

sc1000™ Software 3.0 Featuring Modbus TCP/IP Protocols

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Seamless Network Integration

The sc1000 controller features state-of-the-art Modbus TCP/IP communications protocol for seamless integration into a network of devices that support TCP/IP ports. Use a standard Ethernet cable or connect wirelessly using GSM/GPRS to communicate with your SCADA, PLC or your organization's network.

- Use SCADA and PLC systems to read data directly (Modbus TCP/IP supports up to five independent masters).
- Integrate sc1000 controllers into corporate internet or any other network using an Ethernet backbone.
- Access sc1000 controllers over the internet from anywhere in the world by simply entering a secure URL.



Situation

Within the operation of a wastewater treatment plant, the activated sludge process is the major driver for power consumption and operating costs. Blowers supply oxygen which is critical to the health of the bacteria in the activated sludge process. Dissolved oxygen (DO) levels that are too high can result in pin flock in clarifiers, severe sludge bulking in some instances, and large amounts of wasted electricity. While DO levels that are too low will not support the bacteria necessary to treat incoming waste streams which can result in violation of effluent limits.

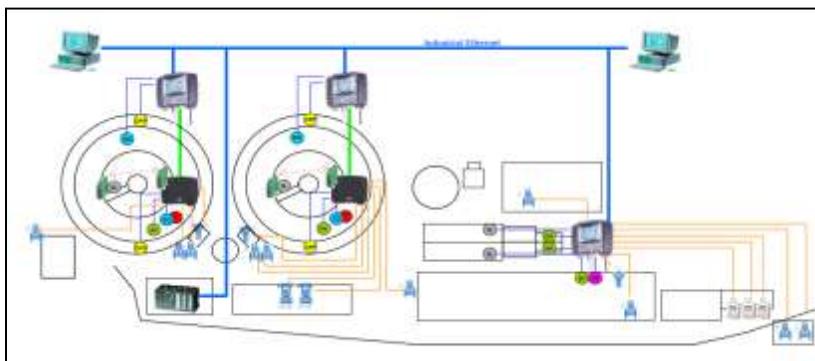
To successfully meet regulatory requirements and achieve maximum energy efficiency, a fully automated process equipped with comprehensive analytical instrumentation is required. During the engineering and start-up phases, the number of I/O points, complexity of wiring, and loop check process have significant impacts on time requirements, labor requirements, and overall costs.

Customer Solution

Rather than the traditional 4-20mA wiring—which would have required miles of cables, multiple cabinets, output cards, and input cards—the customer chose to use a sc1000 digital network.

Flow and level signals from 18 transmitters were locally connected to sc1000 mA input cards. The decentralized concept kept the needed mA loops to a minimum. The sc1000 works as a decentralized digital data collector and provides all values directly to the PLC, SCADA and engineering station (PC) via Ethernet. This allows for real-time process control and realization of the potential energy savings.

No special software is required for remote parameterization, diagnostics or configuration of sensors because the standard internet browser is used at the engineering station (PC) to access the sc1000 built-in web server.



Summary

sc1000 V3.0 with MODBUS TCP/IP allowed the customer to efficiently integrate the complete set of online analytical sensors into the plant's process control system. As a result the customer was able to:

- Save time during engineering, integration of instrumentation into SCADA, and start-up of the plant
- Remotely access instruments in the field
- Save energy costs during operation of the plant

References

Wastewater Treatment Plant:

Capacity: approx. 6500m³/day. Physical, chemical and biological treatment with nutrient removal processes.

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