

Subject	Medical/Vaccine Refrigeration UPS selection
Reference	PSAN_0001
Release	Powershield Channel / Public
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## OVERVIEW

Medical refrigeration installed & operated in healthcare environments including hospitals, pharmacies, doctors surgeries & laboratories to name just a few can be at risk without a proactive & dedicated approach to power resilience & autonomy. Spoilage, time-consuming compliance admin & patient dissatisfaction are potential byproducts of unplanned interruptions to the power supply of medical refrigeration appliances & the precious medications they contain. **PowerShield** is often approached to provide our customers and partners with recommended UPS (Battery Backup) solutions to avoid these business & human risks, providing continuous operations via a sustained supply of regulated power during unplanned power disruption events



## Technical Summary

When proposing appropriate UPS systems **PowerShield** has considered the following elements after observing & collating a variety of medical refrigeration OEM's\* appliance data & typical deployment locations.

- **Electrical Mains Supply:** Most often a 10Amp AS/NZS General Purpose Outlet (power point) is the available power supply source.
- **Appliance categorization by capacity & temperature:** It is observed that the OEM "Vaccine Fridge" category across multiple vendors carry similar specifications in terms of power consumption, segmented by volume capacity (litres) & temperature range.
- **Power Capacity:** Ensure the UPS can handle the load of the refrigeration units in all duty cycles, including short duration peak load demand of the appliance compressor startup.
- **Battery Runtime Scalability:** How long does the client need the UPS to sustain power to the refrigeration appliance during a mains supply outage event? Incorporate average operating & peak load profiles of the appliance, based on the kW/Hr for 24hr methodology. Provide simple scale out options for shorter and longer battery autonomy.
- **Reliability:** Choose a UPS with a proven track record for reliability in critical environments.
- **Maintenance:** Consider the ease of maintenance and battery replacement – can the user or their preferred technician conduct periodic maintenance simply & safely.
- **Ambient noise impact:** Often these systems are deployed near practitioners and their patients. **PowerShield** opts for UPS systems that do not contribute to constant additional ambient noise via features such as status-based fan operation, versus constantly running fans.



In consideration of the above elements **PowerShield** recommends the Commander RT 2000 (**PSCRT2000**) as the basis of a fit for purpose UPS solution for medical refrigeration applications.

Application

Medical Refrigeration OEM Data				Powershield UPS & Battery recommendation		
Category	Capacity	kW/hr per 24hr range	Avg load (Watts)	<a href="#">PSCRT2000</a>	<a href="#">PSCRT2000</a> + 1x <a href="#">PSRTBB8</a>	<a href="#">PSCRT2000</a> + 2x <a href="#">PSRTBB8</a>
				Estimated Run Time (minutes)		
Vaccine Fridge	80-150 Litre	0.7 - 1.3 kW/hr	50	130	500	800
Vaccine Fridge	200-400 Litre	1.1 - 3.3 kW/hr	100	60	240	450
Vaccine Fridge	500-1000 Litre	2.4 - 3.8 kW/hr	150	30	120	300
ULT Freezer (-60°C to -86°C)	30-200 Litre	3.2 - 6.7 kW/hr	300	15	70	140

Table 1

\*References

**Medisafe / Avem Quirks**<https://avemquirks.com.au/product-category/medical-solutions/>**Bromic**<https://www.bromicrefrigeration.com.au/product-category/medical-and-vaccine-fridges/>**ICS Pacific Pharma**[https://icspacific.com.au/product\\_category/vaccine-refrigeration/](https://icspacific.com.au/product_category/vaccine-refrigeration/)

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