

The story of



SIWAbox

We are always one step ahead in water solutions

mobile and modular units for potable water production
from sea water or surface water

SIWAttec Wassertechnik GmbH & Co. KG
35510 Butzbach, Germany

We are always one step ahead

✓ May I introduce:

SIWAbbox mobile and modular unit for potable water production from sea water or surface water

✓ Decentralized container based units for the production of potable water ready to use

✓ 24 / 7 support by IoT connection to the SIWAttec Headquater and the local service partner and to you

✓ Cost and energy efficient

✓ Possible connection to renewable energy

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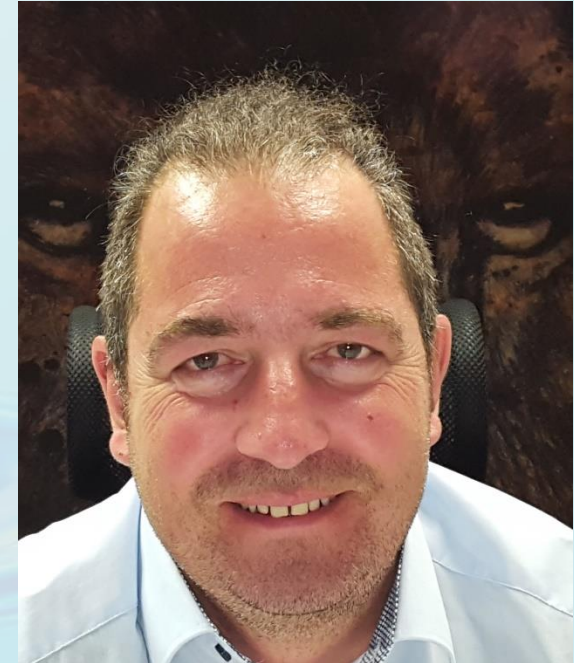
- ✓ Decentral potable water supply from surface water or sea water
 - for smaller cities and municipalities
 - for islands
 - for farms and food production
 - for industrial areas and bigger construction sites
 - for touristic areas and hotels
 - for hospitals, camps, army needs
 - for emergency aid and temporarily needs
 - ... for many other areas and applications



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Introduction

- ✓ My name is Frank Schlichtherle
Grad. Engineer for water processing (University of science Frankfurt)
Master of business administration (University of science Mainz)
- ✓ I am the owner and CEO of SIWAttec Wassertechnik GmbH & Co. KG since 1997 in Germany
- ✓ We deliver water treatment systems for industrial needs mainly demin water treatment for power plants and process industry – references of many units around the world available
f.e. bigger units in the middle east locations: Ruwais - U.A.E. for Linde / Bourouge; Ras-al-Khair - KSA for Ma'aden Phosphate Company
- ✓ Since generations we have highest reputation for exellency in the field of water solutions
- ✓ In the last years the demand of container based systems grow exponentiell
- ✓ I was asked often to deliver huge sea water desalination systems for cities or big industrial areas – but this is not our focus



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My motivation

- ✓ access to clean water is one of the challenges of our time
- ✓ 2019: more than 2 billion people do not have clean drinking water
- ✓ tendency – rising
- ✓ how can we contribute to a solution?



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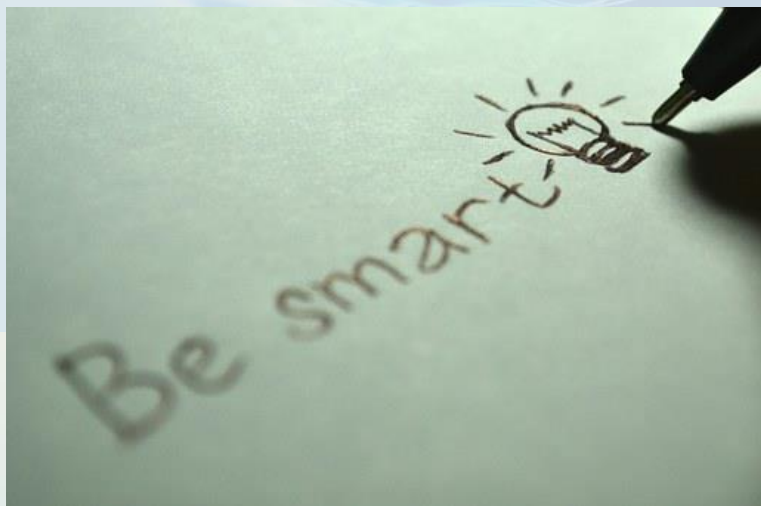
Typical potable water production from sea water - we are different

