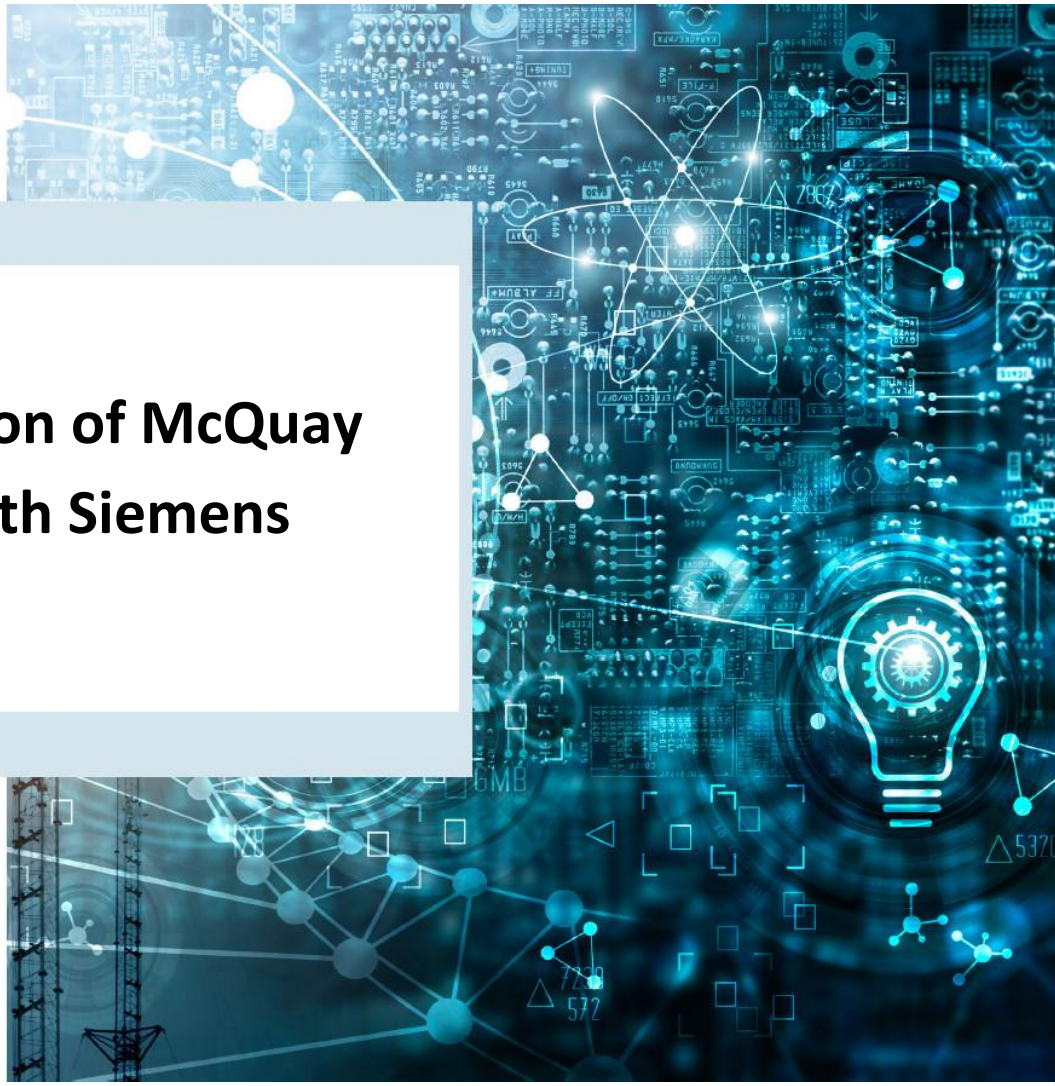
CHIPKIN



Case Study

Complete Integration of McQuay Air Conditioning with Siemens BMS

Overview

In building automation, integrating diverse systems and protocols is vital for efficiency of system's operation, monitoring and control. This case study details a project by Siemens who came to Chipkin to integrate a McQuay Air Conditioning system with a Siemens BACnet IP BMS. The project aimed to connect 11 **McQuay OPM100A SCAC** Self-Contained Air Conditioning Units on the client-side with a **Siemens BACnet IP PXC100-E96.A BMS** system on the server side.

