

CleverCity.ch

«Clever» Streetlight Control with LoRaWAN and GreenBox-System

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Application: Outdoor light control



1:1 Replacement for Ripple Control:

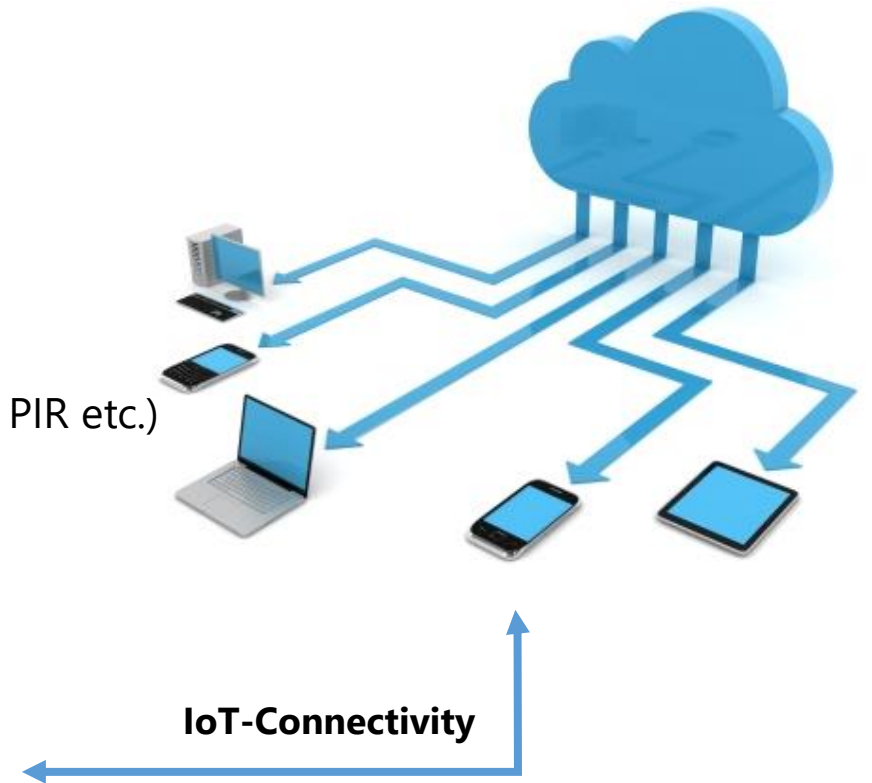
- String control in existing distribution cabinet
- Single light pole control

Modernization of Lighting Infrastructure (LED):

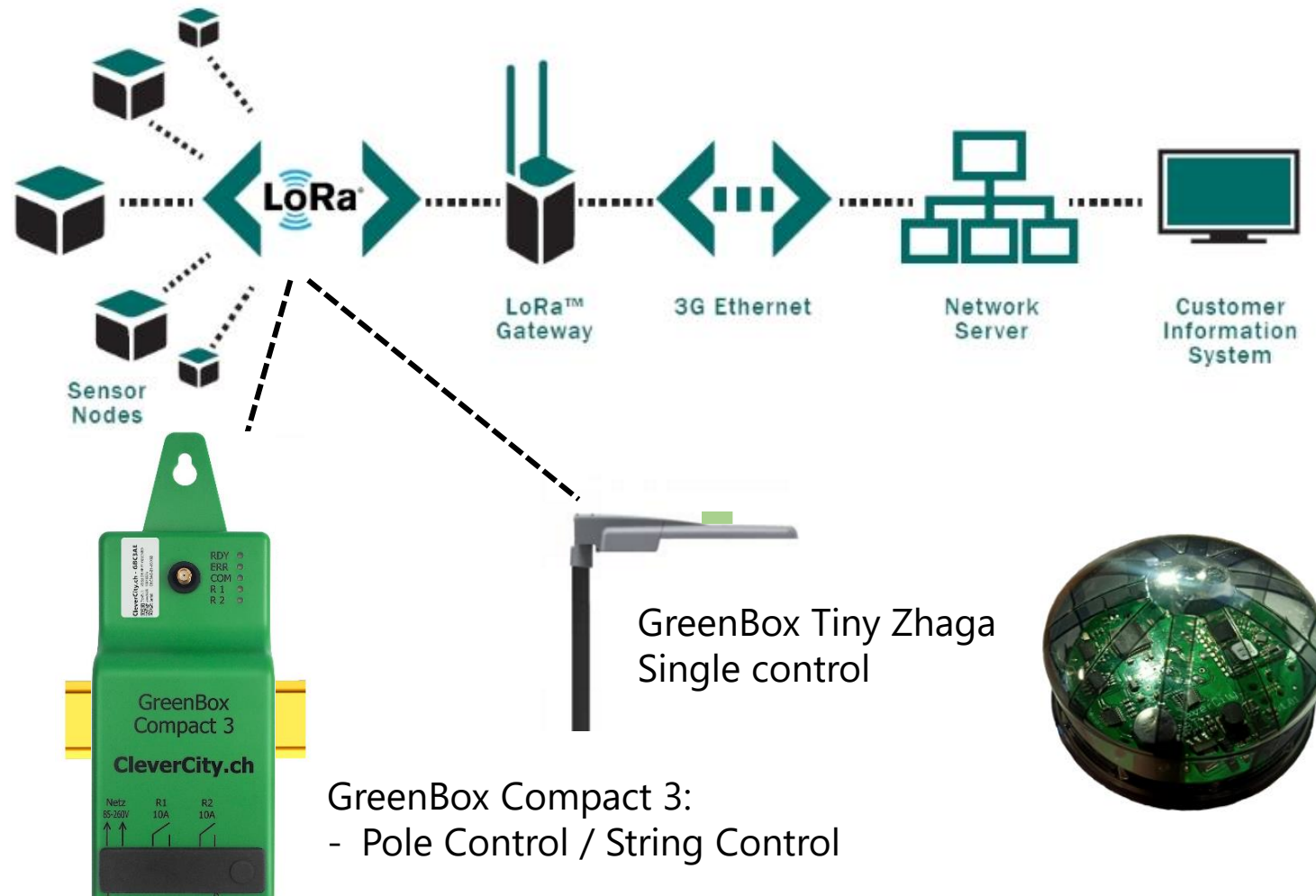
- Event and demand controlled lighting (Button, Radar, PIR etc.)
- Traffic dependent streetlight control

