The Challenge of Online Monitoring with Battery-powered Data Loggers

Water Leakage Summit
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Standard Applications of Data Loggers

Application A: On-site Data Download

- Pressure and flow data is continuously recorded
- The data is regularly downloaded by field personnel
- In office the data collected in the field is imported into a data base
- Battery life for this application: **> 10 years** (normal measurement interval)

Application B: Data Upload to FTP Server

- Pressure and flow data is recorded continuously
- Data is uploaded to an ftp server (usually every day)
- Client software downloads data directly into a data base
- Battery life for this application: **approx. 5 – 6 years** (normal measurement interval)

Application A vs. B: Battery Life

On-site data download
(1 measurement / 15 min.)

Battery life: **> 10 years**

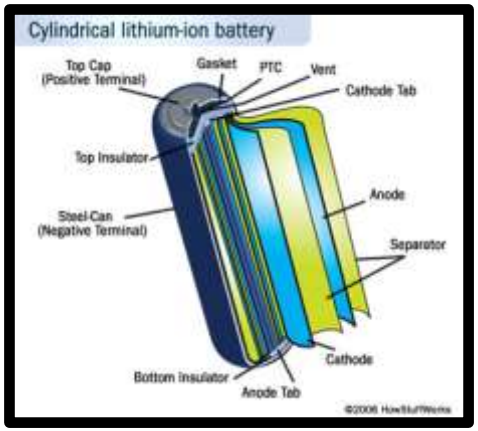
Data upload to FTP server
1 upload / day and 1 measurement / 15 min.)

Battery life: **approx. 5 – 6 years**

Lifetime of Data Logger Batteries

Self-powered with internal or optional external battery for > 5 years

Powered for up to 5 years (depends upon configuration) + external battery and mains powered options

