Universal Industrial Gateway

Value Proteins Seamlessly Integrates Legacy Modbus RTU Devices Into Modern Ethernet/IP Control Architecture

Empowering Innovation for over 40 years

The Challenge

Value Proteins operates a rendering facility in New Zealand with multiple processing lines, boilers, and motor-driven equipment. The plant required integration between legacy Modbus RTU–based field devices and a modern EtherNet/IP control architecture built around Allen-Bradley CompactLogix controllers. Reliable, plant-wide visibility into motor performance was critical due to variable loads and continuous operation requirements.

Historically, the plant relied on hard-wired signals and limited diagnostics from soft starters and motor protection devices. Fault-finding was time-consuming, and accessing even basic status information required additional wiring or physical access to control panels. The objective was to enable network-based access to real-time data, diagnostics, configuration parameters, and remote control functionality—without replacing existing Modbus equipment.

Schneider Altistart 48 soft starters and Tesys Ultra motor starters communicate exclusively using Modbus RTU. CompactLogix controllers have no native method to exchange data with Modbus RTU devices, requiring a reliable protocol translation solution capable of supporting multiple serial networks, growing device counts, and stable high-frequency polling.

The Solution

Universal Industrial Gateway (Model WP-G-222-P1) provided seamless integration between EtherNet/IP and multiple Modbus RTU networks. Universal Industrial Gateway enabled full access to motor parameters, operating states, faults, and configuration data while maintaining stable communication under heavy polling loads.

The WP-G-222-P1 supports EtherNet/IP through dual Ethernet ports and Modbus RTU through two serial channels, allowing devices to be segmented by plant area for improved reliability and reduced network congestion. Browser-based configuration simplified setup, mapping, firmware updates, and future expansion without requiring hardware changes.

Universal Industrial Gateway reduced wiring, improved diagnostics, simplified commissioning, and allowed Value Proteins to modernize the control system while retaining existing Modbus equipment.

The Result

Universal Industrial Gateway delivered stable, repeatable performance across all connected devices and was the only solution tested that met the plant's reliability and scalability requirements. Competing gateways produced inconsistent results, including dropped devices, incorrect register mapping, or instability as node counts increased.

Despite a slightly higher initial cost, Universal Industrial Gateway quickly paid for itself by reducing commissioning time, eliminating additional wiring and signal converters, and minimizing service interruptions. Configuration is fully browser-based, with internal handling of byte ordering, data types, and tag organization—requiring no ladder logic, Add-On Instructions, or EDS imports. CompactLogix integration was achieved without restructuring the I/O tree or modifying network adapters.

Operators now have real-time access to detailed motor diagnostics, improving safety and reducing downtime. Maintenance teams benefit from faster device replacement, remote troubleshooting, predictive maintenance capabilities, and simplified network management across plant areas.

Value Proteins noted that Spectrum Controls' documentation and technical support played a key role in project success, providing fast resolution during testing and commissioning and building confidence in both the solution and supplier.

"Spectrum's documentation, tutorials, and responsive technical support were a major factor in our project's success. Even during early testing and commissioning, assistance was easy to access and issues were resolved quickly, giving our management and operators confidence in both the product and the supplier."

The Spectrum Controls Solution

Industrial environments generate vast amounts of valuable operational data, but that data is often locked inside disconnected systems—modern Ethernet-based equipment, legacy serial devices, and proprietary controllers that were never designed to communicate with one another. This fragmentation limits visibility, increases operational risk, and makes it difficult to fully leverage existing assets.

Universal Industrial Gateway solves this problem by creating a unified communication layer across diverse industrial systems. By natively bridging multiple protocols and device generations, it enables real-time access to operational data without requiring costly rip-and-replace upgrades. Existing equipment remains in service while becoming part of a modern, connected architecture.

With unified data access, organizations can move from reactive operations to data-driven decision-making. Real-time monitoring enables faster troubleshooting and more informed control actions, while historical data collection supports trend analysis, performance optimization, and predictive maintenance. Subtle changes in process variables, electrical characteristics, or device behavior can be identified early—reducing unplanned downtime and extending asset life.

From an architectural standpoint, Universal Industrial Gateway supports secure network segmentation and controlled data exchange between operational and enterprise systems. This allows organizations to modernize safely, aligning with best practices while maintaining operational integrity.

Universal Industrial Gateway turns isolated industrial systems into connected, intelligent assets. It provides a scalable foundation for operational efficiency, risk reduction, and long-term digital transformation—allowing organizations to extract more value from the infrastructure they already own.

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For over 40 years, Spectrum Controls has been a trusted manufacturer of cutting edge industrial I/O, and is the first company to build licensed, core-technology I/O modules for Rockwell Automation® as a proud Technology Partner.

Focusing on expanding the capabilities of control systems, we offer a myriad of solutions to tackle the unique projects you face including high- density I/O, universal analog input, and specialized modules to harness the full capability of any system. All of our licensed hardware includes full TechConnect™ Support through Rockwell Automation support channels.

Our Universal Industrial Gateway combines the capabilities of multiple typical gateways into a single module that allows for seamless communication between multiple devices with a choice of 12 different protocols.

For visual communications in critical production environments, InView industrial LED displays offer robust hardware and class-leading ease of use thanks to our EasyTag technology.

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