

Striking the Right Balance

Edge-to-cloud Data Integration Streamlined for Efficient VPPs



Why Moxa

- Native Modbus and cloud protocol support through intuitive UI to simplify edge-to-cloud communication
- Store-and-forward and LTE connection keep-alive functions to maintain robust data integrity
- Cloud-based device management to streamline monitoring and maintenance of gateway devices

Product Showcase



AIG-302 Series Industrial IIoT Gateways

- Built-in logic engine for no-code data processing
- Modbus-to-cloud bridging for Azure and MQTT-based cloud services
- Store and forward function to ensure timely delivery and integrity of data
- A security-focused dashboard enables self-checks for ensuring device security
- DLM support for remote monitoring and management
- CID2 and ATEX certified

An energy aggregator has built a large-scale virtual power plant (VPP) that integrates distributed energy resources (DERs), such as rooftop solar panels and field solar farms, to generate electricity and trade the excess for grid load balancing and frequency regulation. Moxa's AIG-302 IIoT gateways are deployed to simplify integration of DERs and facilitate easy maintenance.

System Requirements

- Collect and transmit data from DERs to optimize grid stability
- Ensure seamless, resilient, and secure data transmissions
- Facilitate effortless operation, management, and maintenance of gateway devices

Moxa Solutions

Moxa's AIG-302 Series IIoT gateways simplify the integration of edge computing, cellular transmission, and cloud services, streamlining operations for VPPs, especially those that require real-time edge-to-cloud communication for effective management of DERs to facilitate prompt responses to grid changes.

The AIG-302 provides a rich set of interfaces and supports protocols required to connect field sensors, meters, and inverters for data collection. This dual-SIM IIoT gateway comes preinstalled with Azure IoT Edge, Azure IoT Devices, and MQTT, facilitating local data processing and seamless cloud integration for monitoring and management of DERs. The store-and-forward function guarantees intact data delivery, enhancing resiliency against downtime and data loss.

VPP operators can set up data processing rules using the AIG-302's logic engine with minimal programming effort. The security dashboard allows users to check device statuses while receiving tips to secure the devices. Additionally, the cloud-based device life-cycle management (DLM) service enables secure access and management of the IIoT gateways, reducing the need for on-site visits and maintenance.