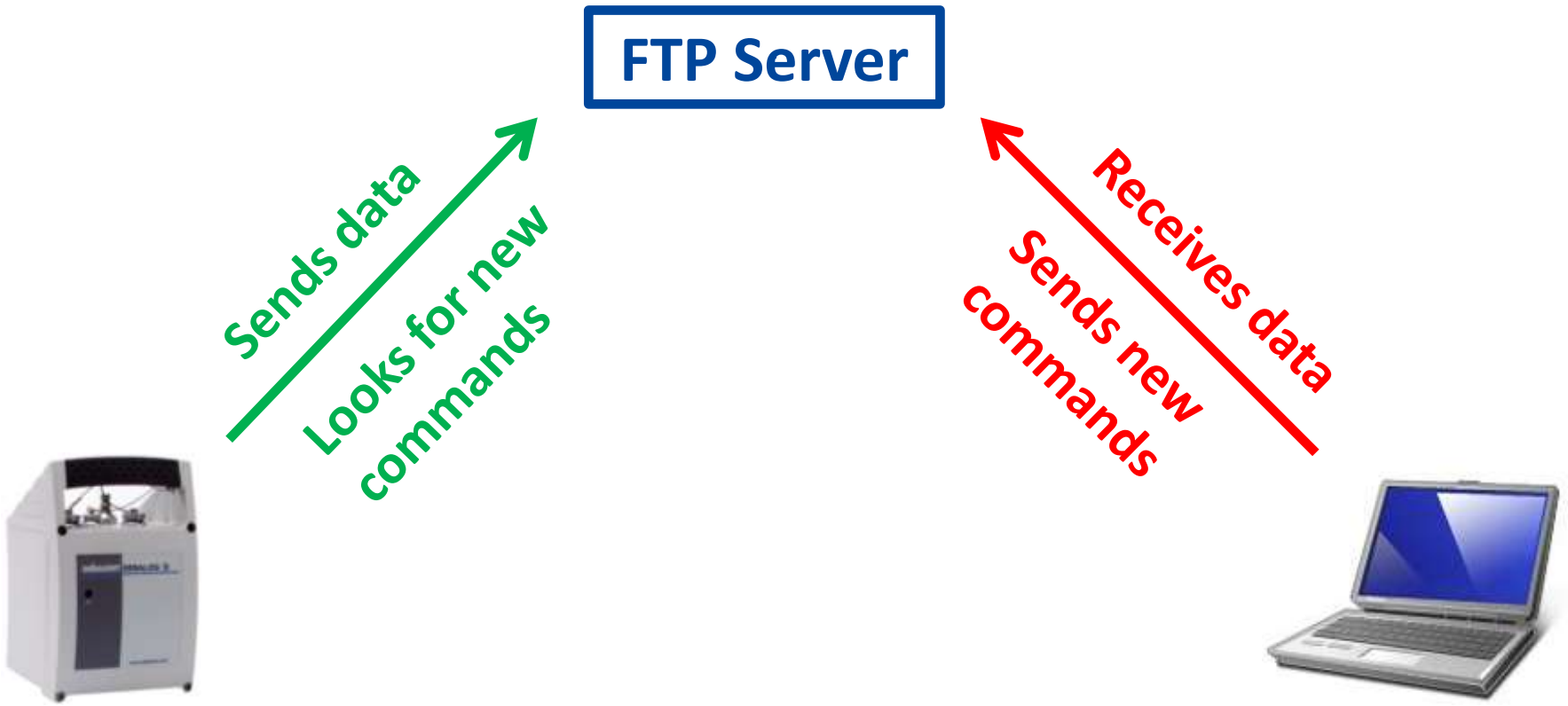


5-year battery lifespan

5 year battery with Power Windows.

Standard battery autonomy (depending on conditions of use)	5 years

FTP Communication with Data Loggers



Advanced Applications of Data Loggers

Advanced Applications: Case Study Riyadh

Live Monitoring of DMAs after Pressure Drops

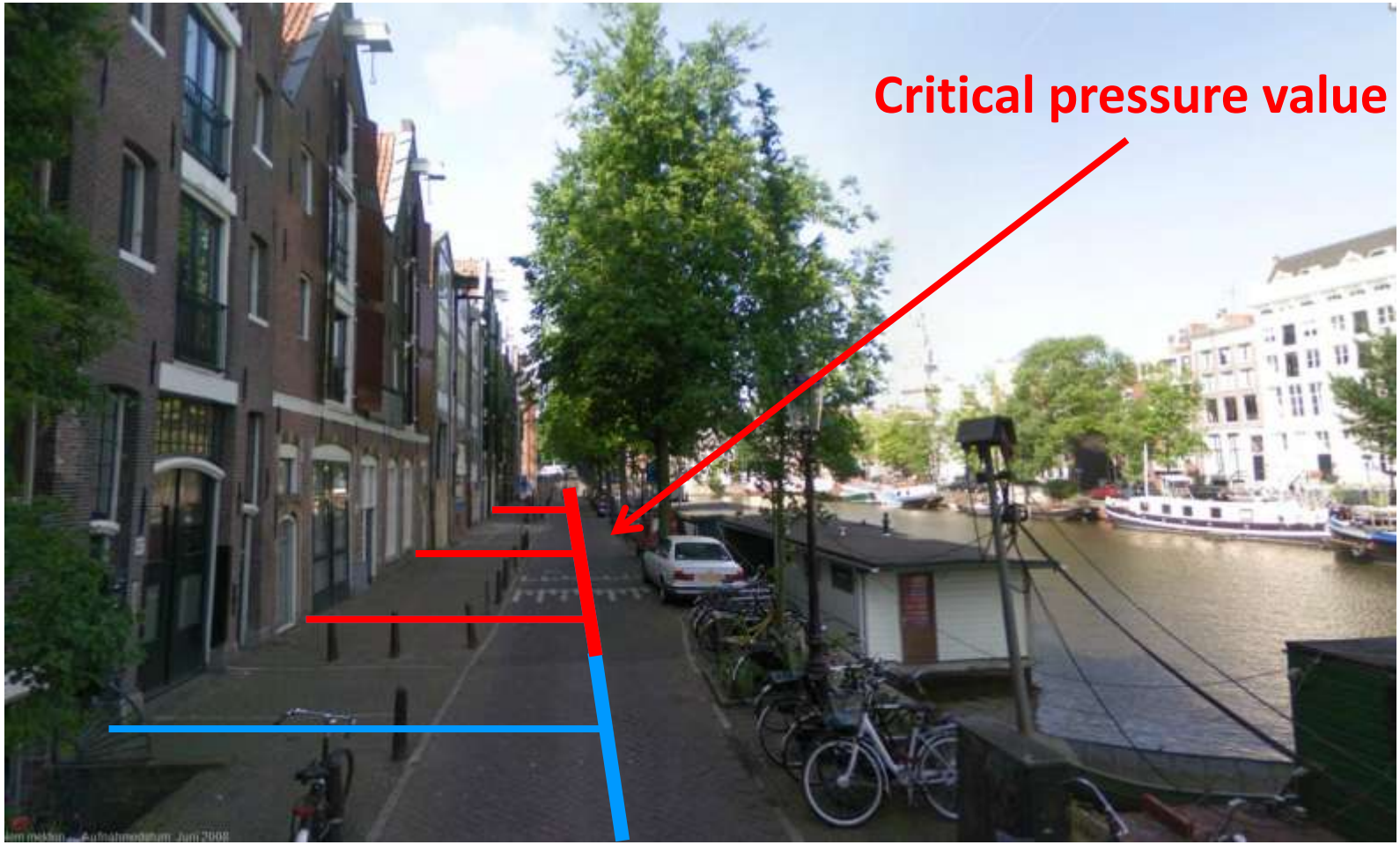
- Monitor pressure and flow data of DMAs throughout the city
- **Go into online mode if pressure drops, so that DMA can be monitored live**

