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Case Study: NCS Ltd

Siemens unique product saves customer 50% on costs

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The use of SIRIUS ACT commanding and signaling devices in combination with PROFINET not only reduces installation costs, but also allows direct connection of the commanding and signaling devices to the machine control via PROFINET and thus a high level of flexibility and expandability.

Less wiring and more flexibility, the connection of the PROFINET interface module to the individual terminal modules via ribbon cable.

Northern Combustion Systems (NCS) Ltd has more than 35 years' experience as a market leader for furnace manufacturing and the provision of process heating solutions. It is known to its customers around the world as a company that deliver excellence. So, when one of the NCS Ltd.'s walking beam furnaces needed a new control system, a company that delivers excellence would certainly be a company that expected excellence.

The Challenge

Despite the efficiency and ease-of-use of modern human-machine interface (HMI), there are some situations where they are not going to be fit for purpose such as a dusty manufacturing environment, for example, where conditions are likely to affect performance.

This was the problem NCS Ltd encountered when they decided to install a control system for a walking beam furnace. They needed a system that would enable full mobility of the equipment allowing the operator to easily raise and lower the beam furnace, move it forward and backward,

and open and close the door to the furnace. The challenge was that the team on the factory floor work with heat treatments and are required to wear gloves, rendering the use of an HMI touch screen an impossibility.

Underwoods, one of Siemens valued distribution partners, had worked with NCS Ltd prior to this project, so were pleased to be able to quickly offer a solution to the problem. Stuart Lorri-man, Sales Engineer, Underwoods, said: "I went straight to Siemens' SIRIUS ACT with PROFINET as a solution. It's unique to the market, no one else offers anything similar, and it delivers cost and time benefits from a quick installation process. Its remote pushbutton station was ideal for this situation."

The Solution

Martin Brown, Product Manager for Siemens in Manchester, said: "Our SIRIUS ACT with PROFINET was the ideal solution for NCS Ltd in this circumstance. It is a robust and durable product that has the highest ingress protection (IP) rating, which means it has the best possible level of sealing

Distribution partner delivers perfect solution

against dirt, dust, and moisture, so it's ideal for a heavy manufacturing environment. It is also extremely easy to control, even when the operator is wearing gloves."

Part of NCS Ltd's specification was that they required their pushbutton station to be located a distance from the programmable logic controller (PLC), but they also wanted to avoid the need for civil works during the installation that would be essential if there were running cables underground. They had also specified there were to be no overhead cables with the set up either.

Stuart Lorriman, Underwoods, said: "This is where the benefits of SIRIUS ACT with PROFINET start to become apparent; with this solution there is just one cable which, straight away, dramatically reduces the amount of cabling required in comparison with other products. That one cable runs from the PLC to the PROFINET gateway then the pushbuttons are wired from the gateway. It's simple, cost effective, and time saving."

The pushbutton station itself had 14 buttons including an E-Stop – the failsafe version. A couple of the devices had additional inputs and outputs (IO) and NCS Ltd used two of the digital inputs for limit switches on

doors that, without the IO, would have had to have been wired back to the panel. They also wired a potentiometer into the analogue input to use as speed control on some of the pumps.

This solution also delivered the potential for up to 21 signalling devices as well as the pushbuttons and E-Stop to be connected to Siemens' Totally Integrated Automation (TIA) Portal. The TIA Portal provides instant feedback on cable faults with accurate diagnosis for fast resolution.

The Benefits

NCS Ltd reported significant savings on cost and time thanks to the simplicity of the system and its installation. The build time for the controller was just 2 to 2.5 hours, including time to cut holes for the pushbuttons and wire the controller using flat ribbon cable between devices which allowed their engineer to focus more quickly on other demands.

The simplicity of the SIRIUS ACT with PROFINET system is clearly demonstrated by this project, for the same amount of pushbuttons but using a different set up, NCS Ltd would have required a minimum of: a 35-core multi core cable, a screened cable for the potentiometer, terminals, cables, ferrels, numbers, additional digital

16-way IO, and an analogue card. Siemens' solution, delivered by Underwoods, provided an overall cost saving around 50%.

Peter Kane, Director, NCS Ltd, said: "We're really happy with the solution, particularly with the setup within the TIA Portal. Tagging up the system was very easy and it gave us the advantage of being able to move the pushbuttons around without the need for any wiring, we simply re-tagged them within the software instead. We also use the illuminated signal recording which shows flashing status on the lamps that I believe can only be achieved with the SIRIUS ACT with PROFINET setup."

The diagnostic information that the TIA Portal communicates has also delivered benefits to NCS Ltd. Their system includes a multifunctional and modular Siemens ET200 failsafe central processing unit (CPU) so, in the event of a connection loss, the failsafe will automatically trigger. The TIA Portal allows the integration of safety technology to be quick, easy and efficient.

NCS Ltd plan to use SIRIUS ACT with PROFINET for future projects. Peter Kane says: "We would certainly consider this system again, perhaps as a wireless option. We've been really pleased with the product, the delivery and the installation. We'll look forward to working with Siemens and Underwoods again in the future."



Siemens
Electrical Products
Smart Infrastructure
Sir William Siemens House
Princess Road
Manchester
M20 2UR