



Intelligent Process Control in Power & Energy Delivers Better Power Efficiency

Market: Power & Energy
Location: Austria
Technology Partner: AutomationX

Project Introduction

As many energy companies seek to reduce their footprint on the environment, more efficient power and energy generation is becoming a critical issue. In the power generation and distribution market, maintenance-free power backup systems and IEC 61850-based power transmission and distribution systems improve energy generation and distribution efficiency. Power substations are subsidiaries of electricity generation systems where voltage is transformed from high to low or reversed using transformers. Nowadays, multiple protocols, including many proprietary protocols with custom communication links, exist for substation automation and interoperability with devices from different vendors that would be a huge advantage to users of substation automation devices.

System Requirements

The IEC 61850 international standard for substation automation systems defines the communication protocols between devices in substations and related systems and as such any equipment needs to be compliant with this standard. In next-generation IEC-61850 certified power substation systems, communication gateways and managed switches play an important role. Abstract data models, defined in IEC 61850, can be mapped to a number of protocols, and there are many proprietary devices and networks which are defined in such a way as to link all proprietary devices together.

System Description

AutomationX is an Austrian-based automation solution provider in the industry, infrastructure and energy fields. They recently designed Power and Energy Modules for a substation customer using their PLC programming tool and Advantech's acclaimed APAX-5000 series Programmable Automation Controllers (PLC), as well as UNO series.

Advantech was chosen by AutomationX for their wide product portfolio, and because the harsh working environments in power substations require that equipment has to meet robust design specifications, such as wide operating temperature range, isolation I/O, dual power input, vibration and shock protection, and rackmount installation.

The APAX-5000 series integrates control, information processing and networking in a single platform. By leveraging the latest automation technology, AutomationX and the APAX-5000 series PAC system provide a more reliable, scalable and flexible substation control and automation application.

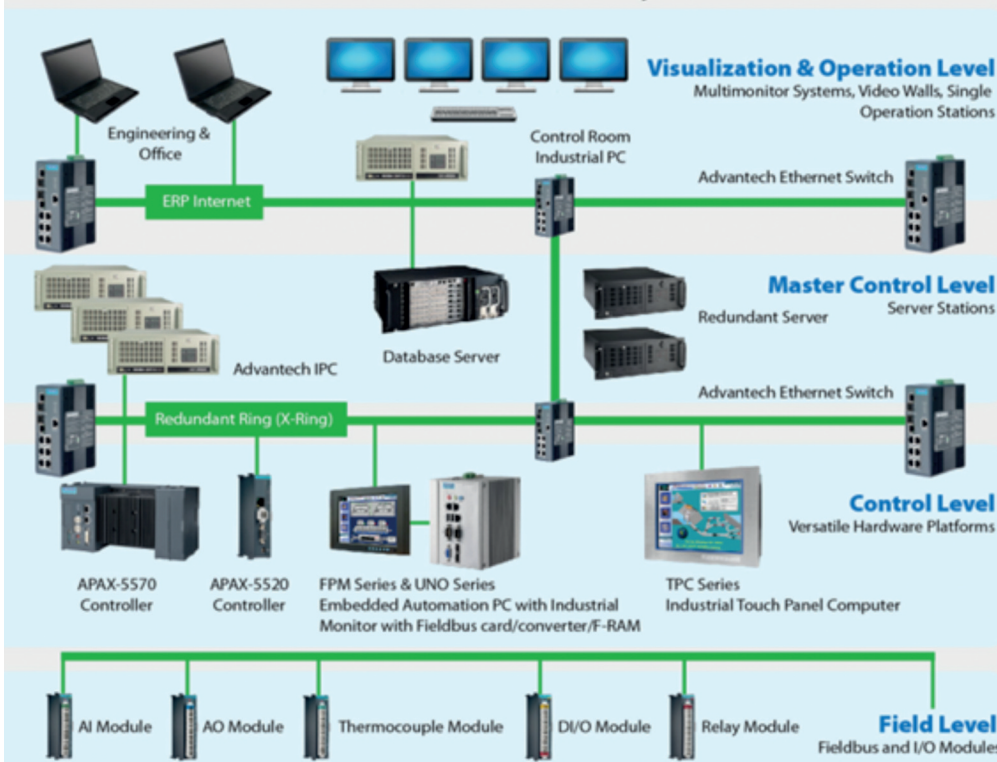
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Project Implementation

Product	Description
APAX-5000 Series	APAX-5000 Series controllers with Intel® Atom™ and Intel® Celeron® M processors provide various peripheral interface such as LAN, USB, DVI, audio, RS-232, RS-422/485, etc. These processors provide reliable, power-efficient, high-performance operation in both fan and fanless designs.

Distributed Control System



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Conclusion

Advantech's and AutomationX's jointly developed control solution provided a power and energy customer in power distribution with a very successful process control solution. Among the benefits provided were:

- IEC 61850 and IEC-870-5-10x certifications which is a standard for the design of electrical substation automation
- Lifetime support which is critical point for the power and energy industry
- A single software tool that allows customer to engineer and visualize everything across multiple domains
- Modern data transmission technology and consistent interface between operator and unit
- Complete end-to-end solutions for the customer