

Solutions Brief

## Integrated modular system uses IO-Link and PROFINET to optimize availability of degreasing plants.

*“A system-based approach is vital for our competitiveness and success,” states a degreasing plant manufacturer, based in the northern Black Forest region. In this context, diagnostics and communication capability with IO-Link and PROFINET plays a central role for remote services offered to their customers. This concept can be easily achieved with the integrated modular system approach offered by Siemens, and this special-purpose machine manufacturer decided to pursue a long-term, one-supplier strategy.*

Medium-sized companies who want to participate in the global industrial market have to offer convincing benefits, especially in terms of service. This is especially true for degreasing plants, as newer, high-tech oils are becoming increasingly aggressive and can even lead to pitting corrosion in stainless steel components. “Plant safety and corresponding environmental protection represent two very important objectives in our sector,” says the degreaser plant manufacturer’s Electrical Engineering (EE) Manager. The company’s specialization in the development and construction of customized degreasing plants provides

it with a unique selling proposition, which they must protect and nurture.

While approximately 70 percent of the degreaser plants produced are exported throughout Europe, the company now aims to expand its presence on the global market without compromising quality in its valuable after-sales services business. In order to achieve uniform service quality across the globe, the entire electrical engineering effort for their degreasing plants was redesigned from scratch. Control cabinets for switching, control and visualization that were formerly equipped with devices by various manufacturers will now be consistently supplied by Siemens. The EE Manager explains, “The integration of the modular system by Siemens offers numerous technical advantages without causing any significant additional costs.” To be able to understand the importance of the decision to go global with one supplier, one must understand that manufacturers consider the degreasing of production components as a necessary process that doesn’t add value to their final product. Such manufacturers insist on cost-favorable solutions that offer a high degree of

availability. He adds: “For us, this means that we also have to guarantee reliable services in addition to a correspondingly high quality in terms of the plants’ development, equipment and construction.” This includes the all-important service business, which is made easier by Siemens’ unique ability to provide automation, control and secure communication solutions.



Space savings in the control cabinet. The SIRIUS 3RA6 compact starters and the SIMATIC ET200SP distributed controller support transparent electrical engineering and easy communication via PROFINET.

## Compact Starters as modules

The first new one-supplier philosophy was implemented with a high degree of success, due in no small part to Siemens' modular solutions. For example, the pumps, chamber loader and smaller heaters are switched via SIRIUS 3RA6 compact starters. These devices combine the functionality of a circuit breaker, a contactor and a solid-state overload relay in a single enclosure. At only 45 mm wide, the starters support switching loads up to 32A, in only 5 variants. A single degreasing plant uses between 5 and 10 starters per plant, and since the infeed system features a modular, self-assembling power bus, assembly time is kept to a minimum. Device replacement during operation is equally simple; a screwdriver is the only tool needed to flip a latching lever on the starter, allowing its removal. The device wiring remains intact, including the control side due to the removable terminals, and the only adjustment needed on the replacement device is selection of the rated motor current via a potentiometer on the front of the device. This is of obvious importance to the EE Manager, who says, "Such device replacements can be done in next to no time." This means maximum uptime for his customer, clearly a value add he can provide to his degreaser plant customer.

## Differentiated diagnostics via IO-Link

Further advantages of the use of the SIRIUS 3RA6 compact starters include the availability of numerous diagnostics and protection functions, when used with the IO-Link add-on module. For example, communication of overload and short-circuit events, the service life and position of the main contacts, welded contacts and more. This allows for preventive maintenance of the device as well as monitoring of process events that may indicate issues outside the actual device. As the EE Manager explains, "Again, in this context, the advantages of integrated system solutions are obvious." IO-Link makes it all possible. With its open concept of the integration of sensors, switching devices and actuators at the control level by means of point-to-point connections, defined signals are transmitted and received. IO-Link supports detailed fault detection to the device level by simple

connection of the devices to an IO-Link master via a three-wire, unshielded cable. The 15mm wide IO-Link master sits in a Siemens ET200SP form factor PLC rack, and represents a very cost-favorable solution due to its small footprint and simple integration into Siemens' Totally Integrated Automation architecture. Each IO-Link master features four channels, each of which is able to manage four compact starters. The starters are grouped together via IO-Link flat cables, for a total of sixteen starters per IO-Link Master. As the EE Manager realizes, "If this control architecture weren't possible, the switching devices of the compact starters would have to be wired separately. This would entail considerable additional expenditures." The savings in this installation were realized in terms of reduced cabinet space, reduced engineering and design time, reduced hardware costs and reduced wiring expenditures.

## All from a single source – from the field level to the control level

This example of the one-supplier strategy pursued by the degreasing plant manufacturer shows that an integrated modular system offers numerous advantages. Yet, their stated goal of globalizing their product including remote services can only be achieved with absolutely reliable data networking. After all, plant and process monitoring at the field level has to be made available via the internet; and Siemens had the perfect solution for that requirement. Siemens' Scalance network and security systems provided the means by which the degreaser manufacturer can offer extensive, 24/7/365 secure support in real time, anywhere in the world. Siemens' Totally Integrated Automation approach to industrial solutions, featuring IO-Link and PROFINET technologies, virtually guarantees the degreaser plant manufacturer's success. As the EE Manager acknowledges, Siemens' solution is "the only reason we can offer a 3-year guarantee on our plants – without out-of-pocket service expenditures. If it weren't for seamless remote diagnostics down to the field level with IO-Link, this would be impossible to realize on a global basis."

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