efficiency - up to 95%
- ITE & Medical (2 x MOPP) Approvals
- Class I & Class II Installations
- 12V Fan Output
- <0.5W No Load Input Power
- 3 Year Warranty

**Dimensions:**

**ECP180:** 4.00 x 2.00 x 1.00 in (101.6 x 50.8 x 25.4 mm)

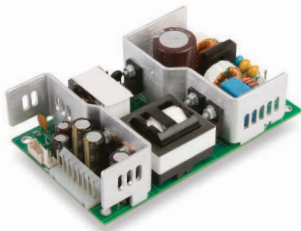
Power	Output Voltage	Output Current		Model
		Conv.	Forced	
180 W	12.0 VDC	10.00 A	15.00 A	ECP180PS12
180 W	15.0 VDC	8.00 A	12.00 A	ECP180PS15
180 W	24.0 VDC	5.00 A	7.50 A	ECP180PS24
180 W	28.0 VDC	4.30 A	6.43 A	ECP180PS28
180 W	36.0 VDC	3.33 A	5.00 A	ECP180PS36
180 W	48.0 VDC	2.50 A	3.75 A	ECP180PS48

**Notes:**

Forced-air cooled output requires 10CFM.

# GCS150-180

150-180 Watts



- 110/150W Convection-cooled
- 150/180W Forced-air Cooled
- ITE & Medical (2 x MOPP) Approvals
- Class I & Class II Installations
- <0.5W Standby Power
- 12V Fan Output
- -40°C to +70°C Operation
- Remote On/Off
- 3 Year Warranty

**Dimensions:**

**GCS150/GCS180:**

5.00 x 3.00 x 1.42 in (127.0 x 76.2 x 36.3 mm)  
 (-C): 5.50 x 3.48 x 1.70 in (139.7 x 88.5 x 43.2 mm)  
 (-TF): 5.50 x 3.48 x 2.20 in (139.7 x 88.5 x 57.8 mm)  
 (-EF): 6.35 x 3.48 x 1.70 in (161.3 x 88.5 x 43.2 mm)

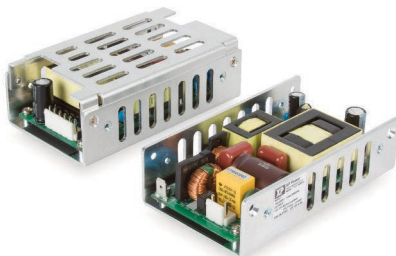
Power (Con/For)	Output Voltage	Output Current		Model
		Conv.	Forced	
110/150 W	12.0 VDC	9.2 A	12.5 A	GCS150PS12
110/150 W	15.0 VDC	7.3 A	10.0 A	GCS150PS15
110/150 W	24.0 VDC	4.6 A	6.3 A	GCS150PS24
110/150 W	28.0 VDC	3.9 A	5.4 A	GCS150PS28
110/150 W	48.0 VDC	2.3 A	3.2 A	GCS150PS48
150/180 W	12.0 VDC	12.5 A	15.0 A	GCS180PS12
150/180 W	15.0 VDC	10.0 A	12.0 A	GCS180PS15
150/180 W	24.0 VDC	6.3 A	7.5 A	GCS180PS24
150/180 W	28.0 VDC	5.4 A	6.4 A	GCS180PS28
150/180 W	48.0 VDC	3.1 A	3.7 A	GCS180PS48

**Notes:**

12V/0.6A fan supply available on open frame & -C versions. For convection-cooled cover, add suffix '-C'. For fan-cooled cover with end fan, add suffix '-EF'. For fan-cooled cover with top fan, add suffix '-TF'. For remote on/off, add suffix '-R'. Forced-air cooled output requires 7CFM.

# UCP180

180 Watts



- 120W Convection-cooled
- 180W Forced-air Cooled
- Low 1.18" Profile U-channel Construction
- -40°C to +70°C Operation
- 4.3" x 2.5" Footprint
- 12V Fan Output
- ITE & Medical (BF) Approvals
- High Efficiency, up to 95%
- 3 Year Warranty

**Dimensions:**

**UCP180:**

4.24 x 2.47 x 1.16 in (107.6 x 62.8 x 29.5 mm)

**UCP180-C:**

4.24 x 2.47 x 1.40 in (107.6 x 62.8 x 35.5 mm)

Power	Output Voltage	Output Current		Model
		Conv.	Forced	
180 W	12.0 VDC	10.00 A	15.00 A	UCP180PS12
180 W	15.0 VDC	8.00 A	12.00 A	UCP180PS15
180 W	18.0 VDC	6.67 A	10.00 A	UCP180PS18
180 W	24.0 VDC	5.00 A	7.50 A	UCP180PS24
180 W	28.0 VDC	4.30 A	6.43 A	UCP180PS28
180 W	36.0 VDC	3.33 A	5.00 A	UCP180PS36
180 W	48.0 VDC	2.50 A	3.75 A	UCP180PS48

**Notes:**

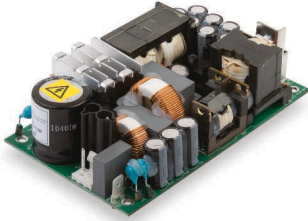
Add suffix '-T' for input and output screw terminals, e.g. UCP180PS24-T. Add suffix '-C' for vented cover version, e.g. UCP180PS24-C. Forced-air cooled output requires 10CFM.





# CCB200

200 Watts



- 200W Convection-cooled
- Industry Standard 5" x 3" Footprint
- Very Low Heat Dissipation
- ITE & Medical (BF) Approvals
- +70 °C Full Power Operation
- Very High Efficiency - up to 95%
- Inhibit & Power Fail Signals
- Optional 5V/0.5A Standby (-A)
- 3 Year Warranty

**Dimensions:**

**CCB200/-A:** 5.00 x 3.00 x 1.43 in (127.0 x 76.2 x 36.3 mm)  
**CCB200/-C/-AC:** 5.50 x 3.48 x 1.75 in (139.7 x 88.5 x 44.4 mm)

Power	Output Voltage	Output Current		Model
		Conv.	Forced	
200 W	12.0 VDC	16.7 A		CCB200PS12
200 W	15.0 VDC	13.3 A		CCB200PS15
200 W	24.0 VDC	8.3 A		CCB200PS24
200 W	28.0 VDC	7.1 A		CCB200PS28
200 W	48.0 VDC	4.2 A		CCB200PS48
200 W	56.0 VDC	3.6 A		CCB200PS56

**Notes:**

For covered version add suffix '-C' to model number e.g. CCB200PS12-C  
 Add suffix '-A' for 5V standby option, or -AC for standby and cover options combined.

# ECP225-A

225 Watts



- 150W Convection-cooled
- 225W Forced-air Cooled
- Low 1" Profile
- High Power Density
- 5" x 3" Footprint
- 5V/2A Standby & 12V Fan Outputs
- Remote On/Off
- ITE & Medical (2 x MOPP) Approvals
- High Efficiency - up to 94%
- <0.5W No Load Input Power
- 3 Year Warranty

**Dimensions:**

**ECP225-A:** 5.00 x 3.00 x 1.00 in (127.0 x 76.2 x 25.4 mm)  
**ECP225:** 5.00 x 2.50 x 1.00 in (127.0 x 63.5 x 25.4 mm)

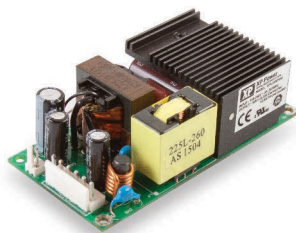
Power	Output Voltage	Output Current		Model
		Conv.	Forced	
225 W	12.0 VDC	12.50 A	18.75 A	ECP225PS12-A
225 W	15.0 VDC	10.00 A	15.00 A	ECP225PS15-A
225 W	24.0 VDC	6.25 A	9.38 A	ECP225PS24-A
225 W	28.0 VDC	5.36 A	8.04 A	ECP225PS28-A
225 W	48.0 VDC	3.10 A	4.69 A	ECP225PS48-A

**Notes:**

For optional 2.5 x 5" version without 5V standby & remote on/off, remove '-A' suffix, e.g. ECP225PS12. Forced-air cooled output requires 10CFM.

# EPL225

225 Watts



- 150W Convection-cooled
- 225W Forced-air Cooled
- Ultra Compact 4" x 2" Footprint
- Low 1.26" Profile
- 12V Fan Output
- Very High Efficiency - up to 95%
- ITE & Medical (2 x MOPP) Approvals
- <0.5W No Load Input Power
- 3 Year Warranty

**Dimensions:**

**EPL225:** 4.00 x 2.00 x 1.26 in (101.6 x 50.8 x 32.3 mm)

Power	Output Voltage	Output Current		Model
		Conv.	Forced	
225 W	12.0 VDC	12.50 A	18.75 A	EPL225PS12
225 W	15.0 VDC	10.00 A	15.00 A	EPL225PS15
225 W	18.0 VDC	8.33 A	12.50 A	EPL225PS18
225 W	24.0 VDC	6.25 A	9.38 A	EPL225PS24
225 W	28.0 VDC	5.36 A	8.04 A	EPL225PS28
225 W	36.0 VDC	4.16 A	6.25 A	EPL225PS36
225 W	48.0 VDC	3.10 A	4.69 A	EPL225PS48

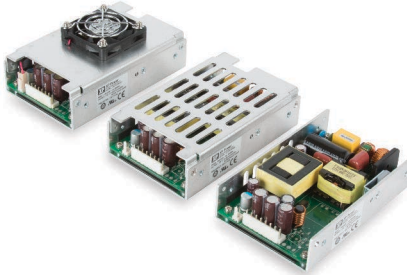
**Notes:**

Forced-air cooled output requires 10CFM.



