Sustaining BESS:

Enhancing Key Data Preservation and Usage with Reliability

Product Highlights

Cloud-connected Edge Gateway:
AIG-302 Series

Preliminary

Available in May, 2024

- Simplifies Modbus data transmissions to cloud platforms by configuring an intuitive GUI
- No-code/ low-code for edge computing
- Supports store-and-forward feature to ensure data completeness
- -40 to 70°C operating temperature range
- LTE Cat. 4 US, EU, and APAC models available

Local Data Logger:
DRP-C100 Series

BXP-C100 Series

- DIN-rail and box-type computer with fanless design
- 11th Gen Intel® Celeron® or Intel® Core® processor
- Rich interface options for serial and LAN ports
- Compact size to fit most field applications
- -30 to 60°C operating temperature range

Battery Management Systems (BMS) and Energy Management Systems (EMS) are installed in energy storage cabinets and large-scale MW-level energy storage sites to enable monitoring and control. Efficient operation of BMS/EMS begins with the ability to gather and leverage data from various systems.

In order to ensure the continued operation of a BESS, the asset owner and battery vendor usually sign a multidecade contract covering rated capacity and performance warranties . But the battery vendor will formulate battery usage rules to regulate specific operations. For example, if the battery module SoH drops below 60%~65%, the warranty becomes void. Hence, the BESS Asset owner must accurately store all battery and auxiliary system data and submit it to the battery manufacturer for warranty claims. Thousands of battery cells are used in the energy storage system, resulting in the collection of tens of thousands of battery data points every minute, such as SOC, SOH, temperature, voltage, and current. Additionally, it is necessary to save the data from other auxiliary equipment housed in the cabinet, which generally needs to be kept for one year.

Challenges in operating and maintaining energy storage systems include saving large amounts of data locally and establishing cloud-connected applications after preprocessing the data.

System Requirements

- **Adopt Asset Management:**
  Implement cloud-based big data analytics to perform preventive maintenance and reduce failure risks. This requires a plug-and-play edge gateway device capable of rapidly transmitting on-site data to the cloud platform.

- **Implement Data Logging:**
  Use a Data logger for local data storage to preserve complete data assets, addressing issues of insufficient and incomplete data.

- **Use Industrial-grade Devices:**
  Given that BESS sites are often located in harsh environments, remote or coastal areas, it's crucial to select computers and network communication devices with high operating temperature ranges, resistant to electromagnetic interference, or protected with anti-corrosion coatings.

MOXA®

Why Moxa

For asset management applications, Moxa AIG-302 Series is a plug-and-play gateway device that enables the quick transmission of on-site Modbus data to major cloud platforms like Azure or AWS, through MQTT protocol and simple GUI configuration. The AIG-302 Series provides a development environment that enables programming to convert raw data into meaningful information, reducing bandwidth usage and cloud computing load during cloud upload. The AIG-302 Series guarantees data integrity by using store and forward capability during cloud transfer, preventing data loss and ensuring accurate data analysis. When it comes to data logging, the Moxa DRP-C100 Series and BXP-C100 Series excel in performance, resilience, and endurance. You can count on a three-year warranty for x86 computers and a ten-year commitment to product longevity, along with comprehensive post-sales support available in over a hundred countries worldwide. Moxa's focus on delivering lasting quality demonstrates our dedication to customer satisfaction.