

DPI, UPS & CVT comparison

Cost comparisons and resulting conclusions between the two above technologies are based on a misunderstanding of the DPI and its intended applications. A dollar per VA comparison should not be made as one is not comparing ‘apples with apples’. By contrasting the different characteristics of the loads which a UPS and the loads a DPI were designed to support, one will realize that these are not competitive, but rather complimentary products.

1. Most interruption problems, whether momentary outages or sags, last less than one second and most facilities and equipment within are able to ride-through these disturbances by virtue of their electrical and mechanical inertia. The Dip-Proofing concept uses this phenomenon by only supporting ultra-sensitive, single phase, control devices (contactors, PLC’s, relays, small power supplies, etc.). Studies and tests by independent contractors and labs have determined that, in most cases, short duration, single phase ride through for the controls is sufficient. Having extended ride-through (‘blackout protection’) with a UPS on the controls serves no purpose and can actually cause damage if the load is held in indefinitely. A timer could be installed with the UPS to limit its ride through, but this is an additional cost item which has to be retrofitted, also at added cost. The DPI already incorporates an adjustable timer. For rare, total blackout protection, a three phase UPS (or DPI) would be required.

2. Reliability is an issue. Installing an on-line UPS adds the risk of taking down the system if it fails which creates the problem you’re trying to solve. This risk increases with less expensive UPS’s. Installing a ‘cheap’ off-line UPS will not necessarily solve the problem as they wait for the zero crossing point before switching on. This can take a few milliseconds and sensitive relays will drop out. The DPI overcomes both the problem of process disruption caused by failure and slow transfer by using an off-line, reliable system *but* with an ultra-fast transfer (<700uS) which is faster than any control device on the market, that we are aware of.

3. The types of loads requiring support are usually variable. This means that they, either partially or entirely, consists of relays, contactors and/or solenoids which have a high inrush current. UPS’s and CVT’s (Constant Voltage Transformers) cannot handle this inrush unless oversized by at least two to three times. This increases the cost of a suitable UPS or CVT for a particular application dramatically. The DPI is able to withstand inrush currents up to 20 times nominal, and therefore does not need to be oversized. Also some UPS’s do not function well with inductive loads.

4. Long term costs are substantially lower with the DPI as it does not use batteries and therefore there is no maintenance and replacement. This is the ‘cherry on the top’ for most prospects and customers.

The DPI also features variable transfer level and a robust, industrial enclosure.

Device	DPI	CVT	UPS
Maintenance free & cost effective	Yes	Yes	No
High reliability	Yes	Yes	Some
Ultra fast transfer time	Yes	N/A	No
Suitable for variable loads	Yes	No	No
Ride through from cycles to secnds	Yes	No	Yes
Accurate ride through control	Yes	No	No
Support for voltage sags <i>and</i> momentary outages	Yes	No	Yes