Remote Modules Versus Programmable Logic Controllers

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Programmable logic controllers (PLCs) and remote modules serve significant purposes in an industrial setup. Engineers may consider remote modules as an upgrade from conventional PLCs, as they offer various channels (i.e., temperature measurements and multiple inputs) without the need for lengthy cables.

However, each device presents its own set of unique advantages for OEMs and design engineers. Engineers can optimize the systems of their power and temperature controllers (/en/products/controllers) by incorporating both technologies.

The similarities

There are a few similarities between the remote modules and PLC devices, particularly with their versatility across diverse modes of capabilities through fieldbus compatibility. Fieldbus compatibilities can help engineers and administrators reduce maintenance cost and access standardized predictive maintenance strategies that minimize downtime. Additionally, both devices fit nicely on a DIN rail, which removes them from front panel installations so that they can function behind the scenes in an industrial setup.

Advantages of PLCs

PLCs have remained a mainstay component in various heating products. The technology enables engineers and administrators to monitor the input and outputs cost-effectively while establishing logic-based solutions for industrial machines and control loops.

The modular design of PLCs means that engineers can conveniently adapt according to their specific needs. Modular structures make it easy for engineers to swap out faulty components to keep systems running at full speed with minimum downtime.

However, PLCs function with a fixed (non-expandable) number of logic modules. Engineers need to purchase add-on hardware or establish communication with external I/O. Additionally, the clock speed of a PLC is reduced with a larger number of tasks involved in a process.

Additionally, PLCs feature built-in clock systems that enable engineers to track the exact timing of a task or process during troubleshooting processes. Reference to the data log can help site managers monitor and understand the underlying causes of faults to achieve improved maintenance and faster response rates.

Advantages of remote modules

Unlike PLCs, remote modules do not function with clock cycles. Remote modules operate continuously through various stages through a one or zero model. The loops of I/O scan non-stop before being brought to the table for performance functions. Comparatively, remote modules expedite the most challenging steps of PLCs, such as scan cycles, calculations, outputs and clock resets — effectively eliminating clock cycle limitations.

Remote modules offer connectivity in harsh environments unsuitable for PLCs, such as areas with strong vibrations, high temperatures and noise that may disrupt functions. For example, engineers working with power and temperature controllers can operate I/O modules at a distance from their field devices.

Troubleshooting is faster and simpler with remote modules. Users may remotely log in to troubleshoot devices before determining the need for a hardware replacement. In contrast, the maintenance and repairs of conventional PLCs require system downtimes that disrupt site productivity.

Remote modules come equipped with built-in connectors that enable engineers to easily combine multiple modules to scale performance without purchasing additional hardware. Additionally, the amount of hardware in a system does not slow down the speed of remote modules, with updates and processes delivered at a continuous pace with independent input and output settings within the system.

Things to look out for in a remote module

As technology advances, the variety of remote modules models widens, and users need to hone in on some key features to locate the best fit for their installations.

Optimized inventory

The remote module model should streamline the components in your systems. For example, the product should provide bit-mapping technology that connects physical features with logic-systems. An optimized inventory will help engineers configure their systems to reduce the toll on storage by standardizing an array of spare parts.

Simplified processes

An advanced remote module model should enable easy adaptation to current and legacy designs. Remote modules should give engineers and OEMs the flexibility of enhancing their controllers without the hassle of complex physical installations. Users can customize modules according to their needs, rather than working according to the component's capabilities.

Multiple protocols

Remote modules should fulfill multiple industry protocols that make them accessible at a regional or global level. Global teams can improve efficiencies with remote modules equipped with various protocols. By fulfilling a wide variety of industry protocols, teams can transport their remote modules across multiple offshore sites if necessary.

Assembling hybrid systems

As technology advances, industries will require more intelligent systems, requiring additional sensors. However, analog input cards, PIDs and STA I power switching devices are expensive, and a system should link PLCs with RMs for the most cost-effective results. The combination of remote modules and PLCs enables engineers to leverage the latest benefits of both systems to achieve a high-performance hybrid architecture.

For example, the installation of remote modules can complement pre-existing controller systems by significantly reducing the number of wired mistakes. There are various configurations to help engineers and OEMs link remote and PLC devices. Some popular configurations include allocating a block of the remote module's memory within the PLC while protocols like Profibus and Modbus® map I/Os into the segmented memory.

Choosing the Watlow® brand

Watlow® provides the latest remote module technology that promises the most convenient integration to boost current systems. The RMA PLUS™ remote access module (/en/products/controllers/ez-zone-rm-modules/rma-plus-remote-access-modules) offers unmatched connectivity with the rest of the Watlow system. Watlow's advanced remote access module provides a logging function where users can record their readings and measurements for future reference and comes equipped with a built-in Ethernet switch for easy implementation in small systems.

Additionally, the RMA PLUS remote access module allows engineers to connect with legacy systems seamlessly between the Modbus® TCP and Modbus® RTU, where users can build tables without a converter.

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