Advanced Applications: Case Study Gouda

Avoidance of zero pressure, resulting in high costs

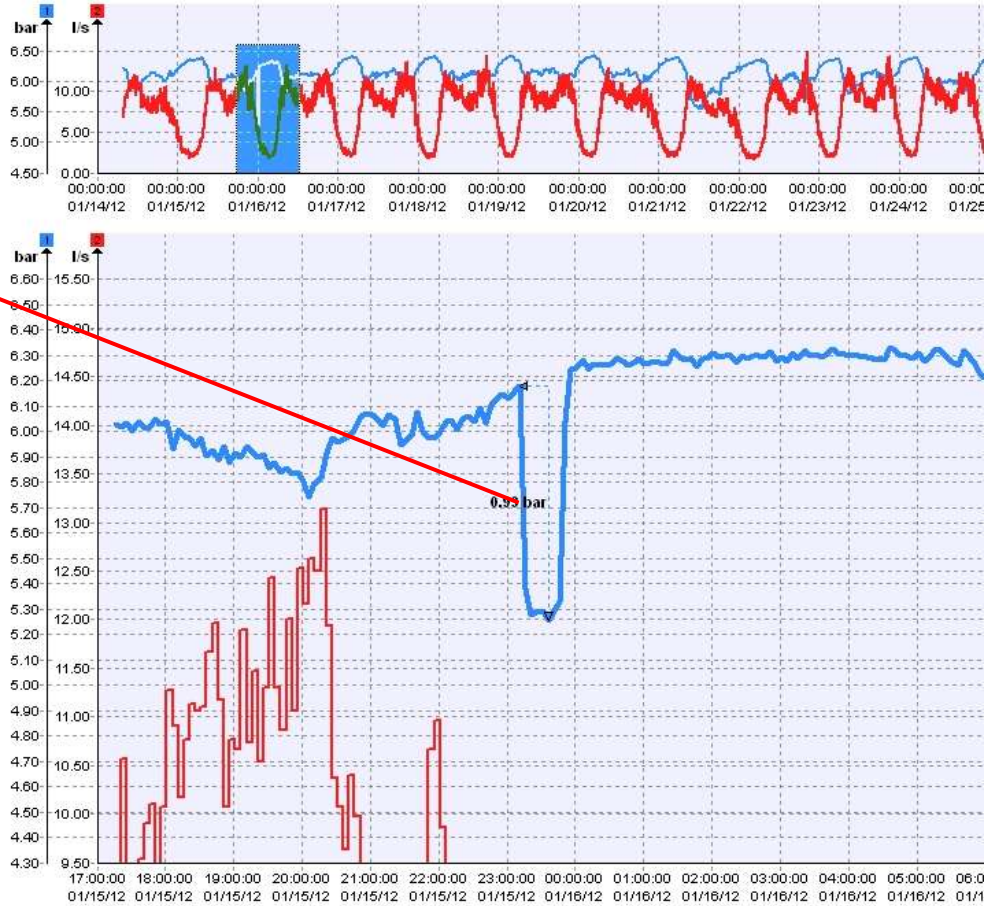
- Monitor pressure and flow data of DMAs throughout the city
- **Go into online mode if pressure pressure drops, so that actions can be taken to avoid zero pressure**

