

CASE STUDY

ENTWÄSSERUNGSBETRIEBE

WÜRZBURG, GERMANY



ABOUT ENTWÄSSERUNGSBETRIEBE WÜRZBURG

Entwässerungsbetriebe Würzburg (Public Utility for Water and Wastewater for Würzburg (hereafter EBW) collects, cleans, and discharges wastewater for the city of Würzburg and 16 surrounding communities. The municipal supplier manages new construction, maintenance, and cleaning of city sewers, maintains stormwater overflow and retention basins, and conducts pit emptying.

CUSTOMER

ENTWÄSSERUNGSBETRIEBE
WÜRZBURG (EBW)
WWW.EBW.WUERZBURG.DE

RED LION PARTNER

FLEX AUTOMATION GMBH
WWW.FLEX-AUTOMATION.DE

LOCATION

Würzburg, Germany

TASK

- Modernizing remote access to 70 pumping stations in preparation for 3G switch-off.

OBJECTIVES

- Smooth communication with existing Siemens PLCs, ABB 500 and the SCADA system
- 5G compatibility
- OpenVPN for secure access to the outstations

RESULTS

- Future-proof communication solution, suitable for 4G or 5G standards
- Existing controls and SCADA system will be retained
- Secure remote access to the outstations via OpenVPN
- Crimson automation software allows for future modifications to PLC controllers and the SCADA system

THE PROBLEM

EBW's central office monitors the capacity, usage, and energy requirements of 70 pumping stations at its remote rain- and stormwater outstations. This operating data was continuously collected and analyzed in real time via remote access using a 3G TC35i modem from Siemens. When the switch-off of the 3G mobile radio standard was announced, EBW required a system upgrade to ensure the continued smooth operation of its retention and stormwater overflow basins.

THE CHALLENGE

Upgrading the existing Siemens remote monitoring infrastructure from a 3G to a 4G cellular network was a challenging project for several reasons. The existing 3G TC35i modem from Siemens did not support the new 4G mobile radio standard and therefore needed immediate replacement. The existing PLC S7 and ABB AC 500 controllers at the pumps and the WinCC SCADA system also didn't work with 4G. However, EBW planned to continue using the controllers and the SCADA system, and postpone replacement until a later date. Converting the entire infrastructure from 3G to 4G at once would have required too much effort. In addition, the need for data transmission from the outstations via secured remote access was requested via OpenVPN. To future-proof its infrastructure investment, EBW wanted a 5G-compatible solution.

THE SOLUTION

Modern remote monitoring, quickly implemented.

EBW selected Flex Automation GmbH (located in Gaukönigshofen, near Würzburg) to modernize its remote access infrastructure. Flex Automation is an automation solutions partner specializing in PLC programming, visualization, electrical design and software development, as well as switchgear construction and industrial communication.

Time was tight to make the upgrade, and Flex Automation sought a flexible solution that could be implemented as fast as possible. It chose the DA50A Advanced IIoT Gateway from Red Lion's FlexEdge® Intelligent Edge Automation Platform.

The FlexEdge® gateways are an optimized access solution for capturing, processing, and transferring operational data in one device. They run on vendor-independent Crimson automation software which converts up to 300 industrial protocols, including the OPC UA protocol used by EBW's SCADA system. Crimson lets EBW easily query, digitize, and visualize fill level, pressure, and other critical values and measurements from the outstations. When the PLC and SCADA system are replaced at a later date as planned, Crimson's protocol conversion capability will ensure a smooth rebuild for data communication.

The addition of field-installable communication sleds easily establishes 4G connectivity with the outstations and future-proofs the solution by being 5G ready.

The cellular connection via VPN provides secure remote access to the outstations. For this purpose, FlexEdge® uses the field-proven DNP3 (Distributed Network Protocol) communication standard for telecontrol. This protocol is effective for real-time data transmission and has data reduction functionality to reduce operating costs. For example, data transfers can be cyclical or event-driven, i.e. sent when something changes.

EBW is now operating a flexible, future-proof communication solution. The DA50D runs on Crimson at both the outstations and the control center and no additional tools are required. The FlexEdge® platform is robust and ATEX and IECEx certified, which ensures smooth functionality in harsh environmental conditions at the pumping stations and retention basins.