- ✓ Potable water production from sea water will be made often by huge water treatment systems with high energy consumption and a affiliated power plant (oil or gas)
- ✓ The distance from this systems to the place of use is very big
- ✓ These systems can not operated with renewable energy
- ✓ Cost intensive connection to smaller users
- ✓ design, construction and start of operation took month or years of time



The needed skills of such a solution

- ✓ Deliver a system to enable a easier access to potable water
- ✓ Also for areas with no clean ground water
- ✓ Fast and easy establish also in not highly developed areas
- ✓ Highly developed technical solution with maximum support
- ✓ The advantages of a cloud function must be implemented
- ✓ Energy efficient
- ✓ Connection to renewable energy production



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Our solution



SIWAbox

We are always one step ahead in water solutions

mobile and modular units
for potable water production
from sea water or surface water



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Our solution



- ✓ drinking water according to WHO / FDA / local regulations



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The advantages of the SIWAbox solution

- ✓ Smaller decentral units fits the need of the area
- ✓ Short distances from the production to the user
- ✓ The systems can be operated with renewable energy
- ✓ Cost effective connection to smaller users
- ✓ Implementation and start of operation took only a few days
- ✓ Operation and maintenance will be supported by a IoT System
- ✓ Monitoring of the system from any place all over the world possible
- ✓ Integrated Payment System possible for direct sell of drinking water
- ✓ Support by the SIWAttec headquarter from Germany and from local service 24/7
- ✓ Prefabricated and tested in our workshop
- ✓ Training of the operators can take place in our workshop or on site
- ✓ Quality made in Germany
- ✓ Experience in water treatment systems since more than 20 years

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Our solution

✓ remote controled

- remote Control
- planning precautionary service
- Maintenance recommendation
- Direct spare parts order
- Remote maintenance
- Updates
- warranty monitoring
- Support from SIWAttec 24/7
- Support from the local service partner 24/7



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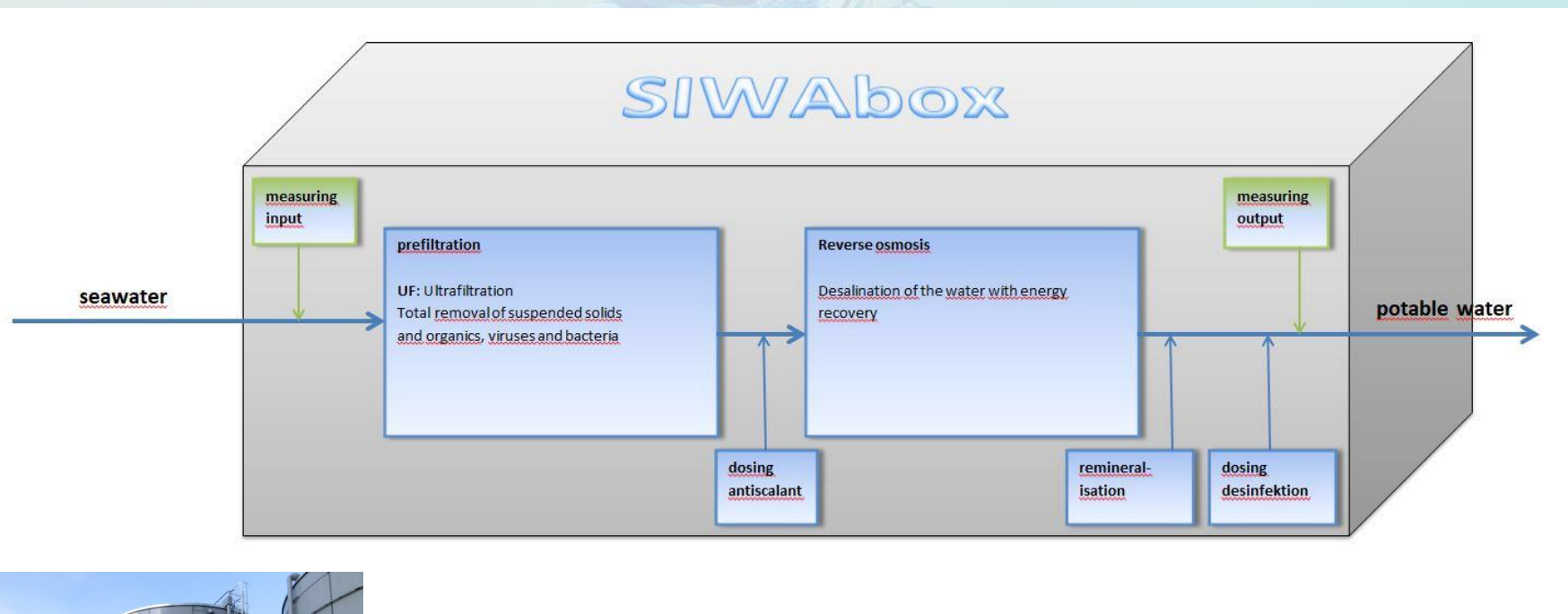
Our solution