Advanced Applications: Case Study 2

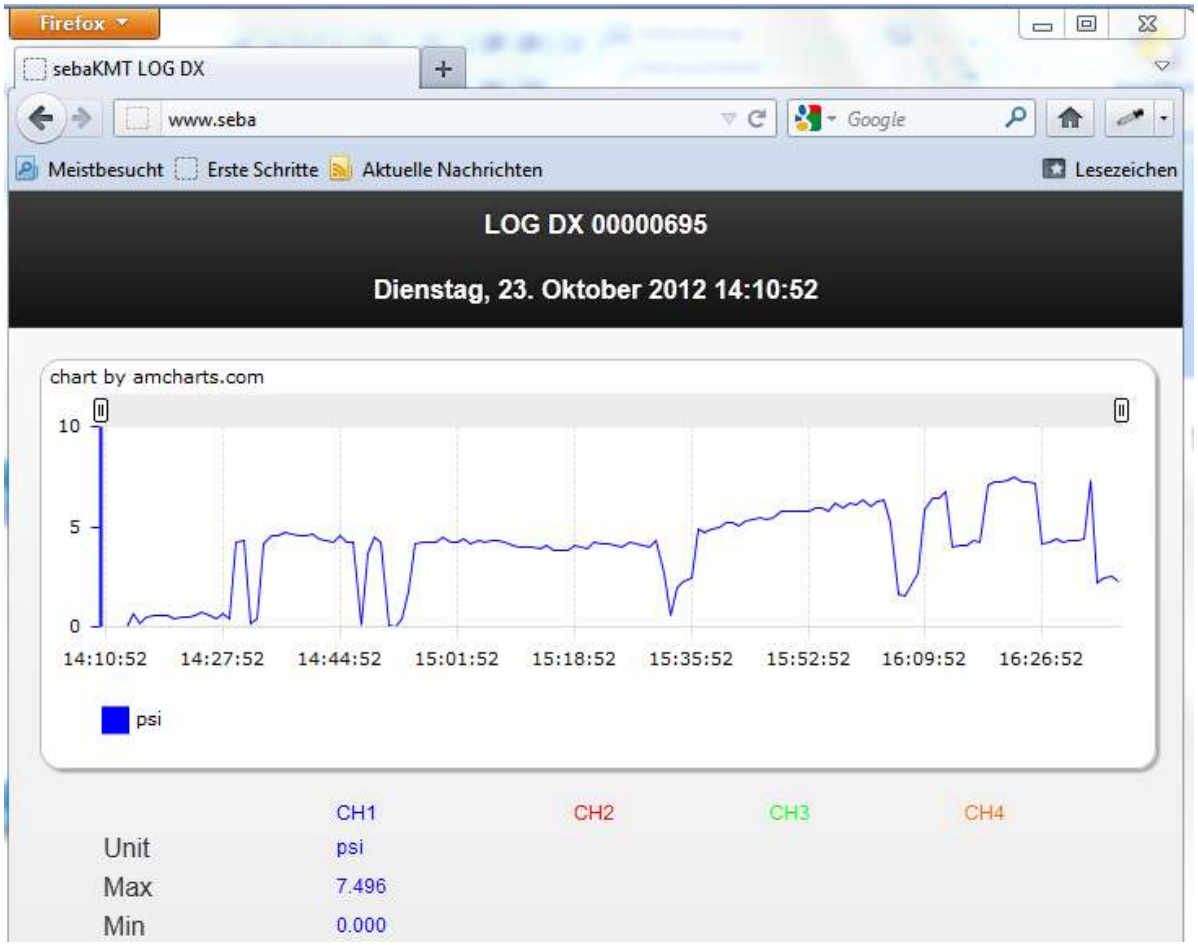


Solution: Smart alarm functions

- An alarm triggers the data logger to go into **online mode**
- The data logger starts to continuously send data and look for new commands
- The data logger goes back to **normal mode** if there are no new commands