# UCP225

225 Watts



- 150W Convection-cooled
- 225W Forced-air Cooled
- Low 1.18" Profile U-channel Construction
- -40°C to +70°C Operation
- 5.0" x 3.12" Footprint
- Optional 5V/2A Standby & Remote On/Off
- 12V Fan Output
- ITE & Medical (2 x MOPP) Approvals
- Very High Efficiency - up to 95%
- <0.5W No Load Input Power
- 3 Year Warranty

**Dimensions:**

**UCP225:** 5.00 x 3.12 x 1.18 in (127.0 x 79.2 x 29.2 mm)

Power	Output Voltage	Output Current		Model
		Conv.	Forced	
225 W	12.0 VDC	12.50 A	18.75 A	UCP225PS12
225 W	15.0 VDC	10.00 A	15.00 A	UCP225PS15
225 W	18.0 VDC	8.33 A	12.50 A	UCP225PS18
225 W	24.0 VDC	6.25 A	9.38 A	UCP225PS24
225 W	28.0 VDC	5.36 A	8.04 A	UCP225PS28
225 W	36.0 VDC	4.16 A	6.25 A	UCP225PS36
225 W	48.0 VDC	3.10 A	4.69 A	UCP225PS48

**Notes:**

Forced-air cooled output requires 10CFM, excluding '-TF' versions. Add suffix '-T' for input and output screw terminals e.g. UCP225PS24-T. Add suffix '-TF' for fan cover version e.g. UCP225PS24-TF. Add suffix '-C' for vented cover version e.g. UCP225PS24-C. Add suffix '-A' for optional 5V, 2A standby and remote on/off e.g. UCP225PS24-A

# CCM250

250 Watts



- 250W Convection-cooled
- 300W Peak Rating for 500ms
- Very High Efficiency - up to 95%
- Class B Conducted & Radiated Emissions
- 80 - 275VAC Operation
- ITE & Medical (2 x MOPP) Approvals
- 5V/0.5A Standby Output
- 3 Year Warranty

**Dimensions:**

**CCM250:** 6.00 x 4.00 x 1.54 in (152.4 x 101.6 x 39.1 mm)

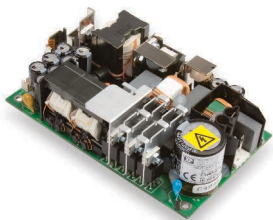
Power	Output Voltage	Output Current		Model
		Nom.	Peak	
250 W	12.0 VDC	20.8 A	25.00 A	CCM250PS12
250 W	15.0 VDC	16.7 A	20.00 A	CCM250PS15
250 W	24.0 VDC	10.4 A	12.50 A	CCM250PS24
250 W	28.0 VDC	8.9 A	10.70 A	CCM250PS28
250 W	36.0 VDC	6.9 A	8.30 A	CCM250PS36
250 W	48.0 VDC	5.2 A	6.25 A	CCM250PS48

**Notes:**

Peak duration is 500ms max, average power must not exceed 250W.

# CHD250

250 Watts



- 250W Convection-cooled
- Industry Standard 5" x 3" Footprint
- 5V/0.5A Standby Output (Optional)
- <0.5W Standby Power
- ITE & Medical (BF) Approvals
- Power Fail & Inhibit Signals
- 80-300VAC Input
- 3 Year Warranty

**Dimensions:**

**CHD250:** 5.00 x 3.00 x 1.43 in (115 x 76 x 36.3 mm)  
**CHD250-C:** 5.50 x 3.48 x 1.75 in (139.7 x 88.5 x 44.4 mm)

Power	Output Voltage	Output Current		Model
		Nom.	Peak	
250 W	12.0 VDC	20.8 A	250 W	CHD250PS12
250 W	15.0 VDC	16.7 A	250 W	CHD250PS15
250 W	24.0 VDC	10.4 A	250 W	CHD250PS24
250 W	28.0 VDC	8.9 A	250 W	CHD250PS28
250 W	48.0 VDC	5.2 A	250 W	CHD250PS48

**Notes:**

Add suffix '-C' for cover version e.g. CHD250PS24-C (derating will be applicable). Add suffix '-A' for 5V standby option or -AC for standby and cover options combined, (derating will be applicable).



# CMP250

250 Watts



- 250W Convection-cooled
- 500W Peak Power Up To 1 Minute
- ITE & Medical (BF) Approvals
- U-channel 7.5" x 4" Package
- Constant Current Overload Protection
- 5V/1.5A Standby & Signals Set
- Ideal Solution For Electro-mech Systems
- 3 Year Warranty

**Dimensions:**

**CMP250:** 7.50 x 4.00 x 1.57 in (190.5 x 101.6 x 39.9 mm)  
**CMP250-C:** 7.89 x 4.12 x 1.92 in (200.5 x 104.6 x 48.8 mm)

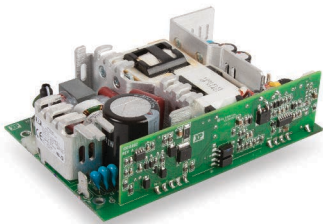
Power	Output Voltage	Output Current		Model
		Nom.	Peak	
250 W	24.0 VDC	10.4 A	20.8 A	CMP250PS24
250 W	36.0 VDC	6.9 A	13.8 A	CMP250PS36
250 W	48.0 VDC	5.2 A	10.4 A	CMP250PS48

**Notes:**

Add suffix '-C' for covered version, e.g. CMP250PS24-C (20% derating applies). Peak current/power available for up to 1 minute. Average power must not exceed 225W, other peak and average load conditions can be accommodated, limited by the thermal considerations and average power rating. Peak power and average power derate below 90VAC.

# GCS265

265 Watts



- 180W Convection-cooled
- 265W Forced-air Cooled
- 5V/3A Standby Output
- ITE & Medical (2 x MOPP) Approvals
- Class I & Class II Installations
- -40°C to +70°C Operation
- Power Fail & Remote On/Off
- 3 Year Warranty

**Dimensions:**

**GCS265:** 5.00 x 3.50 x 1.43 in (127.0 x 88.8 x 36.3 mm)  
**GCS265-C:** 5.50 x 4.01 x 1.72 in (139.7 x 101.8 x 43.7 mm)

Power	Output Voltage	Output Current		Model
		Conv.	Forced	
265 W	12.0 VDC	15.0 A	20.8 A	GCS265PS12
265 W	15.0 VDC	12.0 A	16.7 A	GCS265PS15
265 W	24.0 VDC	7.5 A	10.4 A	GCS265PS24
265 W	28.0 VDC	6.4 A	8.9 A	GCS265PS28
265 W	48.0 VDC	3.7 A	5.2 A	GCS265PS48

**Notes:**

To order power supply with optional cover fitted add suffix '-C' to model number, e.g. GCS265PS24-C. To order power supply with optional Top Fan Cover fitted add suffix '-TF' to model number, e.g. GCS265PS24-TF. To order power supply with optional End Fan Cover fitted add suffix '-EF' to model number, e.g. GCS265PS24-EF. Forced-air cooled output requires 7CFM.

# GCS250-350

250-350 Watts



- 180/200W Convection-cooled
- 250/350W Forced-air Cooled
- Industry Standard 5" x 3" Footprint
- ITE & Medical (2 x MOPP) Approvals
- Class I & Class II Installations
- -40°C to +70°C Operation
- Remote On/Off
- Class B Emissions
- 3 Year Warranty

**Dimensions:**

**GCS250/350:** 5.00 x 3.00 x 1.42 in (127.0 x 76.2 x 36.3 mm)  
**(-C):** 5.50 x 3.48 x 1.70 in (139.7 x 88.5 x 43.2 mm)  
**(-TF):** 5.50 x 3.48 x 2.20 in (139.7 x 88.5 x 57.8 mm)  
**(-EF):** 6.35 x 3.48 x 1.70 in (161.3 x 88.5 x 43.2 mm)  
**(350-EF):** 6.00 x 3.50 x 1.75 in (152.4 x 88.9 x 44.4 mm)

Power (Con/For)	Output Voltage	Output Current		Model
		Conv.	Forced	
180/250 W	12.0 VDC	15.0 A	18.8 A	GCS250PS12
180/250 W	15.0 VDC	12.0 A	15.0 A	GCS250PS15
180/250 W	24.0 VDC	7.5 A	10.4 A	GCS250PS24
180/250 W	28.0 VDC	6.4 A	8.9 A	GCS250PS28
180/250 W	48.0 VDC	3.7 A	5.2 A	GCS250PS48
180/250 W	56.0 VDC	3.2 A	4.5 A	GCS250PS56
200/350 W	12.0 VDC	16.7 A	29.2 A	GCS350PS12
200/350 W	15.0 VDC	13.3 A	23.4 A	GCS350PS15
200/350 W	24.0 VDC	8.3 A	14.6 A	GCS350PS24
200/350 W	28.0 VDC	7.1 A	12.5 A	GCS350PS28
200/350 W	48.0 VDC	4.2 A	7.3 A	GCS350PS48
200/350 W	56.0 VDC	3.6 A	6.25 A	GCS350PS56

**Notes:**

Add suffix '-C' for convection cooled cover, e.g. Add suffix '-EF' for fan cooled cover with end fan. Add suffix '-TF' for fan cooled cover with top fan. Add suffix '-R' for remote on/off. Add suffix '-J' for optional dual row molex connector. Add suffix '-S' for optional screw terminals. Forced-air cooled output requires 7CFM for 250W and 15CFM for 350W.





# SMP350

350 Watts



- Rugged Construction
- -40°C to +70°C Operation
- Screw Terminal Connections
- High Efficiency
- Remote On/Off
- Low Leakage Current
- Class B Emissions
- 3 Year Warranty

Power Lo/Hi Line	Output Voltage	Output Current Lo/Hi Line		Model
300/300 W	12.0 VDC	25.00/25.00 A		SMP350PS12
310/330 W	15.0 VDC	20.70/22.00 A		SMP350PS15
320/350 W	18.0 VDC	17.80/19.40 A		SMP350PS18
330/350 W	24.0 VDC	13.75/14.60 A		SMP350PS24
330/350 W	28.0 VDC	11.80/12.50 A		SMP350PS28
330/350 W	36.0 VDC	9.70/ 9.70 A		SMP350PS36
330/350 W	48.0 VDC	7.30/ 7.30 A		SMP350PS48

**Dimensions:**

**SMP350:** 7.0 x 3.6 x 1.7 in (177.8 x 91.4 x 43.1 mm)

**Notes:**

For reduced leakage current medical versions (<300µA) contact sales.