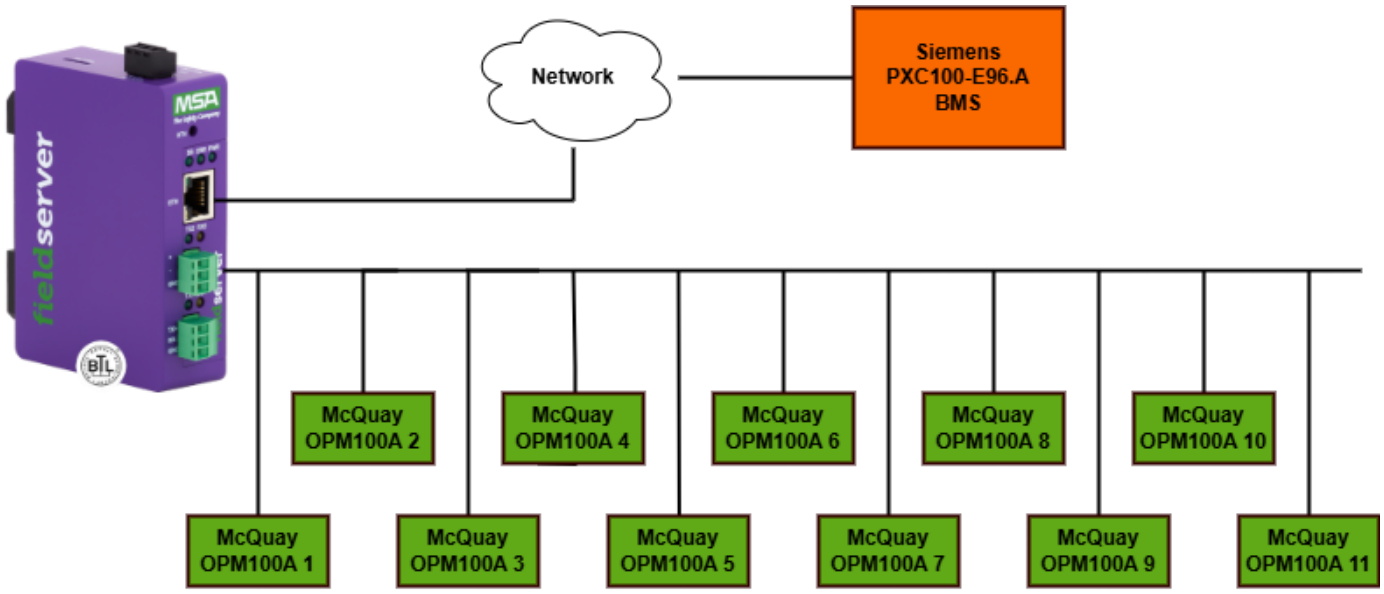
Both McQuay devices and Simens BMS had never been integrated with Chipkin products and thus were undocumented. Chipkin used the FieldServer Quickserver device as a protocol Converter to complete the integration.

The goal of the project was to allow Siemens' customer to prolong the life of legacy equipment and allow its integration into a modern BMS. This case study covers the protocols and devices involved, the challenges encountered, and the solutions that led to a successful project. It highlights the complexities of protocol integration and the real-world benefits of effective system interoperability.

Chipkin's approach to the solution

Chipkin recommended a FieldServer QuickServer gateway and custom configuration services as a solution to complete the integration. As part of the sale Chipkin provides phone, email and remote desktop support.

The primary objective of this project was to configure the McQuay client's SCAC Self-Contained Air Conditioning Unit operating on the PXC Modular Driver, to be integrated with the Siemens PXC100-E96.A BMS system utilizing the BACnet IP protocol. The figure below shows the system's block diagram.



Challenges and Unit Aspects the Integration

During the integration, Chipkin faced the following Challenges:

1. **Unresponsive Data Points:** Data points were unresponsive when using the WRBX protocol.
2. **Device Rarity:** Both the McQuay OPM100A and Siemens PXC100-E96.A are models that had not been integrated before using a FieldServer QuickServer, making them undocumented devices which carried risk of failure and unpredictable outcomes during both client-side and server-side configuration.
3. **Initial Miscommunication:** There was a discrepancy in the number of devices to be integrated. The client initially said they had nine devices, but later it was discovered that the actual number was eleven.
4. **NAK Errors:** Non-Acknowledgement (NAK) errors occurred, preventing data streaming from the AHU devices.
5. **Limited Site Access:** Restricted access to the site posed logistical challenges.

Solutions and Success

Chipkin overcame the challenges through the following methods:

- Protocol Adjustment: We resolved the unresponsive data points issue by switching from WRBX to RDBC protocol, enabling successful data writing. Write through read is a FieldServer technique that allows a point to be bidirectional when required.
- Through experience and troubleshooting we were able to document and overcome the unpredictable nature of the devices and Systems.

- The NAK errors occurred due to mismatched data points. We overcame this error by correcting the addresses on-site.
- To overcome limited site access, Chipkin meticulously planned each visit to ensure maximum productivity, exploring various approaches during every site visit.

The success of this project means our customers now have an efficient way to control and monitor their McQuay Air Handling Units. This integration allows them to seamlessly connect the McQuay device to their Siemens BMS, enhancing their overall building automation system.

Another happy customer!

As a comment, the client provided Chipkin with the following kind words:

"*We want to thank Chipkin for providing a product that was the perfect solution for our needs. Our customer now has a means of monitoring and controlling their units on our BACnet network, and they have been pleased with the performance of the system. We expect to be using this product again for subsequent projects.*"