Further necessity: Web-based software



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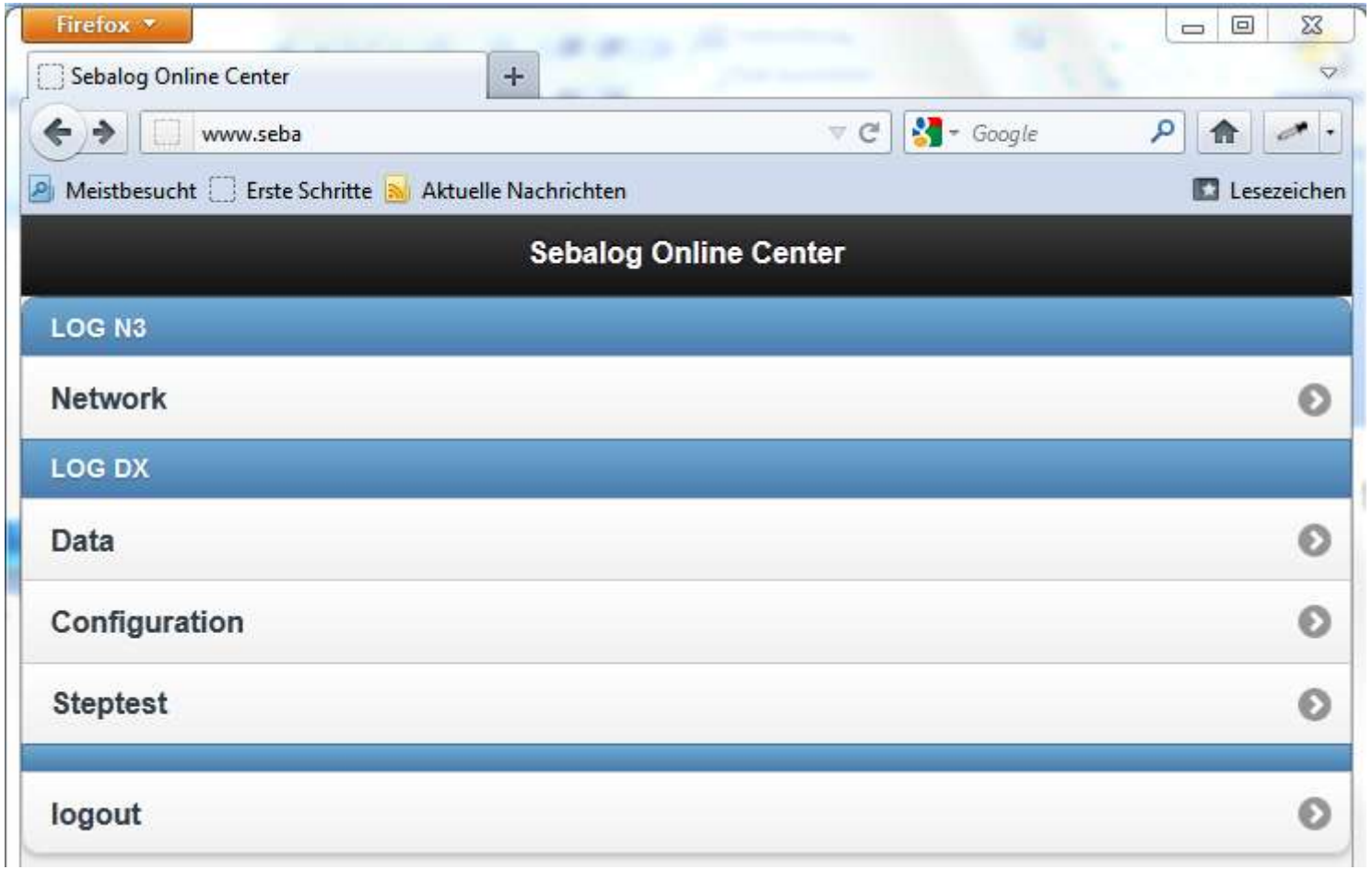

Summary

- Measurements consume very little power
- Dialing in to the GPRS network (e.g. uploading data or receiving new commands) consumes a lot of power
- Online monitoring can be achieved with the help of smart alarm functions, without consuming too much battery power
- An online module for the visualization of live data is essential
- Training is extremely important to avoid unnecessary strain on batteries
- Batteries must be field-replaceable

Thank you very much for your attention!

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