# CCL400

400 Watts



- 400W Convection-cooled
- 94% Efficiency
- 5V/0.5A Standby Output
- <1W Standby Power
- ITE & Medical Approvals
- Power Fail & Inhibit Signals
- Conduction Cooling For High Temp. Operation
- 70 °C Full Power Operation
- 3 Year Warranty

Power	Output Voltage	Output Current	Model
400 W	12.0 VDC	33.3 A	CCL400PS12
400 W	24.0 VDC	16.6 A	CCL400PS24
400 W	30.0 VDC	13.3 A	CCL400PS30
400 W	48.0 VDC	8.3 A	CCL400PS48

**Dimensions:**

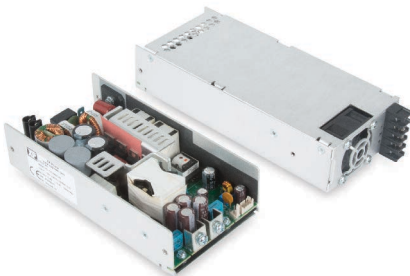
**CCL400:** 7.00 x 3.95 x 1.57 in (178 x 100 x 40 mm)  
**CCL400-C:** 7.39 x 4.04 x 1.92 in (189.9 x 107.3 x 48.9 mm)

**Notes:**

Add suffix '-C' for cover version e.g. CCL400PS24-C. Add suffix '-S' for a right angled input screw terminal connector e.g. CCL400PS24-S or CCL400PS24-CS.

# GCU500

500 Watts



- 250W Convection-cooled
- 500W Forced-air Cooled
- 5 V/0.2A Standby Output
- ITE & Medical (2 x MOPP) Approvals
- -40°C to +70°C Operation
- Power Fail & Remote On/Off
- Optional End Fan Version
- 3 Year Warranty

Power	Output Voltage	Output Current		Model
		Conv.	Forced	
500 W	12.0 VDC	20.8 A	41.7 A	GCU500PS12
500 W	15.0 VDC	16.7 A	33.4 A	GCU500PS15
500 W	18.0 VDC	12.5 A	27.8 A	GCU500PS18
500 W	24.0 VDC	10.4 A	20.8 A	GCU500PS24
500 W	36.0 VDC	6.9 A	13.9 A	GCU500PS36
500 W	48.0 VDC	5.2 A	10.4 A	GCU500PS48

**Dimensions:**

**GCU500:** 6.50 x 3.30 x 1.55 in (165.1 x 83.8 x 39.3 mm)  
**GCU500-EF:** 8.24 x 3.30 x 1.64 in (209.3 x 83.8 x 41.7 mm)

**Notes:**

Forced-air cooled output requires 10CFM. For end fan version add suffix '-EF' to model number.



# GSP500

500 Watts



- Convection-cooled & Forced-air cooled
- Compact Size
- Universal 80 to 264VAC Input
- ITE & Medical (2 x MOPP) Approvals
- < 0.5W No Load Input Power
- -40°C to +70°C Operation
- Remote On/Off & Remote Sense
- 5V/2A Standby Output
- 3 Year Warranty

**Dimensions:**

**GSP500:** 6.71 x 4.00 x 1.65 in (170.4 x 101.6 x 41.91 mm)

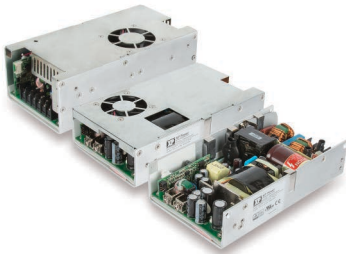
Power	Output Voltage	Output Current		Model
		Conv.	Forced	
500 W	12.0 VDC	15.00 A	42.0 A	GSP500PS12-EF
500 W	24.0 VDC	7.50 A	21.0 A	GSP500PS24-EF
500 W	48.0 VDC	3.75 A	10.5 A	GSP500PS48-EF

**Notes:**

Remove suffix '-EF' (End Fan) for use with integral system cooling (12CFM). Peak power available for 100ms maximum with a 10% duty cycle. The average power in a period should be equal or less than the normal power. For optional current share version, add suffix 'P', e.g. GSP500PS24P or GSP500PS24P-EF

# PBR500-650

500-650 Watts



- 500W/650W Forced-air Cooled
- ITE & Medical (BF) Safety Approvals
- 7" x 4" & 8" x 4" Packages
- 5V Standby Output
- 12V Fan Supply - PBR500 Only
- AC OK, Inhibit & Remote Sense
- Class B Conducted & Radiated Emissions
- 3 Year Warranty

**Dimensions:**

**PBR500:** 7.00 x 4.00 x 1.70 in (177.8 x 101.6 x 44.5 mm)  
**PBR650:** 8.00 x 4.00 x 2.58 in (203.2 x 101.6 x 65.5 mm)

**Notes:**

Peak current available for 15s max, 10% duty cycle, average power not to exceed nominal power rating. For PBR500 covered version, replace B in the part number with C, e.g. PBR500PS12C. Fan supply not available on covered version

Power (Con/For)	Output Voltage	Output Current		Model
		Conv.	Forced	
350/450 W	12.0 VDC	29.17 A	37.50 A	PBR500PS12B
350/450 W	15.0 VDC	23.34 A	30.00 A	PBR500PS15B
400/500 W	18.0 VDC	22.23 A	27.78 A	PBR500PS18B
400/500 W	24.0 VDC	16.67 A	20.84 A	PBR500PS24B
400/500 W	28.0 VDC	14.29 A	17.86 A	PBR500PS28B
400/500 W	36.0 VDC	11.12 A	13.89 A	PBR500PS36B
400/500 W	48.0 VDC	8.34 A	10.42 A	PBR500PS48B
400/500 W	57.0 VDC	7.02 A	8.78 A	PBR500PS57B

Power	Output Voltage	Output Current		Model
		Nom.	Peak	
650 W	12.0 VDC	50.00 A	55.00 A	PBR650PS12C
650 W	15.0 VDC	40.00 A	44.00 A	PBR650PS15C
650 W	18.0 VDC	36.12 A	40.00 A	PBR650PS18C
650 W	24.0 VDC	27.09 A	30.00 A	PBR650PS24C
650 W	28.0 VDC	23.22 A	25.50 A	PBR650PS28C
650 W	36.0 VDC	18.06 A	20.00 A	PBR650PS36C
650 W	48.0 VDC	13.55 A	15.00 A	PBR650PS48C
650 W	57.0 VDC	11.41 A	12.50 A	PBR650PS57C

# MHP650

650Watts



- Medical (2 x MOPP) Approvals
- Variable Fan Speed for Noise Reduction
- -20°C to +70°C Operation
- AC OK
- Remote On/Off
- Active Current Share
- 5V/0.2A Standby Output
- 3 Year Warranty

**Dimensions:**

**MHP650-EF:** 9.18 x 4.00 x 2.50 in (233.2 x 101.6 x 63.5 mm)  
**MHP650-TF:** 8.00 x 4.00 x 2.58 in (203.2 x 101.6 x 65.5 mm)

Power	Output Voltage	Output Current	Model
607 W	12.0 VDC	50.0 A	MHP650PS12-EF
607 W	15.0 VDC	40.0 A	MHP650PS15-EF
655 W	24.0 VDC	27.0 A	MHP650PS24-EF
655 W	28.0 VDC	23.0 A	MHP650PS28-EF
655 W	36.0 VDC	18.0 A	MHP650PS36-EF
655 W	48.0 VDC	13.5 A	MHP650PS48-EF

**Notes:**

For top fan version replace '-EF' in model number with '-TF'. For U-channel version remove suffix. U-channel models require a minimum of 5.5 m/s airflow from the system.



# GSP750

750 Watts



- 900W Peak Power Rating
- Universal 80 to 264VAC Input
- ITE & Medical (2 x MOPP) Approvals
- 1W Standby Power
- -40°C to +70°C Operation
- Remote On/Off, Remote Sense & Current Share
- Intelligent Fan Speed Control
- 5V/3A Standby Output
- Power Fail
- 3 Year Warranty

Power		Output Voltage	Output Current	Model
Nominal	Peak			
750 W	900 W	12.0 VDC	62.5 A	GSP750PS12-EF
750 W	900 W	24.0 VDC	31.3 A	GSP750PS24-EF
750 W	900 W	48.0 VDC	15.6 A	GSP750PS48-EF

**Dimensions:**

**GSP750:** 10.0 x 4.0 x 1.65 in (254.0 x 101.6 x 41.91 mm)

**Notes:**

Peak power available for 100ms maximum with a 10% duty cycle. The average power in a period should be equal to or less than the nominal power.

# MHP1000

1200 Watts



- Medical (2 x MOPP) Approvals
- Variable Fan Speed for Noise Reduction
- -20°C to +70°C Operation
- AC OK
- Remote On/Off
- Active Current Share
- 5V/0.2A Standby Output
- 3 Year Warranty

Power Lo/Hi Line	Output Voltage	Iout Low/High Line	Model
1000 W	12.0 VDC	83.0 A	MHP1000PS12
1010 W	15.0 VDC	67.0 A	MHP1000PS15
1013/1200 W	24.0 VDC	42.0/50.0 A	MHP1000PS24
1013/1200 W	28.0 VDC	36.0/43.0 A	MHP1000PS28
1013/1200 W	36.0 VDC	28.0/34.0 A	MHP1000PS36
1013/1200 W	48.0 VDC	21.0/25.0 A	MHP1000PS48

**Dimensions:**

**MHP1000:** 9.55 x 5.90 x 2.40 in (242.6 x 149.8 x 61.0 mm)

# HPU1K5-M

1500 Watts



- Low Profile for 1U Applications
- Variable Fan Speed To Reduce Noise
- -20°C to +70°C Operation
- AC OK & DC OK
- Inhibit & 5V/0.2A Standby Output
- Remote Sense
- Current Share
- Fault & Overtemperature Signals
- 3 Year Warranty

Power	Output Voltage	Iout Low/High Line	Model
1200 W	12.0 VDC	100.0 A	HPU1K5PS12-M
1500 W	24.0 VDC	50.0/63.0 A	HPU1K5PS24-M
1500 W	48.0 VDC	25.0/31.0 A	HPU1K5PS48-M

**Dimensions:**

**HPU1K5:** 14.40 x 4.00 x 1.70 in (365.8 x 101.6 x 43.2 mm) including connector





# HPT5K0

5000 Watts



- 3 Phase 180 to 528VAC Input
- High Efficiency - up to 94%
- Programmable Output Voltage (0-105%)
- Programmable Output Current (0-110%)
- <40ms Slew Rates
- Analog & Digital Interfaces
- Multiple Digital Protocols
- Fully Featured Signals & Controls
- Parallel Operation
- Graphical User Interface (GUI)
- 3 Year Warranty

Power	Output Voltage Min/Max	Output Current Min/Max	Model
5000 W	0.0/63.0 VDC	0.0/83.3 A	HPT5K0TS060
5000 W	0.0/105.0 VDC	0.0/50.0 A	HPT5K0TS100
5000 W	0.0/210.0 VDC	0.0/25.0 A	HPT5K0TS200

**Dimensions:**

**HPT5K0:** 13.0 x 5.00 x 5.00 in (330.2 x 127.0 x 127.0 mm)

**Notes:**

Standard models include PMBus, CANopen and RS485 interfaces. RS485 default is full duplex. RS485 half duplex can be configured via I<sup>2</sup>C or factory configured on request. To replace RS485 with RS232 or UART, contact sales. For 4000 VAC isolation test add suffix -M. Installation Class 3 surge only.

