

# Jacksonville water supply project, Florida, USA

Siemens helps utility JEA keep the waters flowing in Northeast Florida by introducing SINAUT telecontrol



## The requirements

JEA is responsible for electricity, water, and sewer services to the residents and businesses of Northeast Florida. JEA's water system serves more than 305,000 water customers and 230,000 sewer customers and comprises 4,208 miles of water lines as well as more than 3,760 miles of collection lines and seven regional and eight non-regional sewer treatment plants.

Siemens' challenge was the modernization of the outdated pumping control system for the 1,273 lift stations that keep wastewater flowing through 14 treatment centers and help JEA manage storm water flows. In addition, the new automation system needed to be capable of controlling additional pumping capacity and communications, as JEA continues to acquire adjacent water systems and connect current septic tank owners to their system.

## The solution

To supply modern capabilities and ensure easy expansion, Siemens installed an automation solution based on a SIMATIC S7-300 with SINAUT ST7 telecontrol, SIMOCODE pro V motor management, and SIMATIC WinCC HMI. The SIMATIC S7-300 system provides local logic as well as data collection for the SINAUT ST7 and is also the Profibus master for two SIMOCODE pro V systems that provide motor overload protection, local I/O to read in the analog well level, and the digital floats' signals. If the PROFIBUS connection is lost, the SIMOCODE pro V provides redundancy and takes over full control of the pumping operation until the network is restored. In addition, SIMOCODE pro V also provides key diagnostic and operational data to the control center, which can be used to evaluate system performance.

The SINAUT ST7 extends the SIMATIC S7 automation system by integrating special hardware and software components. This enables remote data transmission. In order to provide fully monitoring and control, the SINAUT ST7 provides a reliable data transfer between the lift stations and the master control center. In case of connection failures, the respective SINAUT ST7 buffers the data and transmits it as soon as the connection is restored. Thus, SINAUT ST7 enables fast access to all lift stations and central, complete data collection in SIMATIC WinCC. For high reliability, a SITOP DC UPS system provides backup power.

## The benefits

Thanks to the new automation system, JEA can use two-way communications capabilities with the SINAUT ST7 for remote diagnostics, software upgrades, and other fixes and maintenance that would other-



## End customer

JEA

wise have to be done onsite by a technician while maintaining communications with any other RTU on the system. In addition, energy savings are realized by using pumps in concert rather than having them pump against each other. And thanks to the automatic diagnostic logs of all communications between the central control system and the remote lift station, along with details of the type and time of any failures, troubleshooting is substantially accelerated. In addition SIMOCODE pro V provides extra peace of mind, since it keeps the lift station pumps working even if the PLC control network goes down.

### System brief

- Modernization of outdated pumping control system for 1,273 lift stations that keep wastewater flowing through 14 treatment centers
- Management of stormwater flows
- Controlling of additional pumping capacity and communications

### Scope of supply

- SIMATIC WinCC runtime station with SINAUT ST7cc runtime
- SCADA connect software SINAUT ST7sc
- A SIMATIC S7-300 PLC with SINAUT TIM and redundant motor management SIMOCODE pro V at every lift station
- PROFIBUS
- Central time synchronization for the whole plant
- SITOP UPS power supply
- Engineering
- Commissioning

### Benefits at a glance

- Much improved communications thanks to SINAUT ST7 telecontrol system, for example exception reports in case of system failure
- Faster and more cost-saving diagnostics, software upgrades, and maintenance thanks to remote access via SINAUT ST7 protocol
- Energy savings thanks to optimized hydraulic control (Pump stations are controlled so that they run in concert and are not pumping against each other)
- Considerable reduction of troubleshooting times thanks to automatically compiled diagnostic logs (of all communications between the central control system and the remote lift station)
- High system availability thanks to SIMOCODE pro V motor management system, which keeps the pumps working even if the PLC control network goes down
- Up to 20 percent less energy demand thanks to SIMOCODE pro power management features
- System open for extensions and upgrades