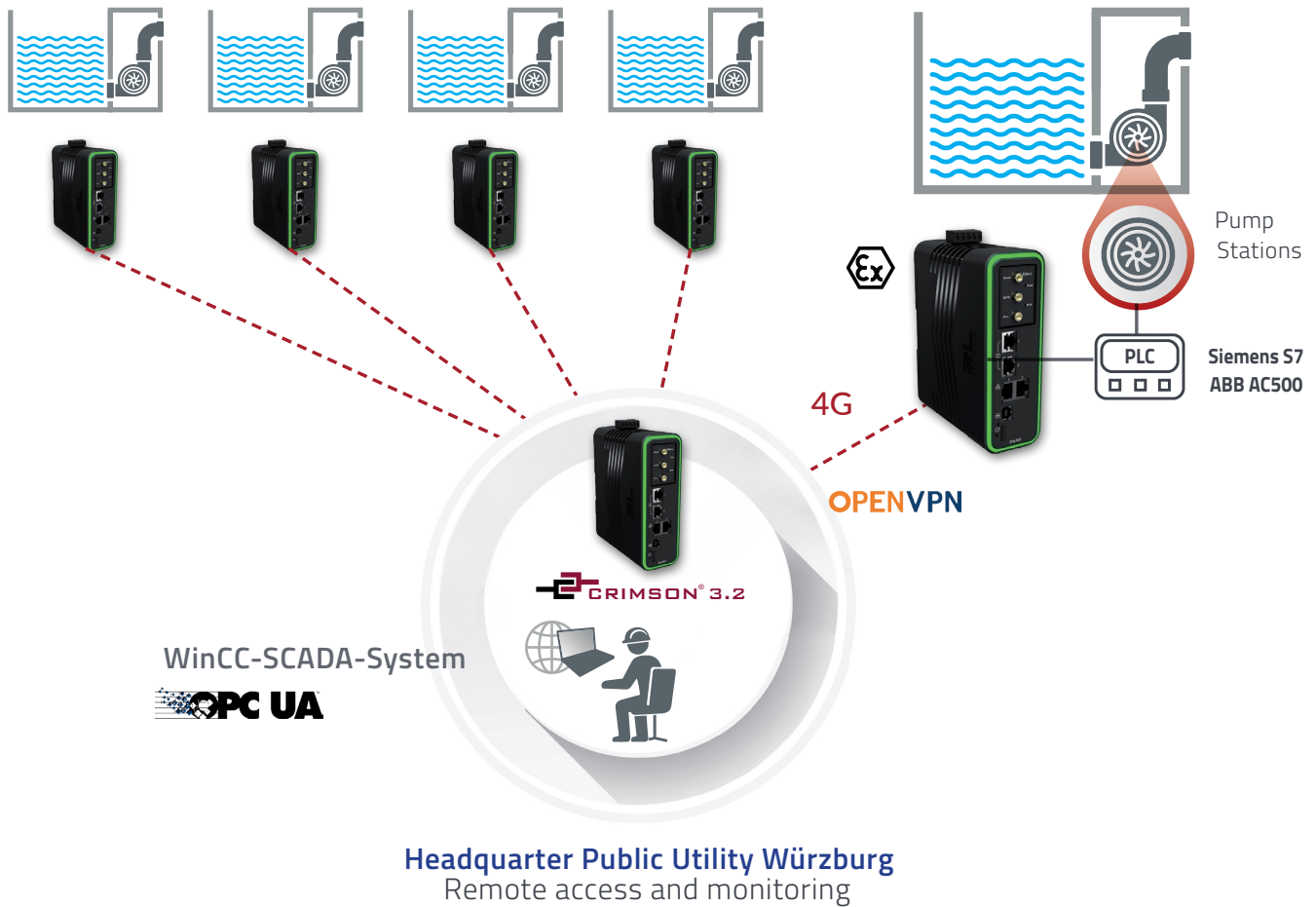


COMMENT OF FLEX AUTOMATION GMBH

"We chose the FlexEdge® series due to its versatility, performance, and modular design," says Martin Spenkuch from Flex Automation. "Red Lion gave us a ready-to-use solution in a short timeframe and supported us every step of the way."

THE APPLICATION

70 rainwater and stormwater pumping stations
Greater area Würzburg



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