- ✓ container-based systems
 - Installation costs on site are reduced to a minimum
 - Mobile systems - easy to implement
 - Modular design - expandable at any time
 - Commissioning and test run is already carried out in our workshop
 - No additional space required - cost-effective
 - Individually adaptable through several variants



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Our solution



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technical features

- ✓ Raw water Connection
 - Bank filtered water
 - Intake with pre filtration
 - Raw water net

- ✓ Connections for the drinking water
 - Implementation in a drinking water net
 - Connection to a bottle filling device
 - Direct connection to the point of use

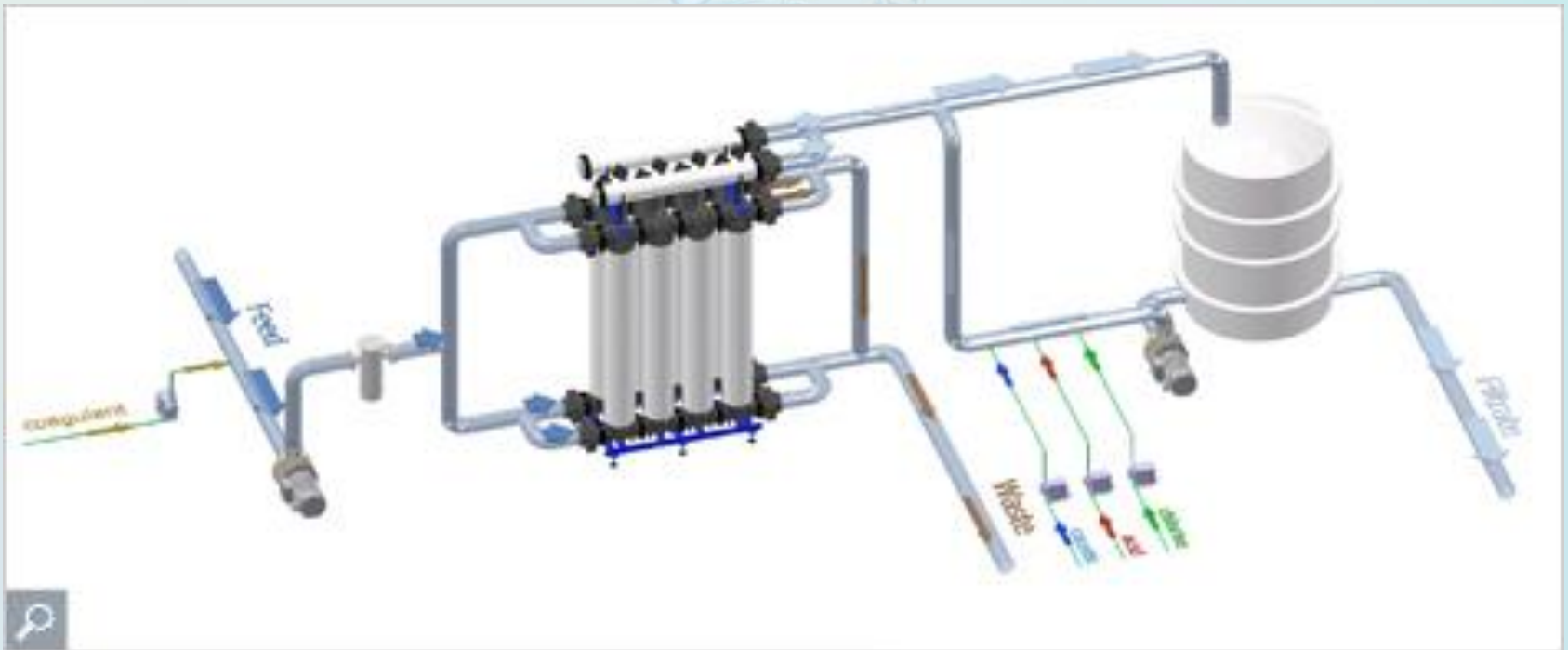
- ✓ Electrical Connections
 - Normal power supply system
 - Renewable energy
 - Emergency generator

