Reducing risks in urban drainage
Smart measuring technology monitors wastewater levels in the network

Larissa Pfister

Hydropower plant in Schaffhausen, operated by SH POWER

SH POWER is a public energy supplier for the city of Schaffhausen and the surrounding area. The company manages local electricity, gas, heat, water and wastewater 24 hours a day and 365 days a year. SH POWER has supported the Schaffhausen region since 2018, and it's important to the utility company to use modern technology in its work.

"With the smart solution from Endress+Hauser, we can enable comprehensive monitoring of many measuring points. We receive the measured values from the cloud via an interface (API) in our process control system."

Larissa Pfister
Project Manager
SH POWER
Schaffhausen, Switzerland

SH POWER supplies the Schaffhausen region in Switzerland with energy and manages the water and wastewater infrastructure. The company also handles urban drainage, which requires reliable level monitoring in the wastewater network.

Monitoring the water networks is crucial during heavy rainfall. SH POWER needs a monitoring system that continuously supplies measurement data to assess the status of the sewers and rainwater runoff. An efficient system allows the company to act quickly and plan thoroughly to maintain the sewage infrastructure.

The challenge Urban drainage monitoring needs a lot of measuring points, even in remote locations. The wastewater system handles rain as well as urban sewage, which can strain the capacity of the wastewater treatment plant during heavy rainfall. Flood protection needs precise data at critical points such as bottlenecks, overflow basins, and debris screens to reduce the risk of exceeding standard values.

The installation must be set up so that technicians can view the data measurements centrally. It must also avoid data gaps so that SH POWER gains clear insights into the behavior of the rainwater and wastewater.

The solution SH POWER chose an intelligent measurement solution from Endress+Hauser, installing the Micropilot FWR30 (45 units) and UXTR01 (13 units) level sensors in the sewer system and bodies of water to supervise the system's capacity. The cloud-based, battery-powered sensors transmit the data wirelessly via the 4G/5G network to the Netilion IIoT ecosystem. Wireless measuring devices can be placed anywhere at the measuring points.

With the Netilion Value digital service, techs can review measured values from anywhere using a smartphone, tablet or laptop with an existing internet connection. And via the Netilion Connect

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interface (API), the data securely transfers to the control system.

To allow fast action, five UXTR01 flood-detection sensors are linked to an application that triggers an alarm if levels exceed defined limits. Installing solar-powered cameras with these sensors allows techs to determine remotely whether they have flooding or just a screen blocked by debris.

The result The entire installation transmits sufficient data to provide insights into the status of the water network. The wireless sensors continuously transmit their measured values and enable comprehensive data use.

Products used:
Micropilot FWR30 is a cloud-connected level sensor, combining high-end technology in a cost-effective measuring device.
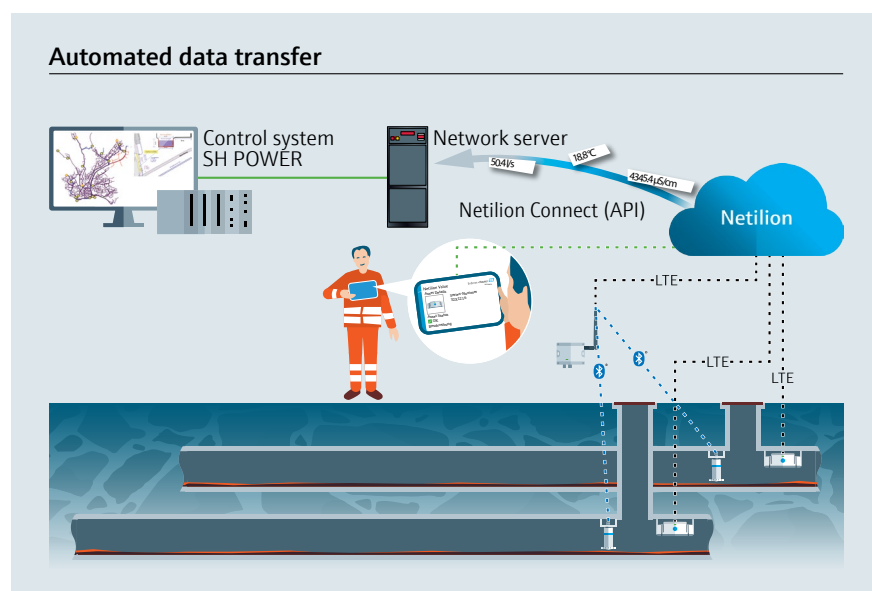**UXTR01** is a cloud-based level sensor with radar measurement technology.
Micropilot FMR10 / FMR20 are level and flow meters with Bluetooth® connectivity.
Field Edge SGC200 is an edge device for data transfer to Netilion.
Netilion Connect provides an interface to integrate data into other platforms.
Netilion Value is a digital monitoring service that allows access to measured values anytime, anywhere, so you always know exactly what is happening in your system.

Automated data transfer

Control system
SH POWER

Network server
504l/s
18.8°C
4345.4 μS/cm

Netilion Connect (API)

Netilion

LTE

LTE

LTE

Data transmission from the sensor to the control system and a mobile device (tablet)

Level sensor Micropilot FWR30

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