



Well monitoring for a water supplier with OTT PLS & OTT netDL1000



Precise water level measurement with throughout digital measurement chain and data transfer via Profinet into a control system

Background

The municipal utility of Luebeck supply approximately 35,000 m³ of water per day. They are responsible for the water supply in the city since 1867. About 120.000 households are connected to the public water network. The drinking water for the city Luebeck is pumped from the three groundwater works Kleinensee, Klein Disnack and Vorwerk. Besides the waterwork in Großhansdorf delivers potable water to Luebeck.

The water is pumped from more than 30 wells which are up to 160 m deep. The single wells and the corresponding pumping stations are connected via SPS to a control centre.

Monitoring Task

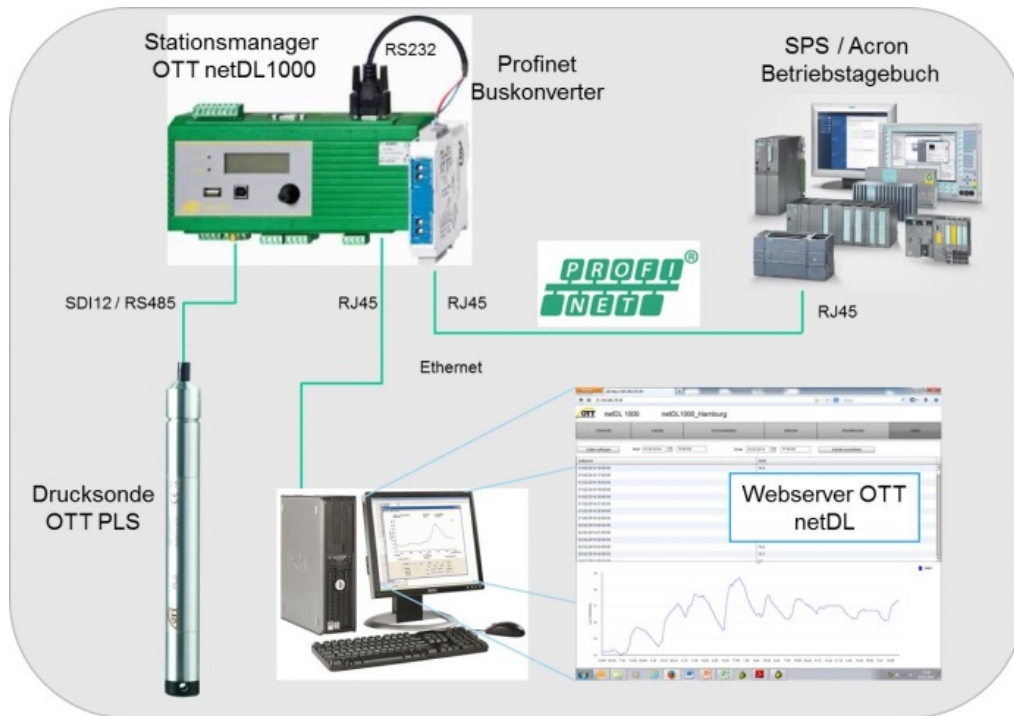
Water level in the wells is supposed to be measured with the highest possible accuracy and shall be transmitted via SPS to the electronic operating log (ACRON). The pressure probes with analogue output signals (4...20mA) which had been used so far did not fulfill the required specifications. Now they shall be replaced.

The connection to the electronic operating log ACRON shall be realized via a standardized protocol interface like Profinet.

In the future, the new system shall be used as redundant protection for the pumps (i.e. deactivation of pumps per switching contact if the water level falls below a threshold value 2m above the pump).



Control cabinet at well no. 17 with OTT netDL1000 and bus converter for Profinet connection to SPS



Monitoring Solution

In the first step, 24 wells were equipped with the digital pressure probe **OTT PLS** (RS485 measuring range: 0...40m) with ceramic-capacitive pressure cells. The robust instruments provide accuracy of $< \pm 2$ cm (0.05% FS) over a measuring range of 0 ... 40 meters.

The **OTT PLS** probes are connected via RS485 to the stationmanager and data logger **OTT netDL1000**. The stationmanagers are connected via a bus converter per Profinet to the existing SPS and thus the measured data can be transmitted digital from end to end-from the sensor into the electronic operating log (**OTT PLS – OTT netDL1000 – SPS – ACRON**).

The **OTT netDL1000** units are connected via Ethernet to the network of the waterworks of Luebeck and can be configured via LAN. Besides the webserver of the **OTT netDL1000** provides a platform where data can be accessed and hydrographs can be visualized.

The advantages:

- The continuously digital measurement chain from measurement to data storage guarantees the highest possible accuracy even for large measurement ranges as conversion from analogue to digital is not required.
- State-of-the-art IP data loggers and stationmanagers **OTT netDL1000** allow for smooth integration into existing structures via standardized interfaces and protocols.

- Precise digital pressure probes type **OTT PLS** with robust ceramic-capacitive pressure cells allow for continuous operation with a minimum of maintenance and long term stable measurement series.

Summary/Outlook

The first systems are in operation since 2014, providing measurement data with the expected accuracy and without interruption.

Apart from the originally intended application the systems have already been used for comprehensive pumping tests with 5 wells. Stationmanager and data logger **OTT netDL 1000** convinced especially through the easy handling and the programmability and accurate measurements precisely down to the minute. A real facilitation in the workflow, compared to the old systems, is the export of measurement data for further evaluation into MS Excel.

More information on **OTT** solutions and products:
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