## Power Supply choice made easy

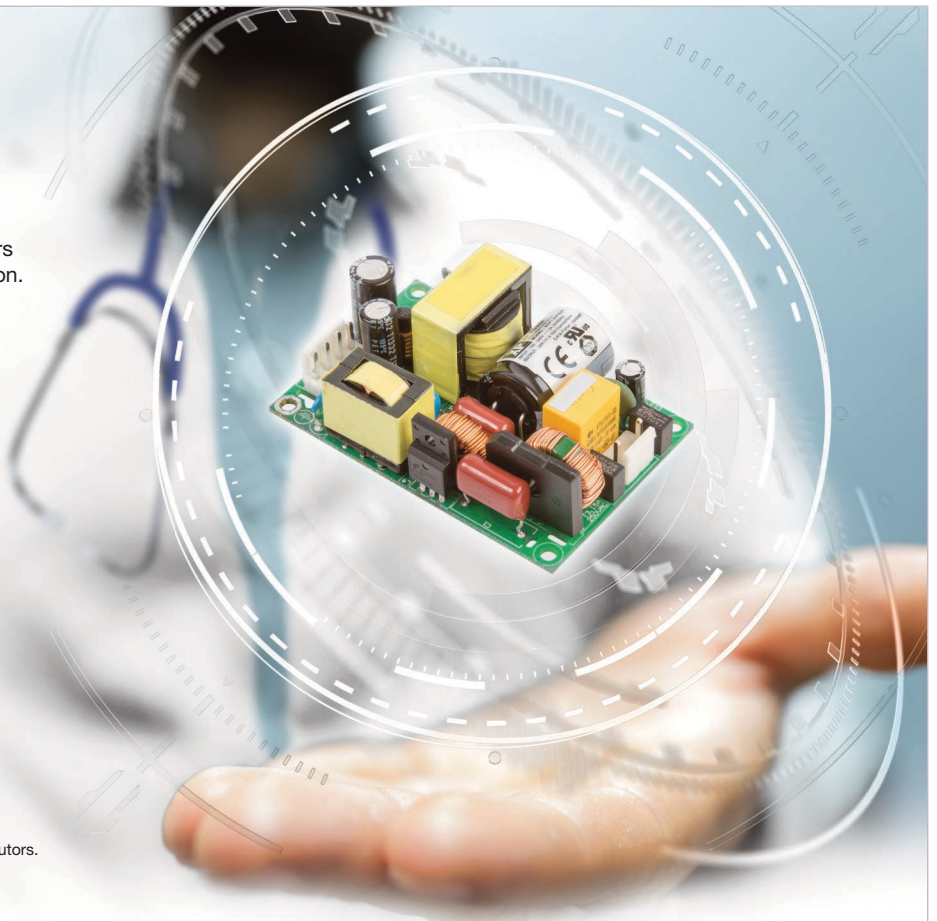
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nanoflex

1200 Watts

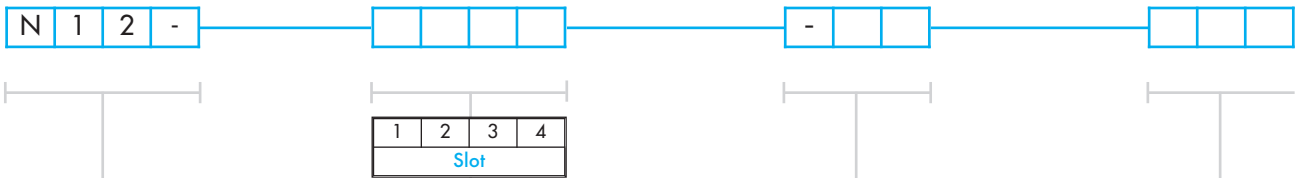


- Configurable Power Supply
- Low Profile for 1U Applications
- 850/1200W at Low/High Line
- I<sup>2</sup>C Interface
- User Adjustable Voltage, Current & Signal Levels
- Graphical User Interface (GUI)
- Output Voltages from 3.3 to 60V
- ITE & Medical (2 x MOPP) Approvals
- Module Power up to 300W
- Parallel Options for Increased Versatility
- Optional Reverse Air Flow with No Derating
- Fully Featured Signals & Controls
- 3 Year Warranty

Dimensions:

nanoflex:

N12: 11.50 x 4.20 x 1.67 in (292.1 x 106.7 x 42.2 mm)



Front End Designation			
Model	115 V	230 V	Slots
N12	850 W	1200 W	4

Module Designation				
Voltage	Current	Power	Slots	Code
3.3 VDC	40.00 A	132 W	1	A
Blank Plate			1	B
5.0 VDC	40.00 A	200 W	1	C
5.2 VDC	38.50 A	200 W	1	D
5.5 VDC	36.40 A	200 W	1	E
8.0 VDC	20.80 A	166 W	1	F
10.0 VDC	20.80 A	208 W	1	G
12.0 VDC	20.80 A	250 W	1	H
14.0 VDC	17.90 A	250 W	1	I
15.0 VDC	16.70 A	250 W	1	J
18.0 VDC	12.50 A	225 W	1	K
20.0 VDC	12.50 A	250 W	1	L
24.0 VDC	12.50 A	300 W	1	M
28.0 VDC	10.70 A	300 W	1	N
30.0 VDC	10.00 A	300 W	1	O
33.0 VDC	9.09 A	300 W	1	P
36.0 VDC	8.33 A	300 W	1	Q
48.0 VDC	6.25 A	300 W	1	R
54.0 VDC	5.56 A	300 W	1	S
60.0 VDC	5.00 A	300 W	1	T

Parallel Option Codes	
Code	Description
00	No parallel required
12	Parallel module 1 & 2 from right
13	Parallel modules 1 to 3 from right
14	Parallel modules 1 to 4 from right
22	Parallel module 1 & 2, 3 & 4

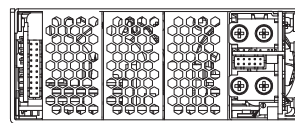
Option Codes	
Code	Description
A00	No options
A01	Fan fail signal
A02	Reverse air
A03	Faston O/P connections
A04	IEC inlet



Combined Option Codes	
Code	Description
C01	A01-02
C02	A01 & 03
C03	A01 & 04
C04	A01-03
C05	A01-02 & 04
C06	A01-04
C07	A02-03
C08	A02 & 04
C09	A02-04
C10	A03-04
C11	A01 & A03 & A04

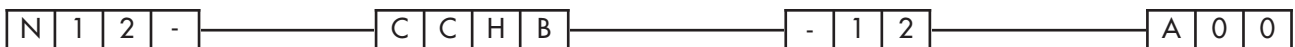
Modules are populated from the right, when unit is viewed from the DC module end. The modules are configured such that an output requiring the highest number of paralleled modules would go first, then the next highest and so on. Once this sequence is complete or if two outputs use paralleled modules then modules are configured lowest to highest voltage again from the right when the unit is viewed from the DC module end.

DC Module End



Examples

1. 5V at 80A, 12V at 12A with no options: N12-CCHB-12A00



2. 24V at 10A, 48V at 18A with optional IEC Inlet: N12-RRRM-13A04



# flexPower

400-2500 Watts



- Configurable For Fast Time To Market
- Flexible Series & Parallel Capability
- ITE & Medical (2 x MOPP) Approvals
- -20°C to +70°C Operation
- Variable Speed Fans (Optional)
- 1-14 Outputs
- Fully Featured Signals and Controls
- 3 Year Warranty

**Dimensions:**

**flexPower:**

**X4/XM4/X5/XM5/X7/XM7:**

10.00 x 5.00 x 2.50 in (254.0 x 127.0 x 63.5 mm)

**X9/XM9:**

10.00 x 6.00 x 2.50 in (254.0 x 152.4 x 63.5 mm)

**X10/XM10:**

10.00 x 7.00 x 2.50 in (254.0 x 177.8 x 63.5 mm)

**X15/XM15:**

11.0 x 5.00 x 5.00 in (279.4 x 127.0 x 127.0 mm)

**XTL15/XTL16 (3 Phase):**

11.00 x 7.00 x 2.50 in (279.4 x 177.8 x 63.5 mm)

**XTL30 (3 Phase):**

12.50 x 5.00 x 5.00 in (317.5 x 127.0 x 127.0 mm)

**X4DD/XM4DD/X5DD/XM5DD/X7DD/XM7DD:**

10.00 x 5.20 x 5.00 in (254.0 x 132.1 x 127.0 mm)

**X9DD/XM9DD:**

10.00 x 6.20 x 5.00 in (254.0 x 157.5 x 127.0 mm)

**X10DD/XM10DD:**

10.00 x 7.00 x 5.00 in (254.0 x 177.8 x 127.0 mm)

