

Integrating PROFIBUS into the Changi Water Reclamation Plant

By Nick Belardes, ProSoft Technology

On the diamond-shaped island of Singapore, Schneider Electric was chosen as the Main Plant PLC provider for the Changi Water Reclamation Plant —because of certain mandatory connectivity requirements—and now uses 160 ProSoft Technology PROFIBUS DP V1 modules to help run and monitor end devices in its PROFIBUS network.

The main ingredient to ProSoft Technology's involvement is PROFIBUS. Tied to more than 1000 members in the PROFIBUS Trade Organization (PTO), PROFIBUS integration into the Plant Overall System Architecture now provides high-speed communication (DP) as well as power to devices over the bus (PA), making it possible to have large networks. Not to mention, the monumental project needed low maintenance cost, remote diagnostics and integration with an asset management system, fast and reliable real-time communication, and standard integration into Siemens and Schneider Electric PLC's, Allen



Bradley PLC, and PC-based solutions.

The Changi Water Reclamation Plant is the cornerstone to the Singapore Deep Water Sewerage System. ProSoft Technology's involvement isn't just being in the right place at the right time. The real trick is intelligent field device management FDT/DTM, PROFIBUS DP V1, Hot Standby and the ability to work with Schneider Electric's UNITY and Concept processors.

When ProSoft Technology embarked in creating its ProTalk brand for Schneider Electric's Quantum/Unity platforms there would soon come dreams of launching into the PROFIBUS

protocol market. Why not? Helping Schneider Electric connect to the world of industrial automation has certainly opened ProSoft Technology to new global markets. ProSoft Technology has supported the PROFIBUS protocol in the Quantum line, which in turn has helped Schneider Electric open up an avenue for new horizon.

“Schneider Electric is very strong in the process industry and wanted to bring valuable solution with PROFIBUS and FDT/DTM technology integration,” said Wally Gastreich, Lead Engineer for ProSoft Technology. “We were able to help them expedite time-to-market and get the customer acceptance and final buy-in.”

Singapore's Deep Tunnel Sewerage System which brings the wastewater to the Changi Water Reclamation Plant for further clarification & bio-treated, then sends it to their new water plant to produce clean water that is healthy and safe for direct consumption. The sludge goes through a drying process and transformed into biologically stable products that can be used as fertilizers for plants.

The Changi Water Reclamation Plant is equipped with 160 ProSoft Technology PROFIBUS DPV1 Master modules that get data moving and end devices powered. The Mega water treatment project has a long list of field devices in a wide-ranging PROFIBUS Network that harbors thousands of different type of measuring instruments like Magnetic Flow Meters, Thermal Mass Flow Meters, Pressure and Differential Pressure Level Transmitters, Radar/Ultrasonic Transmitters, Dissolved Oxygen Analyzers, Temperature Transmitters and Electric Actuators together.

The PROFIBUS DP slave devices mainly came from vendors like SIEMENS (ET200M I/O's), Yokogawa (Flow transmitter & Differential Pressure sensor), Vega (Ultra Sonic sensors, Level sensors, etc), ABB (VSD), Schneider Electric (VSD & DOL starters) and Siemens (VSD). With Intelligent Field Device Management (FDT/DTM), ProSoft Technology as a third party has helped Schneider

Electric to integrate PROFIBUS device level to its PLC.

The PTQ-PDPMV1 is a newly developed ProSoft Technology module that functions as a PROFIBUS DPV1 Master. Developed upon Quantum backplane transfer technology the protocol module sends information back and forth through the Quantum processor. It collects all the necessary information on the configured PROFIBUS DP network. Built on Siemens ASIC ASPC2 Step E with Infineon C165 Microprocessor, the module's Firmware is flash-upgradeable, and allows for slave messaging, extended diagnostics and alarm handling, and notification, and more...