

Bridging the Last Mile by Transforming Serial Data into Ethernet Intelligence

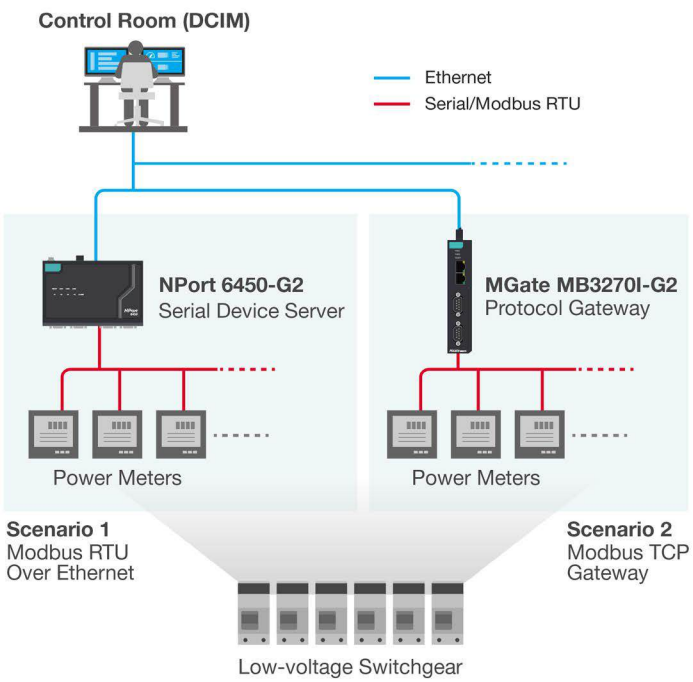
In the high-density data center, low-voltage (LV) switchgear is the critical junction where raw utility power is transformed into the lifeblood of the AI economy. Sustaining this critical power lifeline requires simultaneous data aggregation from countless power meter arrays across complex distribution environments. The operational challenge is bridging the last mile of power telemetry: translating legacy serial data from hundreds of meters into transparent, Ethernet-based monitoring intelligence. To achieve real-time visibility at the control room, facility operators require a resilient architecture capable of seamless Modbus RTU-to-Modbus TCP conversion without compromising signal integrity.

System Requirements

- **High-density AC Data Collection:** The system must reliably poll vast arrays of power meters to track voltage, current, and harmonics. This data is essential for identifying stranded capacity and ensuring phase balance across the facility.
- **Remote Ethernet Accessibility:** To eliminate manual on-site inspections, all serial-based power data must be encapsulated into Ethernet packets, allowing for centralized remote monitoring and historical data logging from the control room.
- **Unified Management Framework:** With hundreds of edge devices deployed, engineers need powerful and intuitive tools to manage the vast array of serial device servers and gateways, simplify configuration, and reduce human error.

Why Moxa

- **Superior Industrial Design and Protection:** The NPort 6450-G2 and MGate MB3270I-G2 Series support 2 kV serial port isolation to protect communication ports from surges and electromagnetic noise common in electrical switchgear.
- **Optimized Topology:** Moxa's devices support Ethernet cascading, allowing multiple units to be connected in a series. This simplifies network architecture, reduces the number of required switch ports, and speeds up deployment.
- **Advanced Troubleshooting and Management Tools:** Moxa offers a suite of intelligent software tools, including a protocol analyzer that allows engineers to diagnose timing issues or parameter mismatches in Modbus traffic in real-time.



ExcelNex Integrated Sdn Bhd (KL) +603-5636 0306 (KL) +6012-371 6198 sales@excelnex.com