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technical features



Ultrafiltration



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technical features

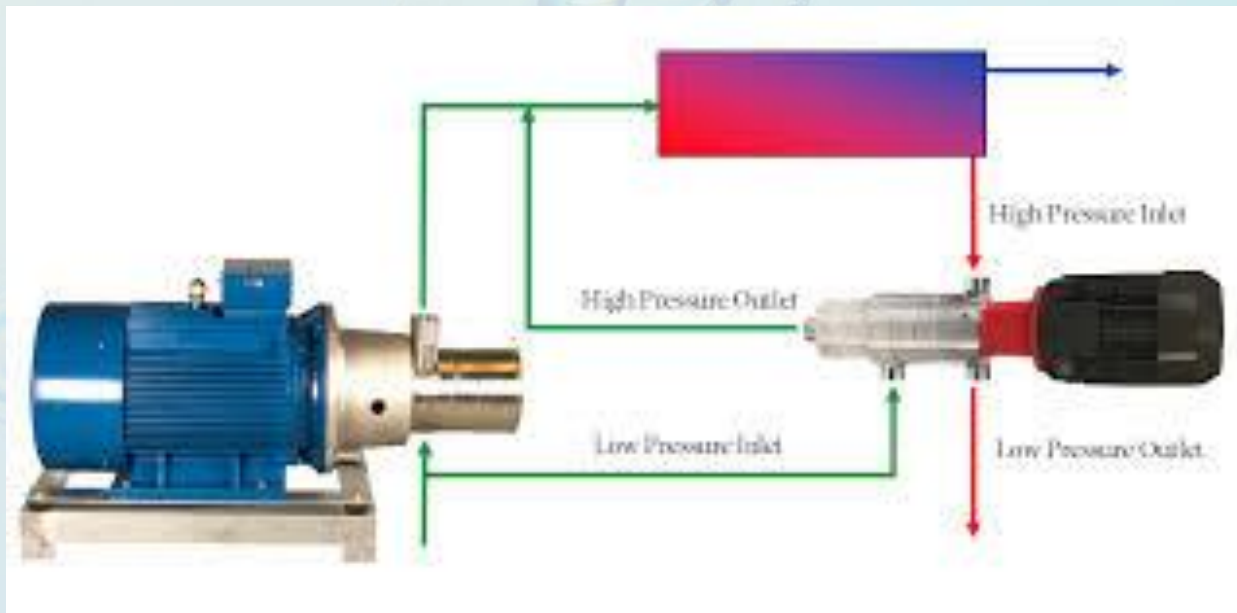
Sea water reverse osmosis
with energy recovery