Chassis Ratings						
Model	Sector	V input				Slots
		115 V		230 V		
		Pnom	Ppk <sup>(1)</sup>	Pnom	Ppk <sup>(1)</sup>	
X4	Industrial	400 W	800 W	600 W	1200 W	10
XM4	Medical	400 W	800 W	600 W	1200 W	10
X5	Industrial	500 W	800 W	700 W	1200 W	10
XM5	Medical	500 W	800 W	700 W	1200 W	10
X7	Industrial	700 W	800 W	900 W	1200 W	10
XM7	Medical	700 W	800 W	900 W	1200 W	10
X9	Industrial	900 W	1100 W	1100 W	1500 W	12
XM9	Medical	900 W	1100 W	1100 W	1500 W	12
X10	Industrial	1000 W	1300 W	1200 W	1600 W	14
XM10	Medical	1000 W	1300 W	1200 W	1600 W	14
X15	Industrial	1500 W	1500 W	2500 W	2500 W	20
XM15	Medical	1500 W	1500 W	2500 W	2500 W	20
XTL15	Industrial	1500 W	1500 W			14
XTL16	Industrial	1600 W	1600 W	2500 W	2500 W	14
XTL30	Industrial	3000 W	3000 W			20

Chassis Ratings						
Model	Sector	3 Phase V input				Slots
		208 V		400/480 V		
		Pnom	Ppk <sup>(1)</sup>	Pnom	Ppk <sup>(1)</sup>	
XTL15	Industrial	1500 W	1500 W			14
XTL16	Industrial			1600 W	1600 W	14
XTL30	Industrial	3000 W	3000 W			20

**Notes:**

1. Peak power available for 10 seconds with 35% duty cycle.
2. Chassis includes 5V/1A standby supply, global inhibit, global DC OK & global AC OK.
3. For operation above +50 °C derate linearly to 50% load at 70 °C.

### Configuration

To configure your flexPower unit, select the required output power and application type, then add up to seven modules (ten modules for X15, XM15 & XTL30) that meet your output requirements. Please see the flexPower datasheet at [www.xppower.com](http://www.xppower.com) to assist in your model number construction and further details of series and parallel options and signals.

Single Output - Module Voltage/Current Rating							
Voltage	Current	Ipk	Power	Ppk	Slots	Code	
3.3 VDC	20.0 A	n/a	66 W	n/a	2	1C	
3.3 VDC	40.0 A	n/a	132 W	n/a	2	2C	
3.3 VDC	60.0 A	n/a	198 W	n/a	3	3C	
5.0 VDC	20.0 A	n/a	100 W	n/a	2	1D	
5.0 VDC	40.0 A	n/a	200 W	n/a	2	2D	
5.0 VDC	60.0 A	n/a	300 W	n/a	3	3D	
12.0 VDC	8.50 A	n/a	102 W	n/a	2	1J	
12.0 VDC	17.0 A	n/a	204 W	n/a	2	2J	
12.0 VDC	25.0 A	n/a	300 W	n/a	3	3J	
12.0 VDC	62.5 A	n/a	750 W	n/a	4	4J	
15.0 VDC	7.00 A	n/a	105 W	n/a	2	1L	
15.0 VDC	14.0 A	n/a	210 W	n/a	2	2L	
15.0 VDC	20.0 A	n/a	300 W	n/a	3	3L	
15.0 VDC	50.0 A	n/a	750 W	n/a	4	4L	
24.0 VDC	5.00 A	n/a	120 W	n/a	2	1P	
24.0 VDC	10.5 A	n/a	252 W	n/a	2	2P	
24.0 VDC	17.0 A	n/a	408 W	n/a	3	3P	
24.0 VDC	31.5 A	n/a	750 W	n/a	4	4P	
24.0 VDC	5.00 A	10.0 A	120 W	240 W	2	1R <sup>(1)</sup>	
24.0 VDC	10.5 A	21.0 A	252 W	504 W	2	2R <sup>(1)</sup>	
24.0 VDC	17.0 A	34.0 A	408 W	816 W	3	3R <sup>(1)</sup>	
28.0 VDC	4.50 A	n/a	126 W	n/a	2	1Q	
28.0 VDC	9.00 A	n/a	252 W	n/a	2	2Q	
28.0 VDC	14.0 A	n/a	392 W	n/a	3	3Q	
28.0 VDC	26.8 A	n/a	750 W	n/a	4	4Q	
36.0 VDC	3.50 A	n/a	126 W	n/a	2	1U	
36.0 VDC	7.00 A	n/a	252 W	n/a	2	2U	
36.0 VDC	11.0 A	n/a	396 W	n/a	3	3U	
36.0 VDC	21.0 A	n/a	750 W	n/a	4	4U	
48.0 VDC	2.50 A	n/a	120 W	n/a	2	1W	
48.0 VDC	5.20 A	n/a	249 W	n/a	2	2W	
48.0 VDC	8.50 A	n/a	408 W	n/a	3	3W	
48.0 VDC	15.7 A	n/a	750 W	n/a	4	4W	
60.0 VDC	2.00 A	n/a	120 W	n/a	2	1Y	
60.0 VDC	4.20 A	n/a	252 W	n/a	2	2Y	
60.0 VDC	7.00 A	n/a	420 W	n/a	3	3Y	
60.0 VDC	12.5 A	n/a	750 W	n/a	4	4Y	

**Notes:**

1. Peak power available for 10 seconds with 35% duty cycle, if peak power rating is exceeded output may latch, recycle input to reset.
2. Module includes remote sense, DC OK, module inhibit, VPROG & current share.

Dual Output - Module Voltage/Current Rating						
Output 1		Output 2		Slots	Code	
Voltage	Current	Voltage	Current			
5.0 VDC	10.0 A	5.0 VDC	10.0 A	2	5A	
5.0 VDC	10.0 A	3.3 VDC	10.0 A	2	5B	
12.0 VDC	10.0 A	12.0 VDC	8.0 A	2	5D	
15.0 VDC	8.0 A	15.0 VDC	6.0 A	2	5E	
15.0 VDC	8.0 A	15.0 VDC	6.0 A	2	6E*	
15.0 VDC	8.0 A	12.0 VDC	8.0 A	2	5F	
12.0 VDC	10.0 A	5.0 VDC	10.0 A	2	5G	
12.0 VDC	10.0 A	3.3 VDC	10.0 A	2	5H	
12.0 VDC	10.0 A	2.0 VDC	10.0 A	2	5J	
15.0 VDC	10.0 A	5.0 VDC	10.0 A	2	5K	
15.0 VDC	10.0 A	3.3 VDC	10.0 A	2	5L	
15.0 VDC	10.0 A	2.0 VDC	10.0 A	2	5M	
24.0 VDC	6.0 A	5.0 VDC	10.0 A	2	5N	
24.0 VDC	6.0 A	5.0 VDC	10.0 A	2	6N*	
24.0 VDC	6.0 A	3.3 VDC	10.0 A	2	5P	
24.0 VDC	6.0 A	2.0 VDC	10.0 A	2	5Q	

**Notes:**

1. Total power for dual output module must not exceed 175W max.
  2. Module includes global inhibit & DC OK.
- \*No minimum load needed on output 1 for regulation.

### Signals

- Global AC OK/Power Fail
- Global DC OK
- Global Inhibit
- Fan Fail
- Module DC OK
- Module Inhibit
- Current Share





# ACM06-36

6 to 36 Watts



- Energy Efficiency Level VI
- European CoC Tier 2
- ITE & Medical (2 x MOPP) Approvals
- 4th Edition Medical EMC
- Interchangeable Mains Connectors
- Optional White Case Versions
- Output Voltages from 5V to 36V
- Class II Construction
- 3 Years Warranty

**Dimensions:**

- ACM06 (body only):**  
2.89 x 1.21 x 1.67 in (73.5 x 30.7 x 42.5 mm)
- ACM12 (body only):**  
2.99 x 1.19 x 1.9 in (76.0 x 30.3 x 48.2 mm)
- ACM18 (body only):**  
3.46 x 1.18 x 1.95 in (88.0 x 30.0 x 49.5 mm)
- ACM24 (body only):**  
3.46 x 1.18 x 2.24 in (88.0 x 30.0 x 57.0 mm)
- ACM36 (body only):**  
3.81 x 1.3 x 2.34 in (96.7 x 33.0 x 59.5 mm)

**Notes:**  
Model number is for body only. AC input plugs must be ordered separately. Other output voltages available, contact sales for details. For white case version add suffix '-W'. MOQ applies, contact sales for details. For 5V version with optional USB type A connector in case, add suffix '-BB' (ACM06 only).

Power	Output Voltage	Output Current	Model
5 W	5.0 VDC	1000 mA	ACM06US05
6 W	9.0 VDC	600 mA	ACM06US09
6 W	12.0 VDC	500 mA	ACM06US12

Power	Output Voltage	Output Current	Model
10 W	5.0 VDC	2000 mA	ACM12US05
12 W	9.0 VDC	1330 mA	ACM12US09
12 W	12.0 VDC	1000 mA	ACM12US12
12 W	15.0 VDC	800 mA	ACM12US15
12 W	18.0 VDC	666 mA	ACM12US18
12 W	24.0 VDC	500 mA	ACM12US24

Power	Output Voltage	Output Current	Model
12.5 W	5.0 VDC	2500 mA	ACM18US05
18 W	9.0 VDC	2000 mA	ACM18US09
18 W	12.0 VDC	1500 mA	ACM18US12
18 W	15.0 VDC	1250 mA	ACM18US15
18 W	18.0 VDC	1000 mA	ACM18US18
18 W	24.0 VDC	750 mA	ACM18US24

Power	Output Voltage	Output Current	Model
24 W	9.0 VDC	2330 mA	ACM24US09
24 W	12.0 VDC	2000 mA	ACM24US12
24 W	15.0 VDC	1600 mA	ACM24US15
24 W	18.0 VDC	1330 mA	ACM24US18
24 W	24.0 VDC	1000 mA	ACM24US24

Power	Output Voltage	Output Current	Model
36 W	9.0 VDC	4000 mA	ACM36US09
36 W	12.0 VDC	3000 mA	ACM36US12
36 W	15.0 VDC	2400 mA	ACM36US15
36 W	18.0 VDC	2000 mA	ACM36US18
36 W	24.0 VDC	1500 mA	ACM36US24
36 W	30.0 VDC	1200 mA	ACM36US30
36 W	36.0 VDC	1000 mA	ACM36US36

