

# Everything Must Converge: How Intelligent Switchgear is Powering the IIoT Revolution



A Vertiv Application Brief

## Overview

For over a century, switchgear and switchboards have been the backbone of reliable power distribution, protecting electrical equipment and driving industrial growth. Now, these essential components are stepping into the digital age, fueled by advancements in smart metering and intelligent power monitoring.



## The Rise of Smart Metering and IIoT

Across the globe, smart metering is transforming how we manage electricity. It's driving the adoption of efficient digital grids, increasing the use of renewable energy, and reducing our reliance on fossil fuels. Smart meters provide real-time data on electricity consumption, voltage, current, and power factors. This information empowers businesses and utilities to monitor, control, and optimize their energy usage, leading to significant cost savings and improved operational efficiency.

Whether driven by government mandates or industry best practices, smart metering unlocks exciting new possibilities within the Industrial Internet of Things (IIoT). For instance, data centers can leverage smart meters to enhance their Power Usage Effectiveness (PUE) and minimize their environmental footprint. Businesses can become "prosumers," storing, measuring, and even feeding energy back into the grid. Moreover, they can identify and eliminate energy waste from idle equipment.

Utilities gain comprehensive visibility into their networks, enabling them to detect tampering, diagnose problems proactively, and even give advance warning for outages<sup>1</sup>. Heavy industry companies can monitor the health and performance of their operational technology, prevent unplanned downtime, and implement preventive maintenance.

## The Role of Intelligent Switchgear in Smart Metering

Smart meters, with their two-way communication capabilities, don't function on their own. They rely on data from connected power equipment, like **switchgear**. This need for connectivity is driving a significant evolution in switchgear design, integrating smart meters, intelligent circuit breakers, and networking capabilities—shifting from purely electrical systems to intelligent, connected solutions.

Intelligent switchgear, such as Vertiv's **low-voltage switchgear** for the Asia Pacific market, creates a powerful cycle of benefits including:

- **Proactive Electrical Fault Management:** Electrical faults, caused by component failures, power surges, or short circuits, can disrupt operations. Thanks to sensors and integrated networking equipment, intelligent switchgear can collect data, self-diagnose problems, and send alerts. This allows teams to quickly troubleshoot issues, remotely configure systems, or initiate controlled shutdowns. In addition, they can direct local staff to perform onsite service when and where needed. As a result, it's easier for teams to protect electrical equipment and ensure the high availability of powered equipment, such as servers, networking gear, and operational technology.

Vertiv develops **intelligent low-voltage (LV) switchgear** up to 690V and 800A to 6300A. Our modular designs facilitate rapid customization with intelligent components. Our solutions provide segregation up to Form 4 Type 6, separating busbars and functional units with metallic or nonmetallic rigid barriers. This reduces arc flash risks, safeguarding workers during maintenance. All Vertiv™ switchgear is tested to international standards.

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- **Data-Driven Insights:** Connected sensors, intelligent circuits, and smart meters provide real-time data for remote monitoring and analysis. Data on switchgear temperature, humidity, power usage, and performance enable continuous operational optimization. Vertiv offers flexible integration of intelligent circuits from leading manufacturers, in fixed, withdrawable, and plug-in configurations. Energy monitoring systems (EMS) and programmable logic controllers (PLC) can also be incorporated. Our patented modular designs are more compact than competitors and feature front access for maintenance, saving valuable space.
- **Automated Protection:** Intelligent switchgear goes beyond alerts, utilizing gathered data to automate protective actions. Zone-selective interlocking reduces equipment stress during short circuits and ground faults. Automated load shedding optimizes electricity usage by disconnecting non-critical loads.<sup>2</sup> These capabilities enhance equipment protection and reduce operational costs.



## Conclusion

**Vertiv™ PowerBoard Low Voltage Switchgear** is used by a wide range of companies, including data centers, commercial and industry companies, and utilities across the globe. Now, Vertiv delivers its low-voltage switchgear for the Asia Pacific market. Our state-of-the-art manufacturing facilities, including busbar and metalwork production, ensure high-quality and customizable modular solutions, often delivered up to 50% faster than competitors.

Vertiv can provide complete power packages with low-voltage and medium-voltage switchgear, busbars, PLC programming, energy management solutions, and UPS devices, as well as providing ongoing maintenance. This capability enables industry buyers to simplify sourcing, while bringing greater quality control to their operations.

The potential for intelligent switchgear is boundless, which will bring greater control, precision, and cost savings for businesses in the Asia Pacific region.

Learn more about [Vertiv™ PowerBoard Low Voltage Switchgear](#) today.

<sup>1</sup>[Plant Engineering article](#)

<sup>2</sup>[Electrical India](#)



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