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technical features

energy recovery



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technical features

	SIWAbox life 170 seawater	SIWAbox life 240 seawater	SIWAbox life 500 seawater
Tap water flow	7000 l/h 170 m³/d	10000 l/h 240 m³/d	21000 l/h 500 m³/d
Raw water feed / recovery / desalination rate	18,4 m³/h 38 % 99 %	26,3 m³/h 38 % 99 %	55,5 m³/h 38 % 99 %
Power consumption	25 kW	34 kW	48 kW
Size [l x w x h]	12200 x 2440 x 2590 mm	12200 x 2440 x 2590 mm	12200 x 2440 x 2590 mm
Raw water quality	Max. 40000 mg/l TDS SDI < 3 Fe, Mn < 0,05 g/l Temperature 5-35 °C	Max. 40000 mg/l TDS SDI < 3 Fe, Mn < 0,05 g/l Temperature 5-35 °C	Max. 40000 mg/l TDS SDI < 3 Fe, Mn < 0,05 g/l Temperature 5-35 °C
Pure water quality	acc. WHO Guidelines < 1000 µS/cm 2 bar	acc. WHO Guidelines < 1000 µS/cm 2 bar	acc. WHO Guidelines < 1000 µS/cm 2 bar
Price [€]	On request	On request	On request

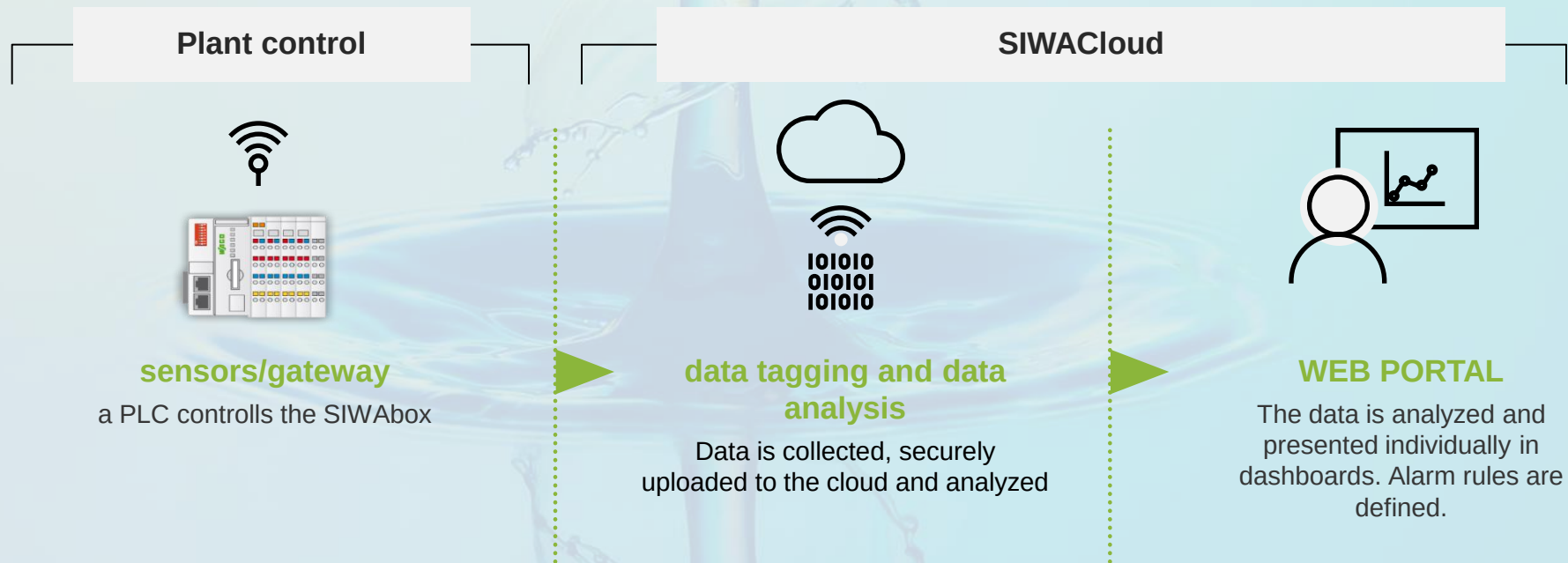
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technical features

