



# Specifying a Medical Power Supply

Medical-grade power supplies and commercial-grade counterparts look identical. But take a closer look. To find the right power supply, it's critical to understand the differences.

## Medical-Grade Power Supplies: What's Different?



### INTERNAL POWER SUPPLY DESIGN

Medical-grade power supplies are built to meet IEC60601-1 medical equipment safety standard



### DESIGN CYCLES

Medical equipment often requires extended design cycles and collaboration with power supply vendors

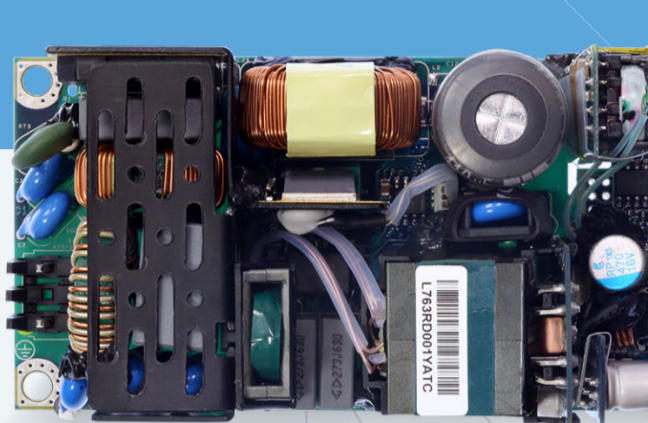


### LONGER LIFE EXPECTANCIES

Medical equipment is expected to last. Your power supply must be able to handle longer product life cycles

Beyond the common volts, amps, and safety approval considerations used to select power supplies for OEM equipment, below is a checklist to simplify finding the right medical power supply for your device.

## The Decision Making Process



01

Define and specify the power requirements as early as possible in the design process

02

Use a standard off-the-shelf medical power supply if possible and consider configurable solutions before jumping to a custom design option

03

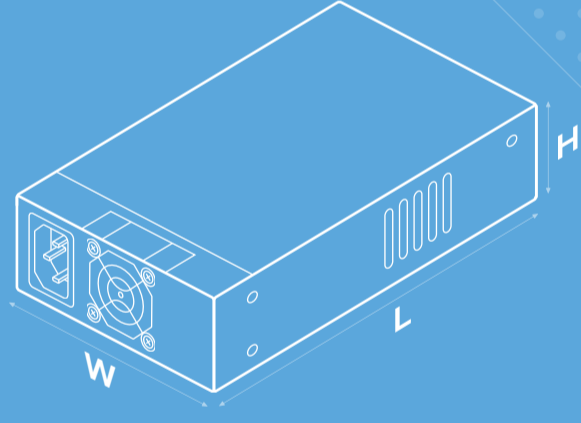
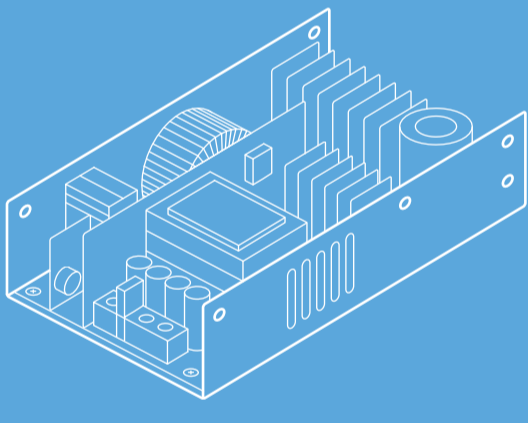
Evaluate your potential supplier's quality system

## ELECTRICAL REQUIREMENTS

|   |  |   |  |
|---|--|---|--|
| <p>01</p> <p>Input/output requirements<br/>DC-DC or AC-DC</p> | <p>02</p> <p>Input line voltage</p>  | <p>03</p> <p>Class I (3 wire AC input) or Class II (2 wire AC input)</p>                      | <p>04</p> <p>Number of outputs</p>   |
| <p>05</p> <p>Voltage and current of each output</p>           | <p>06</p> <p>Output wattage of each output<br/><math>W = V \times A</math></p> | <p>07</p> <p>Calculate total power supply wattage by adding all the outputs' wattage</p>      | <p>08</p> <p>Dual fusing</p>   |
| <p>09</p> <p>EMC/EMI (radiated and conducted)</p>             | <p>10</p> <p>Efficiency</p>  | <p>11</p> <p>Leakage (ultra-low leakage of less than 150 <math>\mu A</math> is available)</p> | <p>12</p> <p>Holdup time</p> <p>13</p> <p>Control and monitoring functions</p> |



## MECHANICAL REQUIREMENTS



|  |  |   |  |
|--|--|---|--|
| <p>01</p> <p>Physical Size<br/>L x W x H, weight</p>               | <p>02</p> <p>Form factor or chassis type</p>                                 | <p>03</p> <p>Mounting requirements</p>                                      | <p>04</p> <p>Cooling, forced air, convection or conduction</p>   |
| <p>05</p> <p>Thermal considerations, airflow, temperature rise</p> | <p>06</p> <p>Ruggedized for enhanced protection from shock and vibration</p> | <p>07</p> <p>Acoustic noise, especially in noise sensitive applications</p> | <p>08</p> <p>Electrical connections, input and output of power supplies<br/><i>Type of mating connectors, wiring harness, etc.</i></p> |
| <p>09</p> <p>Reliability:<br/>MTBF, Life and QAV</p>               | <p>10</p> <p>Sensitivity to vibrations</p>                                   |   |  |



## COMPLIANCE/ ENVIRONMENTAL

|                                       |  |  |   |
|---------------------------------------|--|--|---|
| <p>01</p> <p>Type B/BF</p>            | <p>02</p> <p>Hospital/clinic/ in-home/portable/ fixed</p>  | <p>03</p> <p>RoHS2 (Removal of Hazardous Substances)</p> | <p>04</p> <p>Ambient temperature requirements</p> |
| <p>05</p> <p>Altitude (operation)</p> | <p>07</p> <p>Medical safeties:<br/>- IEC60601-1<br/>- Patient contact/ vicinity (MOPP/ MOOP)</p> | <p>08</p> <p>Airborne/ship/ ambulance</p>                | <p>09</p> <p>WEEE (recycling)</p>                 |
| <p>06</p> <p>REACH</p>                |  |  |   |



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