Open Interfaces:

- Integration with open IoT-platforms
- Interface to management information system
- Integration with open control systems



LoRaWAN Network with GreenBox-System



System Integration:

→ **SixData**

→ **Phoenix Contact Smart City Third Party**

Information:

- Control On/Off
- Dimming (DALI-2, D4i)
- Change Settings
- Information (eg. Wh)
- Alarms
- **Group Command/Multicast**
- **Time synchronisation**
- Serial Number

GreenBox Compact 3:
- Pole Control / String Control

GreenBox Compact 3



Features:

- System Migration with Smart Meter rollout
- String and single control
- LoRaWAN communication
- 1:1 replacement for ripple control unit (without additional cabling, pin compatible)
- Use of already installed cables
- Simple and cost effective solution
- **Standalone unit**
- **Astronomical calendar and weekly timer**
- **Physical LoRaWAN Group Commands / Multicast**
- Current measurement on both channels individually
- USB interface for setting via laptop
- LED indicators
- 2 relay contacts (230V, 10A)
- Test button
- IP 32 (IP 54 housing top)

GreenBox Compact 3S

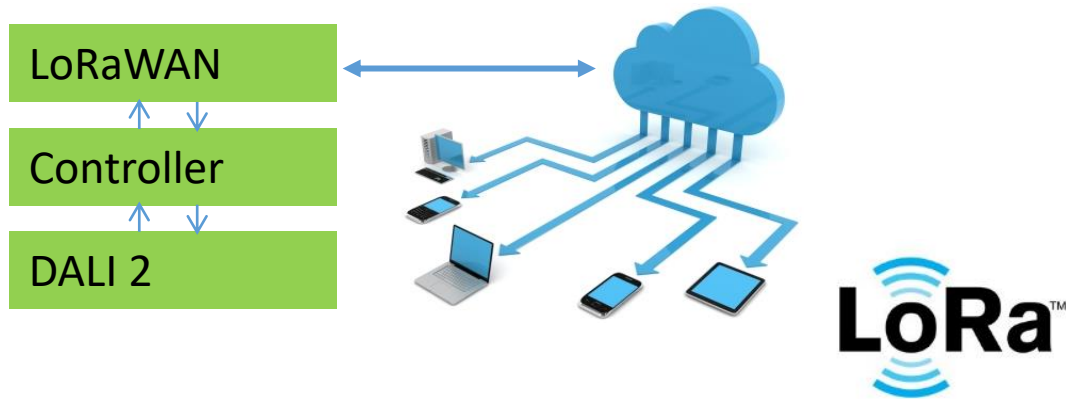


Additional features version "S":

- **Connection for optical head / DSMR**
- **Connection DALI2**
- Read out digital meter interface
- Consumption measurement and billing of lighting
- Energy data of the network operator (kWh, W)
- Energy and lamp failure monitoring
- Direct control of individual lamps by DALI2