	SIWAbox life 360 surfacewater	SIWAbox life 500 surfacewater	SIWAbox life 1000 surfacewater
Tap water flow	15000 l/h 360 m³/d	20000 l/h 500 m³/d	50000 l/h 1200 m³/d
Raw water feed / recovery	16,4 m³/h 92 %	22,6 m³/h 92 %	55,0 m³/h 92 %
Power consumption	6 kW	9 kW	11 kW
Size [l x w x h)	12200 x 2440 x 2590 mm	12200 x 2440 x 2590 mm	12200 x 2440 x 2590 mm
Raw water quality	Max. 1000 mg/l TDS SDI < 3 Temperature 5-35 °C	Max. 1000 mg/l TDS SDI < 3 Temperature 5-35 °C	Max. 1000 mg/l TDS SDI < 3 Temperature 5-35 °C
Pure water quality	acc. WHO Guidelines 2 bar	acc. WHO Guidelines 2 bar	acc. WHO Guidelines 2 bar
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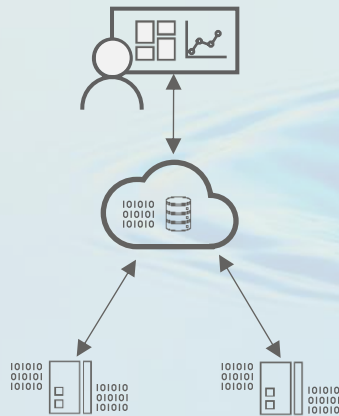
IoT - remote control



IoT - remote control

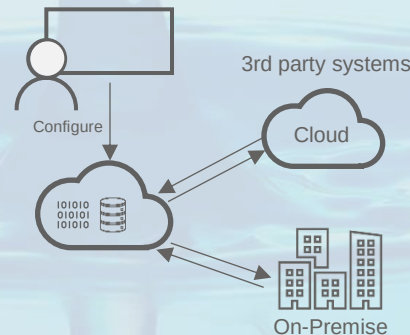
data collect & display

Simple dashboards and trends, simple calculations (min, max, sum), command buttons, alerts & notifications.



data export und REST

Data exchange with third-party systems via REST interface, data export jobs



Alerts & notifications

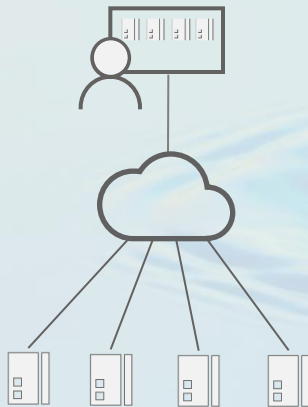
Define alarm rules for controller, connection status and application data and be notified via e-mail.



IoT - remote control

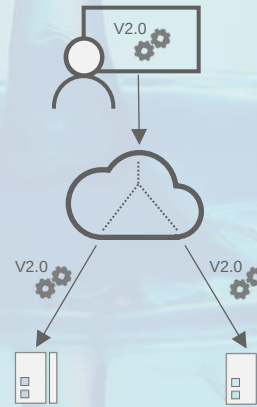
device management

Easy connection of devices to the cloud, configuration and monitoring



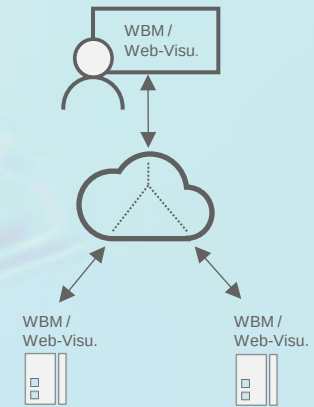
firmware & applikation updates

IoT systems without device updates are unthinkable. Updates must be possible over the lifetime

