"SmartWire-DT reduced assembly and wiring costs by more than 60 percent. It also reduced the high project engineering requirements for the PLC I/O modules and provided a more compact panel design."

SmartWire-DT™ Enables Pimmel to Reduce Winery's Assembly and Wiring Costs By Over 60 Percent

Location:
Gaiarine Treviso, Italy

Problem:
A need to prevent personnel from altering equipment safeguards; reduce commissioning time and costs, and improve reliability

Solution:
Pimmel-developed integrated automation solution including Eaton's SmartWire-DT

Results:
Reduction in assembly and wiring costs; compact panel design

Contact Information
Readers who may have similar application challenges and would like to discuss this sales success are invited to call Richard Chung at 414-449-6187.

When Pimmel, which develops highly specialized electrical systems and automation solutions, began designing an automated grape press for a winery customer, it chose Eaton's SmartWire-DT because it could not only meet the application's automation requirements, but also reduce assembly and wiring costs by over 60 percent.

The automated system controls the grape washing plant, the grape feeding system and the control of the valves for distributing pressed wine. Pimmel's customer also wanted to monitor the entire system, document all operating phases automatically, manage alarm messages and archive process data. Another requirement was the integration of the automation solution into the customer's IT infrastructure to ensure a seamless data flow from the process level right up to management level.

The automation system consists of three units—an operator panel, a main panel and three secondary panels. The core of this automation solution is made up of PLCs, touch panels with a graphical user interface, as well as Windows-compatible software.

Pimmel developed a special software solution enabling the customer to monitor the entire installation, track all operating phases precisely, manage alarm messages and archive data processes.

Pimmel chose Eaton's SmartWire-DT intelligent communication system for motor control and pilot devices. The SmartWire-DT system uses a continuous green flat cable located in the control cabinet to connect motor starters, pushbutton actuators, and indicator lights. It eliminates the need for most of the conventional point-to-point control wiring, and even integrates 24 Vdc control power for contactor coils and LED indicator lights into the eight-conductor flat cable. The starting point of the system is a SmartWire-DT gateway; it establishes the connection to

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standard PLC fieldbuses, such as EtherNet/IP, PROFIBUS-DP, CANopen, or Modbus TCP. Since SmartWire-DT directly integrates the I/O level in the switching devices, no conventional PLC I/O modules are needed. Instead, communication-enabled modules are attached to standard Eaton motor control components. Thus, the PLC in the control cabinet simply consists of a CPU module.
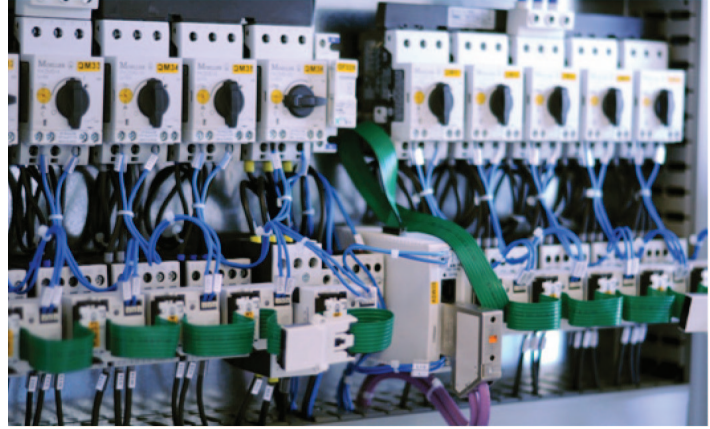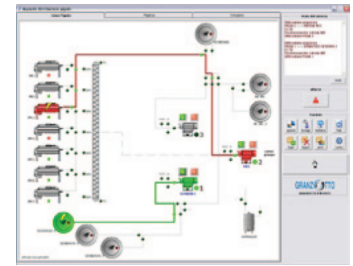
Typical faults such as loose connections and mis-wired terminations are reduced, if not eliminated, using the flat cable and the specialized connectors. Furthermore, each SmartWire-DT enabled device has individual diagnostics built in, which help to reduce commissioning time and troubleshooting in the field.

Nodes on the SmartWire-DT network are automatically assigned addresses on the gateway with the push of a button, assigning addresses in the order that nodes are connected. The system employs time monitoring and a watchdog timeout using the established target configuration as a reference.

This safeguards the integrity of the control scheme. SmartWire-DT has a maximum network length of 2,000 feet, can be extended to pushbutton control stations outside of the control cabinet, and can connect up to 99 nodes per gateway. A software program called SWD-Assist enables the layout, planning, and system configuration of a SmartWire-DT network.

SmartWire-DT not only reduced the assembly and wiring costs by more than 60 percent, but it reduced the high project engineering requirements for the PLC I/O modules and provided a more compact panel design.

Pimmel's customer was impressed by the simplicity and functionality of SmartWire-DT's technology. Pimmel was also able to simplify all the wiring and testing processes for the automation of the grape press plant because of the flexible and easy-to-use SmartWire-DT communication system, which includes dual-color status LEDs on each node on the network.

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