



Profibus-enabled actuators support advanced water treatment plant in Brazil

Industry: Potable Water Treatment

Client: Rio Manso WTP, Brazil

Product: IQ3, Profibus

Summary

Profibus® is an international network protocol and with Rotork's Profibus DP module, it can be used to automate Rotork actuators. As part of a site upgrade at the Rio Manso water treatment plant in Brazil, several actuators with the Profibus DP module were installed, providing them with greater control over the automated flow control processes.

Overview

Profibus is a standardised open digital communication system for process automation which has been widely adopted for the automation of water treatment plants around the world. In these automated applications, Profibus DP is used to operate actuators and sensors via a centralised controller.

Conforming to the international open standard IEC61158/EN50170, the Rotork Profibus DP module is fitted inside the actuator electrical housing and interfaces directly with the actuator electronics. Once fitted, all the normal commands associated with moving the actuator, together with feedback and historical data, are available on the Profibus DP RS-485

highway. Up to 126 field units can be connected on a single 2-wire communication network, provided suitable repeaters are included.

Challenge

In order to improve its water gathering operation, the customer worked with automation equipment supplier Wolseley Industrial Group to investigate automated valve technology to control the flow in the high-pressure pipelines.

The customer had specific requirements for the valve application including the need to control system pressure to and from the well sites, shutdown lines in the event of a leak or other failure, and to eliminate high maintenance devices such as air compressors and other rotating equipment.

Solution

When installed in Rotork non-intrusive IQ intelligent electric valve actuators, in addition to providing full digital and analogue control, the Rotork Profibus DP interface card delivers comprehensive control and feedback data about the valve and actuator using DP-VO cyclic communication. Extensive actuator diagnostics and configuration information is included in the DP-V1 acyclic data supported by the card, enabling valve profiling and diagnostic data collected by the IQ actuator to minimise maintenance and be incorporated in asset management systems.





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These benefits, combined with the Rotork reputation for all-weather reliability and the local availability of technical support, make important contributions to the utilisation of IQ Profibus actuation technology in the global water treatment industry.

Profibus® DP enabled Rotork IQ multi-turn non-intrusive intelligent electric valve actuators were installed during the upgrade and expansion of the water treatment plant. The majority of the 136 IQ electric actuators were installed to control the inlet, outlet and backwashing functions on the new and existing filters. The remainder of the actuators are installed on the sludge collectors, sludge thickeners and secondary collectors from which the raw water is extracted for treatment.

The upgrade is the first P3 (Public Private Partnership) project to be performed by COPASA, a Brazilian company specialising in the design and implementation of solutions for water supply, sewage and solid waste management. Rotork Brazil worked closely with COPASA, main contractor Odebrecht and valve makers in Brazil and overseas during negotiations and technical discussions, which resulted in the Profibus® DP enabled IQ being selected as the preferred actuator.