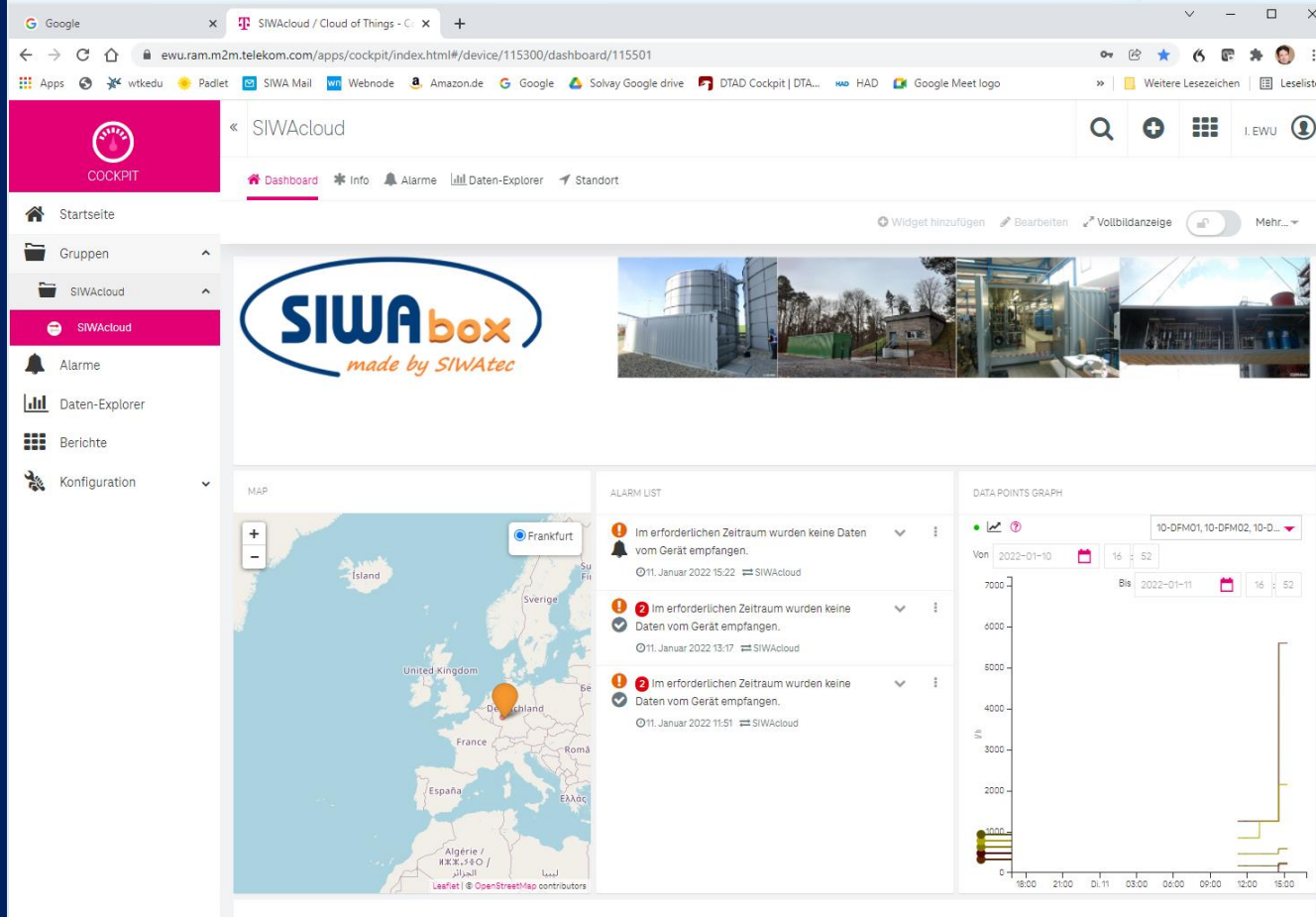


Remote access

Local device configurations and visualizations are not available over the Internet but they are provided for maintenance and diagnostics.

