



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

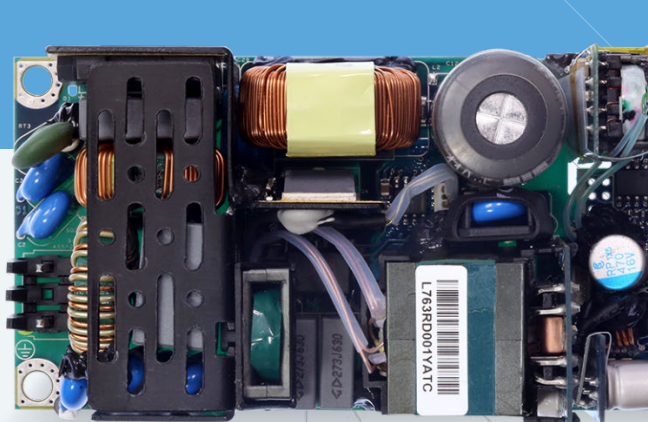
Medical equipment often requires extended design cycles and collaboration with power supply vendors



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

01

Input/output requirements
DC-DC or AC-DC



02

Input line voltage

03

Class I (3 wire AC input) or Class II (2 wire AC input)



04

Number of outputs

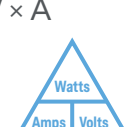


05

Voltage and current of each output

06

Output wattage of each output
 $W = V \times A$



07

Calculate total power supply wattage by adding all the outputs' wattage

08

Dual fusing



09

EMC/EMI (radiated and conducted)



10

Efficiency

11

Leakage (ultra-low leakage of less than 150 μA is available)

12

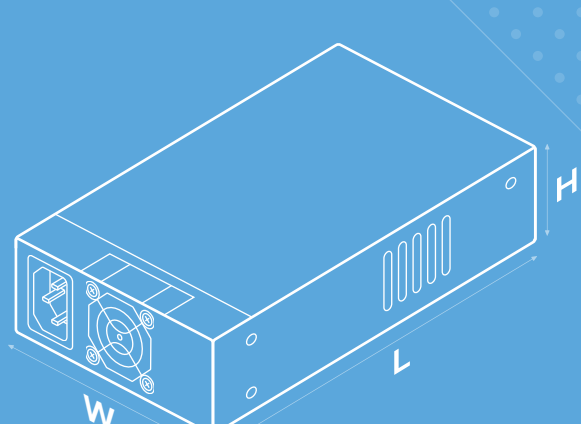
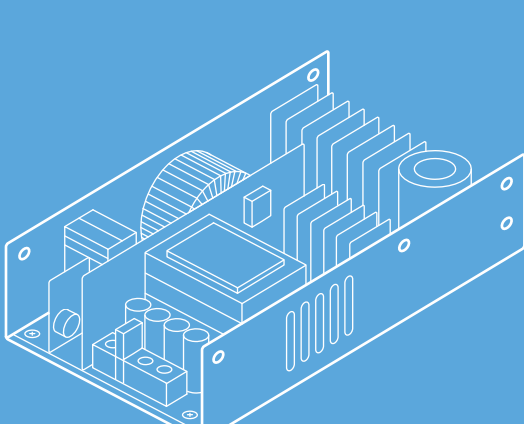
Holdup time

13

Control and monitoring functions



MECHANICAL REQUIREMENTS



01

Physical Size
L x W x H, weight

02

Form factor or chassis type

03

Mounting requirements

04

Cooling, forced air, convection or conduction

05

Thermal considerations, airflow, temperature rise

06

Ruggedized for enhanced protection from shock and vibration

07

Acoustic noise, especially in noise sensitive applications

08

Electrical connections, input and output of power supplies
Type of mating connectors, wiring harness, etc.

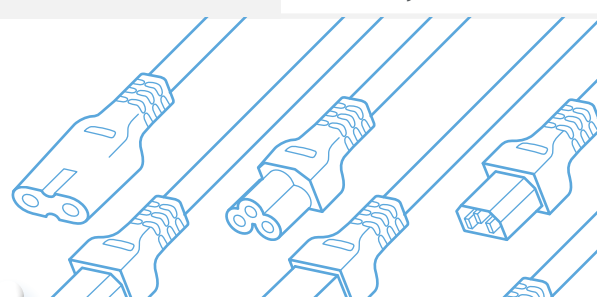
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Reliability:
MTBF, Life and QAV



10

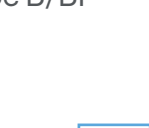
Sensitivity to vibrations



COMPLIANCE/ ENVIRONMENTAL

01

Type B/BF

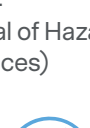


02

Hospital/clinic/ in-home/portable/ fixed

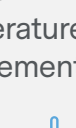
03

RoHS2 (Removal of Hazardous Substances)



04

Ambient temperature requirements



05

Altitude (operation)

07

Medical safeties:
· IEC60601-1
· Patient contact/ vicinity (MOPP/ MOOP)

08

Airborne/ship/ ambulance

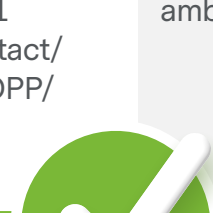
09

WEEE (recycling)



06

REACH



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