

Emerson Control Solutions Selected by Drakken to Supervise Water Distribution in the World's Largest New City

RESULTS

- Advanced cybersecurity with Achilles 2 certification prevents unauthorized access
- Extensive temperature range from -40°C to 70°C maintains operation in diverse geography
- Remote access enables rapid response and decision making
- Emerson AMS provides efficient project-wide integrated asset management capabilities, thereby reducing failure modes



APPLICATION

Automation and control of water distribution network.

CUSTOMER

System integrator Drakken for NEOM, a new city development in Saudi Arabia.

CHALLENGE

NEOM, the largest greenfield urban development project in the world, is currently under construction in Saudi Arabia. The project is a new metropolitan area incorporating a large city center, plus island, beach and mountain developments. Drakken, a prestigious engineering and systems integration company based in Dubai, UAE with a strong presence in the Middle East and Africa region, was selected as the main automation contractor (MAC) to provide the automation solution for the water distribution system, which extends over approximately 65km of coastal terrain and 75km of mountains. It includes a water desalination plant as a fresh water source, pipelines, pumping stations and storage tanks, currently enabling the delivery of more than 50,600 m³/day of bulk desalinated water to the core development area for construction and human consumption.

Drakken required a control and supervision system for the water network to ensure minimal water loss due to leakage and evaporation. It had to provide, in complex, rough terrain, a scalable solution that could expand with the extensive new development; be cybersecure; offer high availability with no disruption; and connect highly disparate third-party systems.

“Emerson control solutions fully connect the water distribution network for NEOM through an advanced Internet of Water infrastructure to ensure minimum water loss, putting NEOM at the forefront of water technology and assuring high sustainability.”

Ritesh Contractor
Business Development Manager
Drakken

SOLUTION

Drakken has Emerson certified automation engineers on staff and worked with Emerson to provide a total system for the water distribution supervision. The system includes PACSystems™ control solutions and the Movicon.NEXT™ platform connected through the cloud by PACEdge software, plus Emerson switches and SolaHD™ power supplies. All the equipment is integrated into the company asset management system using Emerson AMS software.

Drakken employed PACSystems RX3i high-availability, redundant control systems at over 20 pumping stations and the water distribution center to control the pump and valve operations. PACSystems edge controllers installed at each location collect, analyze and filter operational data on a Linux engine and are ready to connect and send data to the cloud via the MQTT protocol. In addition, the edge controllers interface with third-party devices such as flow meters, RFID systems at each TFS station, and many others. The Movicon.NEXT platform interfaces with the PACSystems controllers, is scalable to support unlimited tags on redundant servers, and collects and analyzes data for leak detection and leak location across the pipeline every 10 meters.

PACSystems controllers perform high-speed data acquisition and control in a complex architecture with multiple fiber optic rings using various industrial protocols to connect to more than 500 external devices. Tag data is historized with a five-year storage capacity, failure prediction and proactive redressal, leading to better capital utilization, reduced operating expenses and faster return on investment. The Movicon.NEXT platform automatically imports programmable logic controller (PLC) tags, preventing errors and saving commissioning time, and the platform's web client allows remote access through any mobile device. Critically, the PACSystems solution operates in temperature ranges from -40°C to 70°C right from startup and delivers strong cybersecurity with Achilles 2 certification that prevents any denial-of-service (DoS) or man-in-the-middle cyberattacks or any unauthorized firmware changes.

RESOURCES

PACSystems

www.Emerson.com/PACSystems

Movicon

www.Emerson.com/Movicon



In addition to providing a one-stop solution for the total water system supervisory and control technology, Emerson also offers ongoing service and extensive support.

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