



**Y**ou've undertaken the responsibility of selecting a UPS for your datacentre. With so many new buzz words and changes in the industry it can be a challenge for even the most experienced facilities manager. The biggest challenge is to separate the facts from the marketing hype:

- Are modular designs an advantage or a disadvantage?
- Can choosing the wrong unit really cost tens of thousands of dollars a year in extra energy consumption?
- What's better SCR technology or IGBT?

# 10 Things To Know Before Buying A UPS

If you have been wondering about these issues take the time to evaluate the points below. If you haven't given it much thought, we're sure you'll find this very informative and useful. You'll be equipped to ask the right questions of any supplier so you get the right system – not just for today but long into the future too.

**1.** Prudent buyers realize that purchase cost is only one component of price. To be objective and realistic you need to calculate the total cost of ownership. This includes other cost factors like system efficiency, installation and maintenance costs. It's true that an inefficient system can cost tens of thousands of dollars each year in wasted utility bills. A mere +4% efficiency improvement on a 160kVA UPS can save you \$11,151 per year in utility costs.

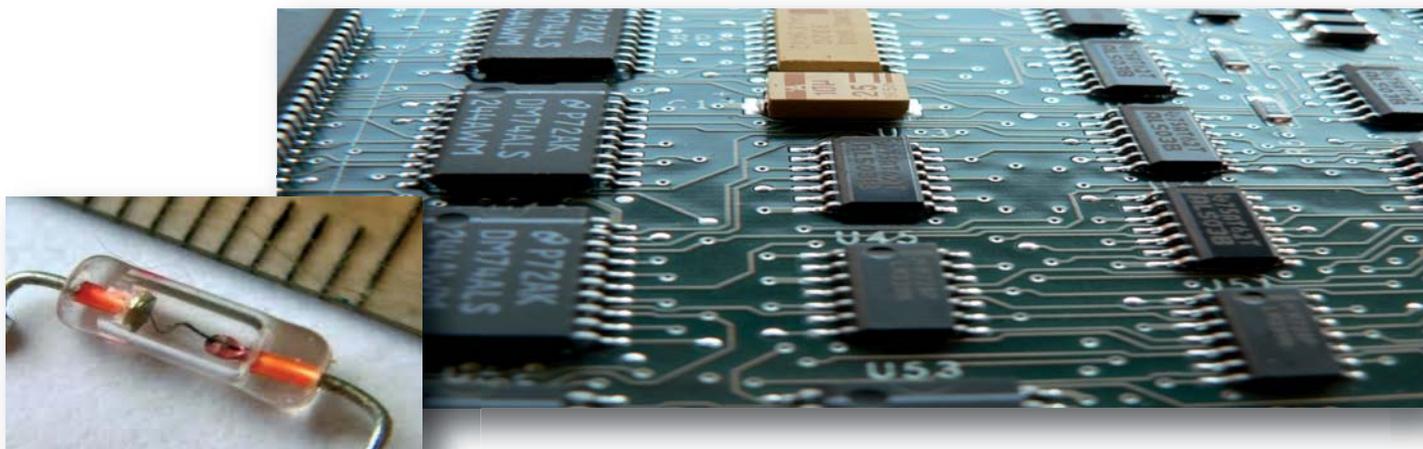
**2.** To help you identify the total cost of ownership you can compare on the basis of cost per kilowatt. Take into consideration the system cost, batteries, installation, energy losses from inefficiency and 5 years worth of maintenance fees, then divide by the unit's kilowatt rating (not KVA). This will give you an apples to apples comparison.

**3.** Batteries are often hidden in the system price – have them priced separately and ask for specifications on that battery model and brand. If your budget allows get premium batteries. High quality batteries last longer, need less maintenance and have a lower failure rate. Beware of UPS models that utilize battery cartridges. This eliminates any choices you may otherwise have when replacing the batteries, not to mention the fact that you will incur the expense of replacing the cartridges and batteries.

**4.** Check the cost of annual maintenance agreements in advance from the manufacturer and from independent service providers. For the same model of UPS costs can vary significantly from one vendor to the next – in fact it can exceed 15% of acquisition cost.

**5.** Don't get caught up in the hype about "scalable modular units" – in the long run they are far more expensive than simply adding more capacity when you need it.

**6.** Some manufacturers tout their "modular design" as easier to repair. Technicians can swap modules until they find the one that failed. It can be done with less experienced technicians greatly reducing the manufacturer's costs. In fact they may even suggest you buy spares to do it yourself. Unfortunately this convenience is very expensive - modules can cost up to 30 or 40 times more than a failed component. You wouldn't replace your entire car engine because a spark plug failed. This is no different.



**7.** What about service? Some manufacturers don't have an office in Canada or USA. Consider how this will impact future support needs. Ask how many technicians are available to service the product should repairs be needed? How many are on call? Demand a maximum 4 hour guaranteed response time. While you're at it see if they'll give you the service free if they miss the deadline.

**8.** Is the UPS technology up to date? Is the unit 6 Pulse SCR technology or IGBT? In most applications (under 160kVA) the answer you are looking for is IGBT. Older 6 pulse SCR designs require an input filter to reduce current distortion reflected back on the building service entrance and improve UPS input power factor. This passive filter technology has several negative design flaws 1) adds to the cost of ownership of a UPS system (needs replacement every 7-8 years) 2) further degradation of UPS operation efficiency and 3) due to the higher reflected current distortion, require oversized cables to support the installation and even worse, oversized generators for extended back-up. In contrast, newer IGBT designs reflect less than 4.5% THD on utility without compromising efficiency, installation costs or generator sizing.

**9.** If space is limited you'll want to carefully evaluate the total real estate the unit needs. Some models require space on both the front and the back for wiring and servicing.

**10.** Finally, to get a perspective on how you can expect to be treated in the future, consider how long a potential supplier takes to return your call and request for quotation. If they take too long to respond when you are about to spend your budget with them it could be an indication of the kind of service you can anticipate when you need service or support.

At PowerWave we pride ourselves in "right sizing" systems for today with scalability options to meet your future demands. For many years we have installed and maintained UPS systems to a long list of satisfied customers. We'd like to add you to that list too.

If you have any questions about adding or replacing a UPS or about maintenance agreements for virtually any make or model please contact us.



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