# AKM36

36 Watts



- Energy Efficiency Level VI
- European CoC Tier 2
- ITE & Medical (2 x MOPP) Approvals
- 4th Edition Medical EMC
- Class II Construction
- Optional White Case Versions
- Output Voltages from 9V to 36V
- 3 Year Warranty

Power	Output Voltage	Output Current	Model
36 W	9.0 VDC	4.0 A	AKM36US09C2
36 W	12.0 VDC	3.0 A	AKM36US12C2
36 W	15.0 VDC	2.4 A	AKM36US15C2
36 W	18.0 VDC	2.0 A	AKM36US18C2
36 W	24.0 VDC	1.5 A	AKM36US24C2
36 W	36.0 VDC	1.2 A	AKM36US36C2

**Dimensions:**  
**AKM36:** 4.25 x 1.97 x 1.33 in (108.0 x 50.0 x 33.8 mm)

**Notes:**  
For white case version add suffix '-W' e.g. AKM36US12C2-W. MOQ contact sales for details.



# AKM45

48 Watts



- Energy Efficiency Level VI
- European CoC Tier 2
- ITE & Medical (2 x MOPP) Approvals
- 4th Edition Medical EMC
- Class I & Class II Versions
- Optional White Case Versions
- Output Voltages from 9V to 48V
- Optional AC Cable Restraint
- 3 Year Warranty

**Dimensions:**

**AKM45:** 4.82 x 2.02 x 1.24 in (122.4 x 51.4 x 31.5 mm)

Power	Output Voltage	Output Current	Model
40.5 W	9.0 VDC	4.50 A	AKM45US09
48 W	12.0 VDC	4.00 A	AKM45US12
48 W	15.0 VDC	3.20 A	AKM45US15
48 W	18.0 VDC	2.66 A	AKM45US18
48 W	24.0 VDC	2.00 A	AKM45US24
48 W	48.0 VDC	1.00 A	AKM45US48

**Notes:**

For white case version add suffix '-W' e.g. AKM45US12-W. For optional Class II version add suffix C2, e.g. AKM45US12C2. MOQ contact sales for details.

# ALM65-85

65-85 Watts



- Energy Efficiency Level VI
- European CoC Tier 2 (ALM85)
- ITE & Medical (2 x MOPP) Approvals
- 4th Edition Medical EMC
- IP32 Environmental Rating
- Class I & Class II Versions
- <0.21W Standby Power
- 0°C to +60°C Operation
- Low Earth Leakage Current
- 3 Year Warranty

**Dimensions:**

**ALM65:** 4.94 x 2.19 x 1.32 in (125.5 x 55.5 x 33.5 mm)  
**ALM85:** 5.315 x 2.441 x 1.457 in (135.0 x 62.0 x 37.0 mm)

Power	Output Voltage	Output Current	Model
65 W	12.0 VDC	5.40 A	ALM65US12
65 W	15.0 VDC	4.30 A	ALM65US15
65 W	19.0 VDC	3.40 A	ALM65US19
65 W	24.0 VDC	2.70 A	ALM65US24
65 W	48.0 VDC	1.35 A	ALM65US48

Power	Output Voltage	Output Current	Model
85 W	12.0 VDC	6.67 A	ALM85US12
85 W	15.0 VDC	5.33 A	ALM85US15
85 W	19.0 VDC	4.47 A	ALM85US19
85 W	24.0 VDC	3.54 A	ALM85US24

**Notes:**

For class II versions, add suffix 'C2-8' to the end of the part number. For optional input connector retention clip add suffix '-A' to the model number (not available for C2 versions). For optional 5.5 x 2.1 mm output connector add suffix B1 to the part number (ALM65 only).

# ALM120

120 Watts



- Energy Efficiency Level VI
- ITE & Medical (2 x MOPP) Approvals
- European CoC Tier 2
- 4th Edition Medical EMC
- IP32 Environmental Rating
- Class I and Class II Versions
- <0.15W Standby Power
- 0°C to +60°C Operation
- 3 Year Warranty

**Dimensions:**

**ALM120:** 6.73 x 2.67 x 1.49 in (171.0 x 68.0 x 38.0 mm)

Power	Output Voltage	Output Current	Model
120 W	12.0 VDC	10.00 A	ALM120PS12
120 W	15.0 VDC	8.00 A	ALM120PS15
120 W	19.0 VDC	6.32 A	ALM120PS19
120 W	24.0 VDC	5.00 A	ALM120PS24

**Notes:**

For class II versions, add suffix 'C2-8' to the end of the part number. For optional input connector retention clip add suffix '-A' to the model number (not available for C2 versions). For optional output connector, DC barrel jack, add suffix -B5 to model number. Power de-rating <100VAC for 12 & 15V models.



# ALM150

150 Watts



- Energy Efficiency Level VI
- ITE & Medical (2 x MOPP) Approvals
- EU CoC Tier 2 Compliant
- IP32 Environmental Rating
- Class I and Class II Versions
- <0.15 W Standby Power
- 0°C to 60°C Operation
- Low Earth Leakage Current
- 3 Year Warranty

**Dimensions:**

**ALM150:** 7.32 x 2.83 x 1.49 in (186.0 x 72.0 x 38.0 mm)

Power	Output Voltage	Output Current	Model
150 W	12.0 VDC	12.50 A	ALM150PS12
150 W	15.0 VDC	10.00 A	ALM150PS15
150 W	19.0 VDC	7.90 A	ALM150PS19
150 W	24.0 VDC	6.20 A	ALM150PS24
150 W	48.0 VDC	3.10 A	ALM150PS48

**Notes:**

For class II versions, add suffix 'C2-8' to the end of the part number. For optional input connector retention clip add suffix '-A' to the model number (not available for C2 versions). Power de-rating <100VAC for 12 & 15V models.

# ALM200

200 Watts



- Energy Efficiency Level VI
- ITE & Medical (2 x MOPP) Approvals
- EU CoC Tier 2 Compliant
- 4th Edition Medical EMC
- IP32 Environmental Rating
- Class I and Class II Versions
- <0.15W Standby Power
- 0°C to +60°C Operation
- Low Earth Leakage Current
- 3 Year Warranty

**Dimensions:**

**ALM200:** 8.23 x 3.23 x 1.69 in (209.0 x 82.0 x 43.0 mm)

Power	Output Voltage	Output Current	Model
200 W	12.0 VDC	16.70 A	ALM200PS12
200 W	15.0 VDC	13.40 A	ALM200PS15
200 W	19.0 VDC	10.60 A	ALM200PS19
200 W	24.0 VDC	8.40 A	ALM200PS24
200 W	48.0 VDC	4.20 A	ALM200PS48

**Notes:**

For class II versions, add suffix 'C2-8' to the end of the part number. For optional input connector retention clip add suffix '-A' to the model number (not available for C2 versions). Power de-rating <100VAC for 12 & 15V models.

# IMA01

1 Watt



- Single & Dual Unregulated Outputs
- ±10% Input Range
- SIP7 Package
- World Wide Medical Approvals
- 4kVAC Isolation, 1 x MOPP at 250VAC
- 2µA Patient Leakage Current
- -40°C to +75°C Operation
- Full Load at +75°C Ambient
- MTBF 2.5Mhrs
- 3 Year Warranty

**Dimensions:**

**IMA01:** 0.77 x 0.36 x 0.44 in (19.5 x 9.2 x 11.1 mm)

— DC-DC CONVERTERS

Power	Output Voltage	Output Current	Model
1 W	3.3 VDC	303 mA	IMA01xxS3V3
1 W	5.0 VDC	200 mA	IMA01xxS05
1 W	9.0 VDC	111 mA	IMA01xxS09
1 W	12.0 VDC	83.3 mA	IMA01xxS12
1 W	15.0 VDC	67.7 mA	IMA01xxS15
1 W	±3.3 VDC	±150 mA	IMA01xxD03
1 W	±5.0 VDC	±100 mA	IMA01xxD05
1 W	±9.0 VDC	±55.5 mA	IMA01xxD09
1 W	±12.0 VDC	±41.6 mA	IMA01xxD12
1 W	±15.0 VDC	±33.3 mA	IMA01xxD15

**Notes:**

For input range: 5V replace xx with 05, e.g. IMA0105S05  
 12V replace xx with 12 e.g. IMA0112S05  
 15V replace xx with 15 e.g. IMA0115S05  
 24V replace xx with 24 e.g. IMA0124S05



# IMB01

1 Watt



- Single Unregulated Outputs
- ±10% Input Range
- SIP7 Package
- World Wide Medical Approvals
- 4kVAC Isolation Reinforced
- 2 x MOPP at 300VAC
- 2µA Patient Leakage Current
- -40°C to +105°C Operation
- Full Load at +85 °C Ambient
- MTBF 4.3Mhrs
- 3 Year Warranty

**Dimensions:**

**IMB01:** 0.87 x 0.49 x 0.30 in (22.0 x 12.5 x 7.5 mm)

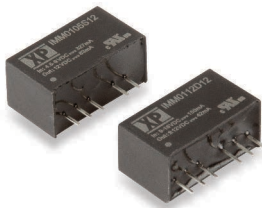
Power	Output Voltage	Output Current	Model
1 W	5.0 VDC	200 mA	IMB01xxS05
1 W	12.0 VDC	84 mA	IMA01xxS12
1 W	15.0 VDC	68 mA	IMA01xxS15

**Notes:**

For input range: 5V replace xx with 05, e.g. IMB0105S05  
 12V replace xx with 12 e.g. IMB0112S05  
 15V replace xx with 15 e.g. IMAB0115S05

# IMM01

1 Watt



- Regulated Single & Dual Outputs
- 2:1 Input Range
- SIP7 Package
- World Wide Medical Approvals
- 1.5kVAC Isolation, 1 x MOPP at 250VAC
- 2 µA Patient Leakage Current
- -20°C to +100°C Operation
- MTBF 1Mhrs
- 3 Year Warranty

