

## Improving Service Availability and Resilience When Selecting Rack Power Distribution Units

---



### Service Availability & Resilience

---



## Improving Service Availability and Resilience When Selecting Rack Power Distribution Units

---

**By Luca Rozzoni, European Business Development Manager, Chatsworth Products (CPI)**

Improving service availability and resilience is a never-ending quest for today's data centres. However, to make real improvements there must be a change in the traditional approach to rack power distribution and monitoring.

Integrating intelligent products into the data centre's design is critical and, when selecting rack power distribution units (PDUs) for high-density applications, there are a number of key considerations which can directly affect future levels of service availability and resilience.

### Three-Phase or Single Phase?

---

First consider the incoming power and the installation of the appropriate input circuit to handle required capacity. Power from the utility to the data centre is typically three-phase. Whilst it is possible to bring either three- or single-phase power to the cabinets, three-phase power allows required power capacity to be delivered at a lower amperage, helping minimise losses and simplify load balancing across all three phases of the incoming power into the data centre.

## Outlets

---

Data centres and cabinets are typically designed and specified prior to deciding which IT equipment will be installed. Selecting an intelligent PDU that provides a good mix of C13 and C19 outlets is advisable, so that it will be able to support a wide range of equipment and densities. In addition, ensuring there is a locking feature on the outlets will help to prevent accidental disconnections of IT equipment.

## Branch Over-current Protection

---

Intelligent PDUs that draw greater than 20A of current typically have two or more branch circuits protected by an overcurrent protection fuse or breaker. Selecting a breaker over a fuse is highly recommended as a breaker can easily be reset when tripped. A fuse, in the same circumstance, must be replaced and power will remain out until this has been completed. As replacement requires the PDU to be turned off until it is serviced by an electrician, so the result is a higher Mean Time to Repair (MTTR).

Whilst the breakers can be thermal, magnetic or magnetic-hydraulic, a magnetic-hydraulic breaker is the least susceptible to temperature changes, and will minimise nuisance tripping, making it ideal for high-density applications.

When reviewing branch overcurrent protection, it is also worth considering:

- Slim profile breakers to ensure minimal interference with airflow within the cabinet
- The ability to remotely monitor the status of the circuit breaker or fuse irrespective of the type of PDU selected.

## High Ambient Temperature Rating

---

Modern, high-density data centres often increase server inlet temperatures, which translates into higher server exhaust temperatures. This helps to maintain top levels of efficiency and lower energy consumption costs. Many data centres also deploy containment solutions to fully separate hot exhaust air from cooling air to further optimise efficiency.

To ensure that the PDUs operate reliably in these higher temperatures, it is worth selecting a PDU with the highest temperature rating possible. The chosen PDU should also support full load capacity at the rated temperature.

## Environmental Monitoring Capabilities

---

It's also imperative that the proper environmental conditions and levels are closely monitored and maintained. Fluctuations in air quality, temperature and humidity need to be avoided, while water, dust and other harmful particles can all affect the infrastructure, shorten the operational life of expensive equipment and result in downtime.

Environmental monitoring solutions now have the capacity to help your organisation monitor

temperature and humidity, as well as smoke, water and even motion detection. Choosing an intelligent PDU to enable a cabinet level ecosystem and issue proactive notifications or alerts, will help data centre managers ensure service reliability.

## Cost-Saving Features of Intelligent PDUs

---

Selecting intelligent PDUs with the features mentioned above will help data centre managers ensure service availability and efficiency. Two other underestimated features will also provide significant savings in networking costs and deployment time, IP consolidation and physical security.

### IP Consolidation

---

Many intelligent PDUs available today have the ability to be arrayed (networked) using one IP address. When selecting a PDU, look for IP consolidation capability that networks the most amount of PDUs into the array so that the fewest amount of networking ports needs to be deployed. There are PDUs in the market today that can be in a 32 PDU array.

### Physical Security

---

With information quickly becoming the most valuable asset organisations own, the need to push security and authentication to the cabinet level has become more critical. Selecting intelligent PDUs that have built-in integration with electronic access control (EAC), allows the remote management and control of every cabinet access attempt. This also ensures the data centre and IT department is meeting growing compliance regulations such as PCI-DSS, FISMA and HIPAA.

### Conclusion

---

As the PDU represents the first line of defence, integrating intelligent products into a data centre's design – and ensuring the careful selection of the most appropriate intelligent PDU for such a high-density environment – is key to ensuring the data centre of the future will be able to continue to offer greater service availability, resilience and security to cope with the growing demands being placed on it.

**For more information go to: <http://www.chatsworth.com/>**