



Powering
progress:
Safeguarding
semiconductor
manufacturing
in Singapore

Case Study

Singapore
Safeguarding semiconductor
manufacturing

centiel.com

Introduction

In semiconductor manufacturing, power outages can bring operations to a halt, resulting in significant losses. A leading semiconductor manufacturing company in Singapore faced this very challenge. Their sprawling manufacturing facility, responsible for producing chips for various electronic sectors and devices, was struggling with frequent power outages that disrupted production processes due to their outdated, fixed-capacity UPSs installed in the past. These disruptions had a significant financial impact and threatened the company's reputation.

The impact was felt not only in terms of financial loss but also in terms of societal impact. Electronic devices are an integral part of modern life, and any disruption in their production can affect individuals, businesses, and industries worldwide, ultimately hindering global progress.

Solution

To mitigate this pressing issue, management at the semiconductor manufacturing company in Singapore took a proactive stance. They initiated a project to replace modular uninterruptible power supply (UPS) systems to provide availability and reliable uninterrupted power to critical systems during power outages. Centiel was selected as the UPS solution provider, and DataSphere was engaged as the channel partner responsible for implementing the solution.

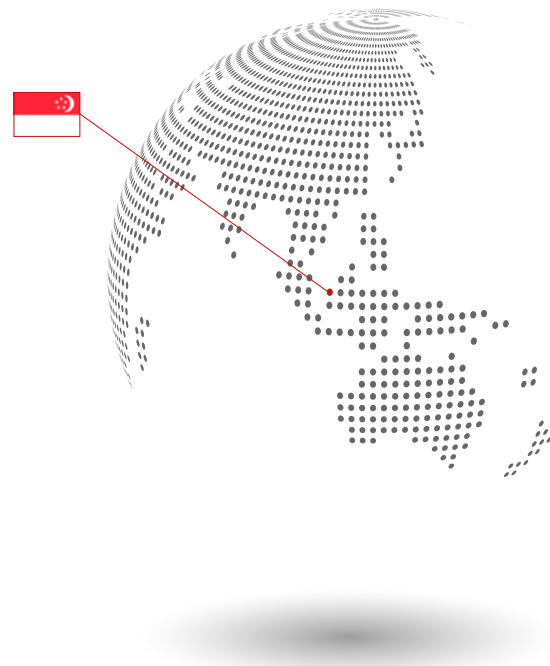
When selecting an uninterruptible power supply (UPS) solution, the Singapore-based semiconductor manufacturer made a strategic decision to work with Centiel, a leading UPS solution provider. Centiel was tasked with the responsibility of supplying and delivering the UPS technology required to address the company's power outage challenges. In addition, DataSphere played a critical role in the successful implementation and integration of the UPS solutions into the manufacturing facility.

The installation team began with comprehensive site surveys to fully understand the power requirements of these critical systems. DataSphere then designed a customized electrical distribution system with isolation

Country: Singapore

Industry: Safeguarding semiconductor manufacturing

Product: CumulusPower™



Transformers and integrated it with Centiel UPS systems tailored to provide uninterrupted power during power outages.

The UPS systems implemented at the semiconductor manufacturing company is a modular, scalable, and redundant solution with N+1 redundancy. In this configuration, even if one module fails, the remaining modules seamlessly take over the loads, preventing any interruption. In addition, the UPS system is backed by an advanced monitoring and management system that allows the facility team to monitor its status and performance in real time. This ensures maximum uptime and unmatched reliability.

Currently, the facility has 18 UPS systems ranging from 80 kVA to 300 kVA, with a 30-minute backup time. Some existing voltage-regulated lead-acid batteries have been integrated to reduce costs, while new lithium-ion batteries have also been implemented to provide this critical backup power. In addition, 10 more UPS systems are in the pipeline and are expected to be completed by the end of 2023.

Impact

The installation of the UPS system at the semiconductor manufacturing company in Singapore has provided a number of benefits. It ensures uninterrupted operation of the manufacturing facilities in the event of power outages. This is especially critical for a facility that relies on computer systems and manufacturing equipment, as a power outage could result in data loss or equipment damages, with severe financial consequences.

The UPS system's capabilities extend to powering critical systems that include manufacturing equipment, servers, and data centers. The system's dual-input architecture and isolation transformers provide robust electrical isolation that protects against electrical noise, interference, and power disturbances. This not only improves the quality of the power supply but also enhances the protection of sensitive electronic equipment.

Installing the UPS system in a dedicated room with adequate ventilation, air conditioning, very early smoke detection, and other safety features ensures both equipment and personnel safety.

The impact of the UPS system on the manufacturing process has been transformative. It provides uninterrupted power, reducing downtime and production losses. This not only translates into significant cost savings but also maintains the reliability of the power supply, reducing the risk of equipment damage and data loss.

In addition, the UPS system has had a positive impact on the company's employees, increasing their confidence in the reliability and resilience of their critical systems. This sense of security contributes to a productive and efficient work environment.

Conclusion

Overall, the installations of the UPS systems at the semiconductor manufacturing company in Singapore have been a resounding success. It provides uninterrupted power, enhancing the reliability and safety of the production process. By reducing downtime and production losses, it has generated significant cost savings and enabled the company to operate its manufacturing facility with unwavering confidence, knowing that its critical systems are protected by a reliable and robust UPS system.



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