**Dimensions:**

**IMM01:** 0.76 x 0.36 x 0.44 in (19.5 x 9.2 x 11.1 mm)

Power	Output Voltage	Output Current	Model
1 W	3.3 VDC	303 mA	IMM01xxS3V3
1 W	5.0 VDC	200 mA	IMM01xxS05
1 W	12.0 VDC	83 mA	IMM01xxS12
1 W	15.0 VDC	67 mA	IMM01xxS15
1 W	±3.3 VDC	±150 mA	IMM01xxD03
1 W	±5.0 VDC	±100 mA	IMM01xxD05
1 W	±12.0 VDC	±42 mA	IMM01xxD12
1 W	±15.0 VDC	±33 mA	IMM01xxD15

**Notes:**

For input range: 5V replace xx with 05, e.g. IMM0105S3V3  
 12V replace xx with 12 e.g. IMM0112S3V3

# ISM01

1 Watt



- Single & Dual Unregulated Outputs
- ±10% Input Range
- Compact SMD Package
- World Wide Medical Approvals
- 4kVAC Reinforced Isolation
- 2 x MOPP at 250VAC
- 2µA Patient Leakage Current
- -40°C to +95°C Operation
- Tape & Reel Package Available
- 3 Year Warranty

**Dimensions:**

**ISM01:** 0.74 x 0.68 x 0.41 in (18.9 x 17.2 x 10.5 mm)

Power	Output Voltage	Output Current	Model
1 W	5.0 VDC	200 mA	ISM01xxS05
1 W	12.0 VDC	84 mA	ISM01xxS12
1 W	15.0 VDC	68 mA	ISM01xxS15
1 W	±12.0 VDC	±42 mA	ISM01xxD12
1 W	±15.0 VDC	±33 mA	ISM01xxD15

**Notes:**

For input range: 5V replace xx with 05 e.g. ISM0105S05  
 12V replace xx with 12 e.g. ISM0112S05  
 24V replace xx with 24 e.g. ISM0124D12  
 For optional tape & reel package add suffix '-TR' e.g. ISM0105S05-TR.  
 For optional water washable version add suffix '-P', e.g. ISM0112S05-P





## IML02

2 Watts



- Single & Dual Unregulated Outputs
- ±10% Input Range
- SIP7 Package
- World Wide Medical Approvals
- 4kVAC Isolation, 1 x MOPP at 250VAC
- 2µA Patient Leakage Current
- -40°C to +85°C Operation
- Full Load at 85°C Ambient
- MTBF 2.5Mhrs
- 3 Year Warranty

**Dimensions:**

**IML02:** 0.77 x 0.39 x 0.49 in (19.5 x 9.8 x 12.5 mm)

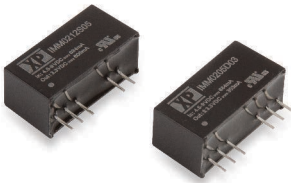
Power	Output Voltage	Output Current	Model
2 W	3.3 VDC	600 mA	IML02xxS3V3
2 W	5.0 VDC	400 mA	IML02xxS05
2 W	9.0 VDC	222 mA	IML02xxS09
2 W	12.0 VDC	167 mA	IML02xxS12
2 W	15.0 VDC	133 mA	IML02xxS15
2 W	±3.3 VDC	±300 mA	IML02xxD03
2 W	±5.0 VDC	±200 mA	IML02xxD05
2 W	±9.0 VDC	±111 mA	IML02xxD09
2 W	±12.0 VDC	±83 mA	IML02xxD12
2 W	±15.0 VDC	±66 mA	IML02xxD15

**Notes:**

For input range: 5V replace xx with 05, e.g. IML0205S09  
 12V replace xx with 12 e.g. IML0212S09  
 15V replace xx with 15 e.g. IML0215S09  
 24V replace xx with 24 e.g. IML0224S09

## IMM02

2 Watts



- Regulated Single & Dual Outputs
- 2:1 Input Range
- SIP8 Package
- World Wide Medical Approvals
- 1.5kVAC Isolation, 1 x MOPP at 250VAC
- 2µA Patient Leakage Current
- -20°C to +100°C Operation
- MTBF 1Mhrs
- 3 Year Warranty

**Dimensions:**

**IMM02:** 0.86 x 0.36 x 0.44 in (21.85 x 9.2 x 11.1 mm)

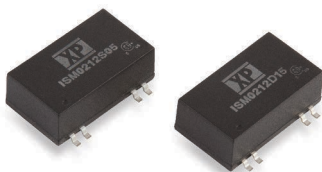
Power	Output Voltage	Output Current	Model
2 W	3.3 VDC	606 mA	IMM02xxS3V3
2 W	5.0 VDC	400 mA	IMM02xxS05
2 W	12.0 VDC	167 mA	IMM02xxS12
2 W	15.0 VDC	133 mA	IMM02xxS15
2 W	±3.3 VDC	±303 mA	IMM02xxD03
2 W	±5.0 VDC	±200 mA	IMM02xxD05
2 W	±12.0 VDC	±83 mA	IMM02xxD12
2 W	±15.0 VDC	±66 mA	IMM02xxD15

**Notes:**

For input range: 5V replace xx with 05 e.g. IMM0205S12  
 12V replace xx with 12 e.g. IMM0212D03

## ISM02

2 Watts



- Single & Dual Unregulated Outputs
- ±10% Input Range
- Compact SMD Package
- World Wide Medical Approvals
- 4kVAC Reinforced Insulation
- 1 x MOPP at 300VAC
- 2µA Patient Leakage Current
- -25°C to +105°C Operation
- Tape & Reel Package Available
- 3 Year Warranty

**Dimensions:**

**ISM02:** 0.94 x 0.71 x 0.36 in (24.0 x 18.0 x 9.0 mm)

Power	Output Voltage	Output Current	Model
2 W	5.0 VDC	400 mA	ISM02xxS05
2 W	12.0 VDC	165 mA	ISM02xxS12
2 W	15.0 VDC	133 mA	ISM02xxS15
2 W	±12.0 VDC	±83 mA	ISM02xxD12
2 W	±15.0 VDC	±66 mA	ISM02xxD15

**Notes:**

For input range: 5V replace xx with 05 e.g. ISM0210SS05  
 12V replace xx with 12 e.g. ISM0212S05  
 24V replace xx with 24 e.g. ISM0224D12  
 For optional tape & reel package add suffix '-TR' e.g. ISM0205S05-TR.  
 For optional water washable version add suffix '-P', e.g. ISM0212S05-P



# IMM05

5 Watts



- Regulated Single & Dual Outputs
- 2:1 Input Range
- Ultra Compact SIP9 Package
- World Wide Medical Approvals
- 1.5kVAC Isolation, 1 x MOPP at 250VAC
- 2µA Patient Leakage Current
- -20°C to +100°C Operation
- Remote On/Off
- 3 Year Warranty

**Dimensions:**

**IMM05:** 1.02 x 0.36 x 0.49 in (26.0 x 9.3 x 12.5 mm)

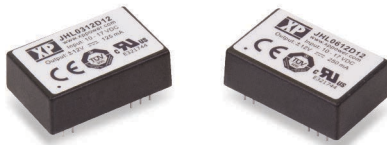
Power	Output Voltage	Output Current	Model
5 W	3.3 VDC	1200 mA	IMM05xxS3V3
5 W	5.0 VDC	1000 mA	IMM05xxS05
5 W	12.0 VDC	418 mA	IMM05xxS12
5 W	15.0 VDC	333 mA	IMM05xxS15
5 W	±12.0 VDC	±208 mA	IMM05xxD12
5 W	±15.0 VDC	±166 mA	IMM05xxD15

**Notes:**

For input range: 5V replace xx with 05 e.g. IMM0505S3V3  
 12V replace xx with 12 e.g. IMM0512S05  
 24V replace xx with 24 e.g. IMM0524S15

# JHL03-06

3-6 Watts



- Regulated Single & Dual Outputs
- 1.5:1 Input Range
- DIP24 Package
- World Wide Medical Approvals
- 4kVAC Reinforced Insulation
- 2 x MOPP at 250VAC
- 2µA Patient Leakage Current
- EN55011 Level A (No External Components)
- 3 Year Warranty

**Dimensions:**

**JHL03/JHL06:** 1.25 x 0.80 x 0.40 in (31.15 x 20.32 x 10.20 mm)

Power	Output Voltage	Output Current	Model
3 W	5.0 VDC	600 mA	JHL03xxS05
3 W	12.0 VDC	250 mA	JHL03xxS12
3 W	15.0 VDC	200 mA	JHL03xxS15
3 W	±12.0 VDC	±125 mA	JHL03xxD12
3 W	±15.0 VDC	±100 mA	JHL03xxD15

Power	Output Voltage	Output Current	Model
6 W	5.0 VDC	1200 mA	JHL06xxS05
6 W	12.0 VDC	500 mA	JHL06xxS12
6 W	15.0 VDC	400 mA	JHL06xxS15
6 W	±12.0 VDC	±250 mA	JHL06xxD12
6 W	±15.0 VDC	±200 mA	JHL06xxD15

**Notes:**

For input range: 12V replace xx with 12 e.g. JHL0312S05/JHL0612S05  
 24V replace xx with 24 e.g. JHL0324S05/JHL0624S05

# JHM10-15

10-15 Watts



- Regulated Single & Dual Outputs
- 2:1 Input Range
- World Wide Medical Approvals
- 4kVAC Reinforced Insulation
- 2 x MOPP at 250VAC
- 2µA Patient Leakage Current
- EN55011 Level A (No External Components)
- 3 Year Warranty

**Dimensions:**

**JHM10:** 1.25 x 0.80 x 0.50 in (31.75 x 20.32 x 12.70 mm)  
**JHM15:** 1.60 x 1.00 x 0.40 in (40.60 x 25.40 x 10.20 mm)

Power	Output Voltage	Output Current	Model
10 W	5.0 VDC	2000 mA	JHM10xxS05
10 W	12.0 VDC	833 mA	JHM10xxS12
10 W	15.0 VDC	666 mA	JHM10xxS15
10 W	±5.0 VDC	±1000 mA	JHM10xxD05
10 W	±12.0 VDC	±420 mA	JHM10xxD12
10 W	±15.0 VDC	±333 mA	JHM10xxD15
15 W	5.0 VDC	3000 mA	JHM15xxS05
15 W	12.0 VDC	1250 mA	JHM15xxS12
15 W	15.0 VDC	1000 mA	JHM15xxS15
15 W	±5.0 VDC	±1500 mA	JHM15xxD05
15 W	±12.0 VDC	±625 mA	JHM15xxD12
15 W	±15.0 VDC	±500 mA	JHM15xxD15

