



Remote Monitoring of Secondary Water Supply in Pump Rooms

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We've been working on improving people's wellbeing, which requires reliable products and innovative technologies. InHand Networks and their edge computing gateways have efficiently drawn us closer to our goal.”

Li,

Maintenance Engineer, Changsha Water Group Co., Ltd.

Background

With a lot of equipment in the secondary water supply pump room, problems like failures and abnormalities may occur from time to time. In order to know the operation status of the equipment, traditionally, maintenance engineers are sent to the pump room to inspect and record the operation data. Problems may not be fixed timely, which seriously affects the water use of residents.

To ensure that water pressure, quality, PH value and other water quality indicators meet the direct drinking water standards, Changsha Water Supply Co., Ltd. is seeking innovative technologies and services that enable them to monitor the operation status of the equipment 24/7 in real time, discover abnormalities in equipment and water quality in time, improving their water supply services for residents.

Challenges

- Support for major industrial protocols like Modbus RTU/TCP, able to collect and analyze data from Siemens and Schneider PLCs in real time
- Analysis and processing of data on the edge, relieving pressure on the cloud and responding quickly
- Support for MQTT, connection to self-built clouds, and custom interaction logic, so that the edge can quickly support when cloud is adjusted or upgraded later
- Support for breakpoint resume, ensuring reliable data transmission without loss
- Rich communications interfaces, support for simultaneous connection to devices in the pump room via Ethernet ports and serial ports
- Accompanied by an intelligent monitoring platform for remote management and access, so as to reduce management and maintenance costs



Changsha Water Supply Co., Ltd. is one of the top water affairs groups in central China. Its main business includes tap water supply and drainage, sewage treatment, etc. With focus on technological innovation and intelligent manufacturing, Changsha Water Supply Co., Ltd. is committed to building China's first-class modern industrial group in the field of water and environmental protection with core competitiveness and brand influence.



Features



InGateway902

- Visualized and easy configuration for edge-to-cloud data acquisition
- Supports major industrial protocols such as Modbus, ISO on TCP, EtherNet/IP and can adapt to private protocols
- Supports major IoT clouds and third-party data acquisition platforms local SCADA, custom interaction logic with the cloud
- Powerful computing capabilities, supports data collection from thousands of devices, and real-time response, data filtering and processing on the edge, relieving the pressure on the cloud
- Rich interfaces for varying scenarios and devices
- Industrial design, multiple link redundancy technologies, delivers reliable and highly available data transmission
- Supports Docker and python for custom applications
- Support edge computing on AWS IoT Greengrass and Azure IoT Edge
- Globally certified: CE, FCC, PTCRB, RCM, IC, IMDA, AT&T, MIC&JATE, MSIP, etc.

Solution

InHand Networks offered the **InGateway902 (IG902)** edge computing gateway to enable real-time monitoring and remote management of secondary water supply pump room, help optimize maintenance and improve water supplied quality.

The solution includes the **IG902**, equipment part such as flowmeters in the pump room, and the remote management platform. The **IG902** is connected to the controller in the pump room and collects key data such as water pressure, water quality, and flow in real time. Data are processed locally and then sent to the cloud in the required format over 4G networks. Meanwhile, by sending control data, the cloud can remotely monitor the equipment and send alerts.

Maintenance engineers can check the operating status of the equipment in real time on the computer and mobile phone, remotely modify the operating parameters without frequent patrolling. From operation trends and data reports, they can identify and solve problems even before failures occur, so as to maximize service life. In case of a failure, they can track the failure status and respond in time, thus improving maintenance efficiency.

In addition, a remote maintenance tunnel to the pump room controller can be built through the **IG902**, where the control system of the pump room can be remotely configured, debugged and upgraded to improve the operation and maintenance efficiency.

Benefits

Devices connected to the cloud through easy configuration

The IG902 supports the visualized configuration of data collection strategies and network parameters. Data acquisition can be configured in minutes, which greatly saves time for configuration and debugging, and accelerates project implementation.



Picture: Screenshot of the management platform

Serves varying scenarios with major industrial protocols supported and rich interfaces

The IG902 supports major industrial protocols such as Modbus and ISO on TCP. Built with multiple communication interfaces such as Ethernet, RS232, and RS485, it enables simultaneous connection to different devices in the pump room, meeting the data acquisition and analysis requirements of different sites.

Reduced cloud pressure and implementation costs

The IG902 supports multiple data processing functions such as visual configuration bit fetching, magnification calculation, as well as custom functions, easily enabling data exchange between on-site PLCs. With large amounts of data processed and filtered on the edge, it lowers the requirement for the server, relieves the load on the cloud, lowers data costs and bandwidth requirements, and accelerates response.

High level of customization, flexible for project adjustments

The IG902 supports custom functions, enabling users to customize the interaction logic with the cloud for business requirements. New functions of the cloud can be immediately supported through configuration modification on the gateway, minimizing impact of project adjustments.

Convenient management, easy for large-scale deployment

The IG902 can be centrally managed by the Device Manager, which supports batch configuration of networks and data collection, batch software upgrade and remote access. Problems can be diagnosed without sending staff to the site.

More Application Areas

The **IG902** is a high-end edge computing gateway designed for digital transformation of businesses. Featuring powerful edge computing capabilities, the **IG902** helps customers pre-process data on the IoT edge, significantly reduce data flow between field sites and data centers, relieving the load in the cloud. With globally deployed 4G cellular networks and multiple bandwidth services, it offers ubiquitous network connectivity. Comprehensive security and high reliability enable tens of thousands of devices connected, delivering a highway for data transmission. It is widely applied in industrial robots, automated production lines, CNC machines, HVAC, oil, distributed PV systems, heat/water/gas supply and other industrial scenarios.

Learn more at:

<https://www.inhandnetworks.com/products/ingateway900-edge-computing-gateway.html>

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We have deployed InHand's gateways in a large number of secondary water supply pump rooms, which have significantly improved our working efficiency and customer satisfaction.”

Li,

Maintenance Engineer, Changsha Water Supply Co., Ltd.



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