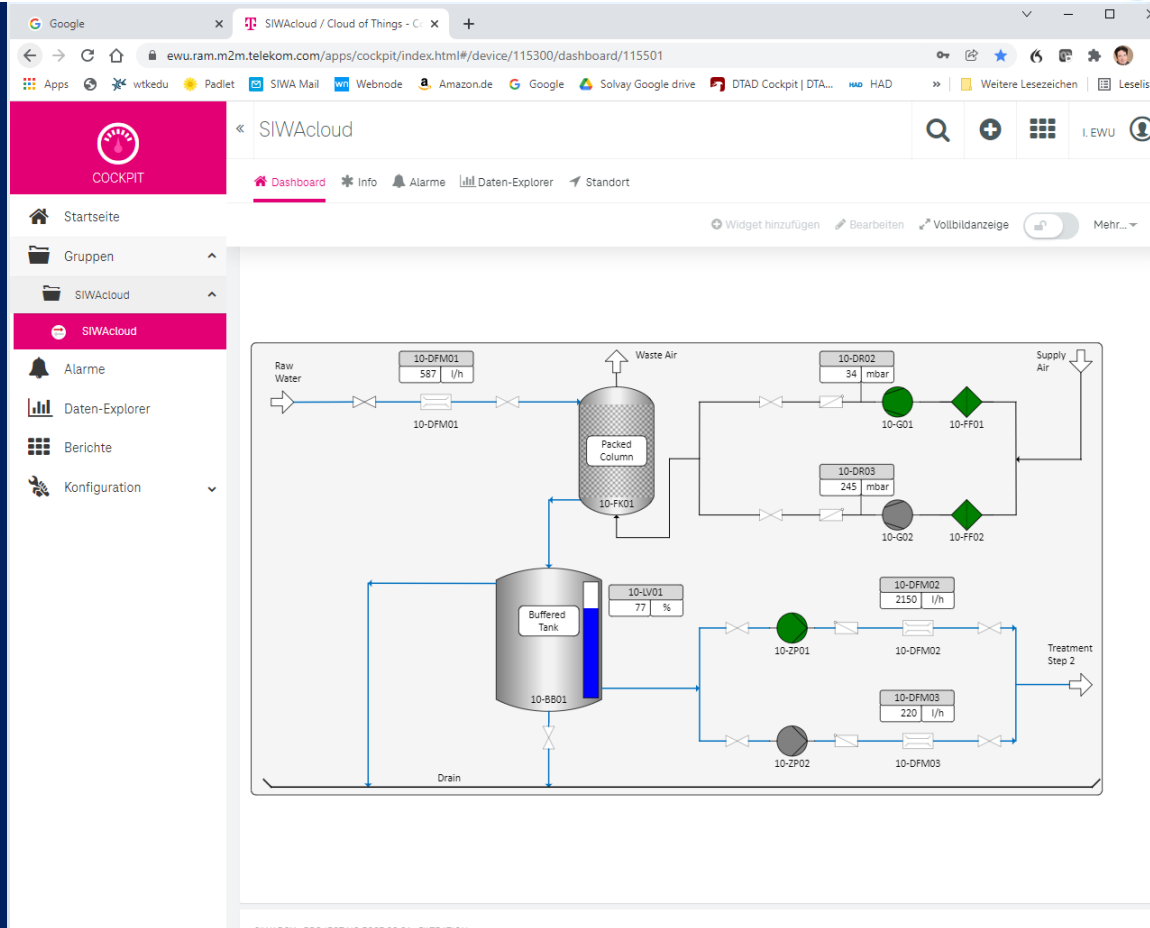


IoT - remote control SIWAcloud



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IoT - remote control SIWAcloud



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Direct payment feature

- ✓ Payment via
 - Prepaid card
 - Mobile app
 - Credit card

- ✓ Direct payment for drinking water
 - Low drinking water prices for the poorest people
 - Also for Drinking Water Truck filling
 - No depending on multinational food companies

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The SIWAbox for your business plans

- ✓ How can we implement the SIWAbox into your needs
- ✓ Do you know more possible applications for the SIWAbox in your area
- ✓ What kind of feature is missing in the SIWAbox
- ✓ Can I give you more information about the SIWAbox
- ✓ What do I have to do for delivery of the first SIWAbox to you

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**We take you always one step ahead with our water
solutions - we are devoted to best water solution.
Be part of it by a cooperation**



The story will be continued... ... together?

**SIWAttec Wassertechnik GmbH & Co. KG
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