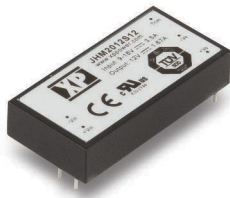
**Notes:**

For input range: 5V replace xx with 05, e.g. JHM1005S05 (10 W only)  
 12V replace xx with 12 e.g. JHM1012S05  
 24V replace xx with 24 e.g. JHM1524S05



# JHM20

20 Watts



- Regulated Single & Dual Outputs
- 2:1 Input Range
- 2" x 1" Footprint
- World Wide Medical Approvals
- 4kVAC Reinforced Insulation
- 2 x MOPP at 250VAC
- 2.5µA Patient Leakage Current
- EN55011 Level A (No External Components)
- -40°C to +60°C Operation
- 3 Year Warranty

**Dimensions:**

**JHM20:** 2.00 x 1.00 x 0.40 in (50.8 x 25.4 x 10.2 mm)

Power	Output Voltage	Output Current	Model
20 W	5.0 VDC	4000 mA	JHM20xxS05
20 W	12.0 VDC	1670 mA	JHM20xxS12
20 W	15.0 VDC	1333 mA	JHM20xxS15
20 W	±5.0 VDC	±2000 mA	JHM20xxD05
20 W	±12.0 VDC	±833 mA	JHM20xxD12
20 W	±15.0 VDC	±667 mA	JHM20xxD15

**Notes:**

For input range: 12V replace xx with 12 e.g. JHM2012S05  
 24V replace xx with 24 e.g. JHM2024S05  
 48V replace xx with 48 e.g. JHM2048S05

## FASM

- IEC320-C14 Inlet
- Screw Mount
- 1, 3, 6 & 10A Ratings
- Faston Load Terminals
- 1MΩ Bleed Resistor
- 3 Year Warranty



Rated Current	Inductance	Leakage Current 115V/230V	Model
1 A	2 x 6.5 mH	2µA/5µA	FASMA01SFR
3 A	2 x 2.5 mH	2µA/5µA	FASMA03SFR
6 A	2 x 0.8 mH	2µA/5µA	FASMA06SFR
10 A	2 x 0.2 mH	2µA/5µA	FASMA10SFR

## FDMM

- IEC320-C14 Inlet
- Dual 5 x 20mm Fuse Holder
- Screw Mount, Compact Design
- 1, 3, 6 & 10A Ratings
- Faston Load Terminals
- 1MΩ Bleed Resistor
- 3 Year Warranty



Rated Current	Inductance	Leakage Current 115V/230V	Model
1 A	2 x 6.5 mH	2µA/5µA	FDMM01SFR
3 A	2 x 2.5 mH	2µA/5µA	FDMM03SFR
6 A	2 x 0.8 mH	2µA/5µA	FDMM06SFR
10 A	2 x 0.2 mH	2µA/5µA	FDMM10SFR

## FGSM

- IEC320-C14 Inlet
- Input Switch
- Dual 5 x 20mm Fuse Holder
- Screw Mount, Compact Design
- 1, 2, 4, 6 & 10A Ratings
- Faston Load Terminals
- 1MΩ Bleed Resistor
- 3 Year Warranty



Rated Current	Inductance	Leakage Current 115V/230V	Model
1 A	2 x 6.5 mH	2µA/5µA	FGSMA01BFR
2 A	2 x 3.8 mH	2µA/5µA	FGSMA02BFR
4 A	2 x 1.6 mH	2µA/5µA	FGSMA04BFR
6 A	2 x 0.8 mH	2µA/5µA	FGSMA06BFR
10 A	2 x 0.2 mH	2µA/5µA	FGSMA10BFR

## FHSM

- Single Stage Design
- Compact Dimensions
- 1, 3, 6, 10, 15 & 20A Ratings
- Faston Terminals
- 1MΩ Bleed Resistor
- 3 Year Warranty



Rated Current	Inductance	Leakage Current 115V/230V	Model
1 A	2 x 10 mH	2µA/5µA	FHSM01A1FR
3 A	2 x 1.2 mH	2µA/5µA	FHSM03A1FR
6 A	2 x 0.8 mH	2µA/5µA	FHSM06A1FR
10 A	2 x 0.3 mH	2µA/5µA	FHSM10A1FR
15 A	2 x 0.8 mH	2µA/5µA	FHSM15A2FR
20 A	2 x 0.6 mH	2µA/5µA	FHSM20A2FR

## FIHM

- Dual Stage Design
- Compact Dimensions
- 1, 3, 6, 10, 15 & 20A Ratings
- Faston Terminals
- 1MΩ Bleed Resistor
- 3 Year Warranty



Rated Current	Inductance	Leakage Current 115V/230V	Model
1 A	2 x 7.4 mH	2µA/5µA	FIHMA01C1F
3 A	2 x 3.6 mH	2µA/5µA	FIHMA03C1F
6 A	2 x 1.4 mH	2µA/5µA	FIHMA06C1F
10 A	2 x 2.0 mH	2µA/5µA	FIHMA10C2F
15 A	2 x 1.8 mH	2µA/5µA	FIHMA15C2F
20 A	2 x 1.0 mH	2µA/5µA	FIHMA20C2F



# QUICK REFERENCE

## Safety Approvals: IEC60601-1:2005 + AMD1:2012

IEC60601-1 3rd edition (called Ed 3.0) was first released in 2005, with the latest version now being Edition 3.1 (also referred to as IEC60601-1 3rd Edition with Amendment 1). Amendment 1 was published in 2012 and mainly clarifies the original intent of the 3rd Edition as several parts were mis-understood in the industry. Amendment 1 took roughly 4 years to develop and address nearly 100 issues outstanding from the first release of the 3rd Edition.

The standard has been adopted in the major countries/regions of the world and published as the following versions:

EU: EN60601-1/A1:2013  
 USA: ANSI/AAMI ES60601-1:2005/(R)2012 and A1:2012, C1:2009/(R)2012 and A2:2010/(R)2012  
 Canada: CAN/CSA-C22.2 No. 60601-1-14  
 Japan: JIS T 0601-1:2014

## Leakage Currents

Leakage Current	TYPE B		TYPE BF		TYPE CF	
	NC	SFC	NC	SFC	NC	SFC
Earth	5000 $\mu$ A*	10 mA	5000 $\mu$ A*	10 mA	5000 $\mu$ A*	10 mA
Touch	100 $\mu$ A	500 $\mu$ A*	100 $\mu$ A	500 $\mu$ A*	100 $\mu$ A	500 $\mu$ A*
Patient	100 $\mu$ A	500 $\mu$ A	100 $\mu$ A	500 $\mu$ A	10 $\mu$ A	50 $\mu$ A

NC = Normal Condition. SFC = Single Fault Condition. \*For cord connected equipment with accessible metal parts that are earthed, the touch current of 500 $\mu$ A must be met when protective earth is opened in a Single Fault Condition (SFC)

## Isolation & Separation

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

Insulation test voltages based on 250VAC working voltage.  
 MOP = Means of protection

MOOP = Means of operator protection  
 MOPP = Means of patient protection.

## EMC/EMI: IEC60601-1-2 4th Edition

EDITION	4th EDITION	3rd EDITION
Conducted & Radiated Emissions IEC55011	0.15-30MHz & 30 to 1000MHz	0.15-30MHz & 30 to 1000MHz
Harmonic Currents IEC61000-3-2	Up to the 39th harmonic	Up to the 39th harmonic
Voltage Flicker IEC61000-3-3	$\leq$ 4% max Relative Voltage Change Value of D(T) $\leq$ 3% for more than 200ms	$\leq$ 4% max Relative Voltage Change Value of D(T) $\leq$ 3% for more than 200ms
Electrostatic Discharge IEC61000-4-2	$\pm$ 8kV Contact Charge $\pm$ 15kV Air Discharge	$\pm$ 8kV Contact Charge $\pm$ 6kV Air Discharge
Radiated RF Immunity IEC61000-4-3	3V/m, Home healthcare 10V/m. 80% AM at 1kHz or risk frequency, 80MHz to 2700MHz	3V/m, life support 10V/m. 80% AM at 1kHz or 2Hz, 80MHz to 2500MHz
Electrical fast transients & Bursts IEC61000-4-4	$\pm$ 2kV Power Lines $\pm$ 1kV Interconnect Lines at 100kHz rate	Power Line Pulses at $\pm$ 2kV at 5kHz
Surges IEC61000-4-5	$\pm$ 2kV Common Mode Surges $\pm$ 1kV Differential Mode Surges	$\pm$ 2kV Common Mode Surges $\pm$ 1kV Differential Mode Surges
Conducted RF Immunity IEC61000-4-6	3V with 6V Industrial, Scientific, Medical, Home healthcare 6V. 80% AM at 1kHz or risk frequency, 150kHz to 80MHz 3V with 6V Industrial, Scientific, Medical, Home healthcare 6V. 80% AM at 1kHz or risk frequency, 150kHz to 80MHz	3V, life support 10V Industrial, Scientific, Medical. 80% AM at 1kHz or 2Hz, 150kHz to 80MHz 3V, life support 10V Industrial, Scientific, Medical. 80% AM at 1kHz or 2Hz, 150kHz to 80MHz
Power frequency magnetic fields IEC61000-4-8	100% dip, 0.5 cycle at 0, 45, 90, 135, 180, 225, 270 & 315°	30A/m, 50 and 60Hz
Voltage dips and interruptions IEC61000-4-11	100% dip, 0.5 cycle at 0, 45, 90, 135, 180, 225, 270 & 315° 100% dip, 1 cycle 30% dip, 25/30 cycles 100% Interrupt, 5 seconds	>95% dip, 0.5 cycle, 0 and 180° 60% dip, 5 cycles 30% dip, 25 cycles >95% Interrupt, 5 seconds

There is also the additional requirement to show immunity to radiated noise emanating from wireless devices such as Tetra, GSM, LTE Band, CDMA, Bluetooth, WLAN and RFID at their specific frequency operating ranges.



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