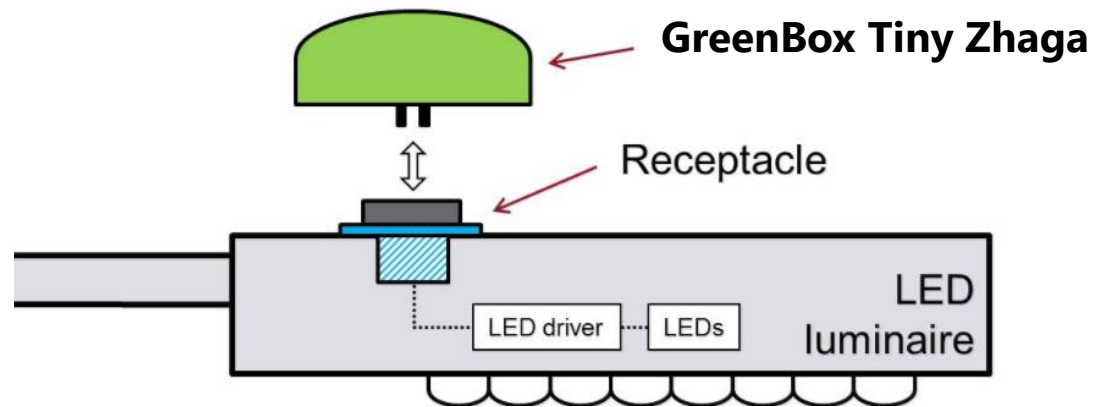


GreenBox Tiny Zhaga

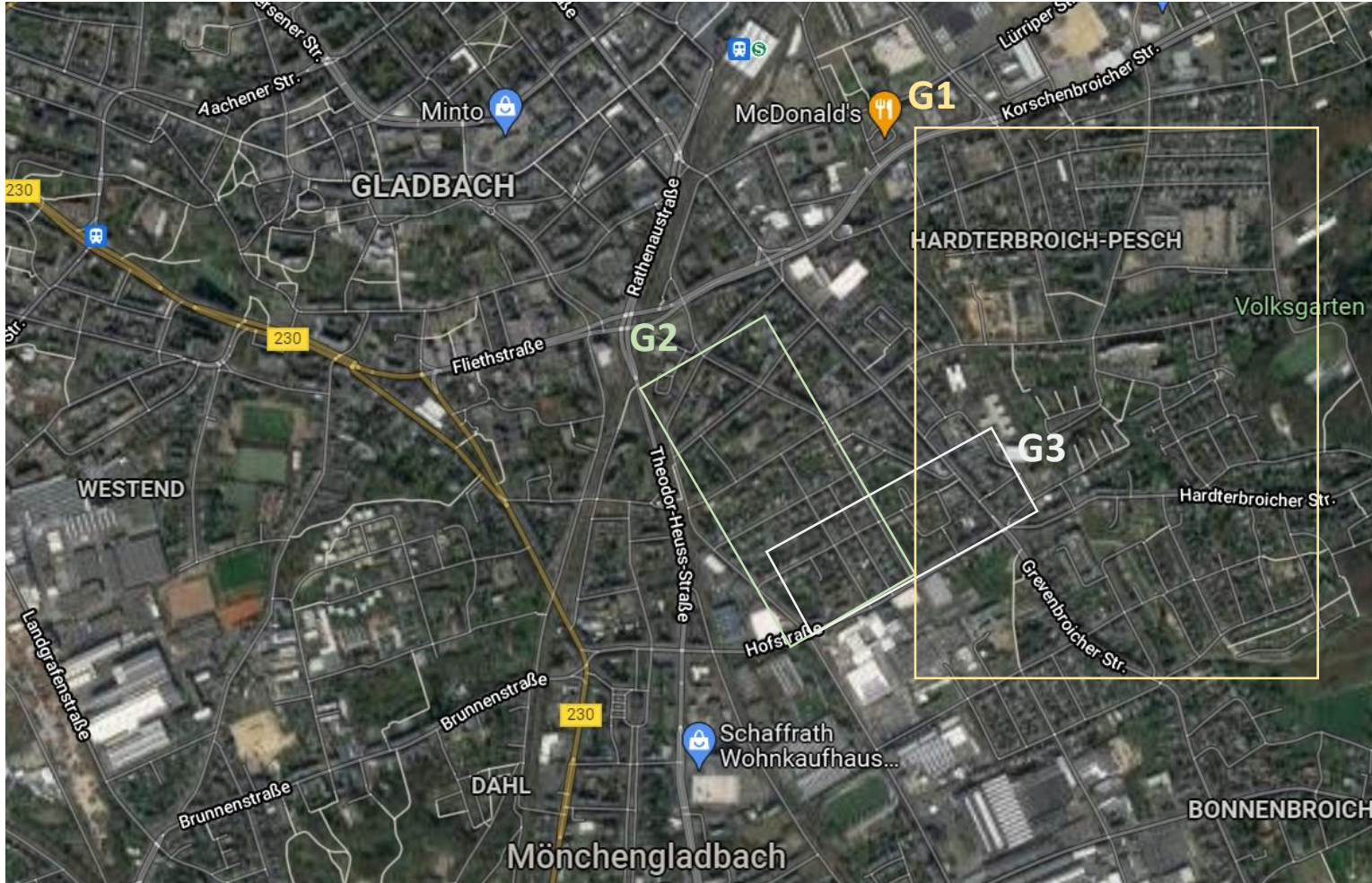


Features:

- Functions same as GreenBox Compact 3
- Zhaga standard plug (DALI 2, D4i)
- Single control
- **Integrated light sensor**
- Integration with motion detector
- Standalone operation/dimming



GreenBox Group Control / Multicast



Example:

Group Control Mönchengladbach

GreenBox Compact 3/Tiny Zhaga:

- 1 physical group command controls 4000 devices simultaneously
- Up to 255 groups possible
- Each device can be assigned to 4 groups
- Group definition via LoRaWAN

Example groups:

- G1, G2, G3...
- Main streets, side streets
- Squares

Patent pending

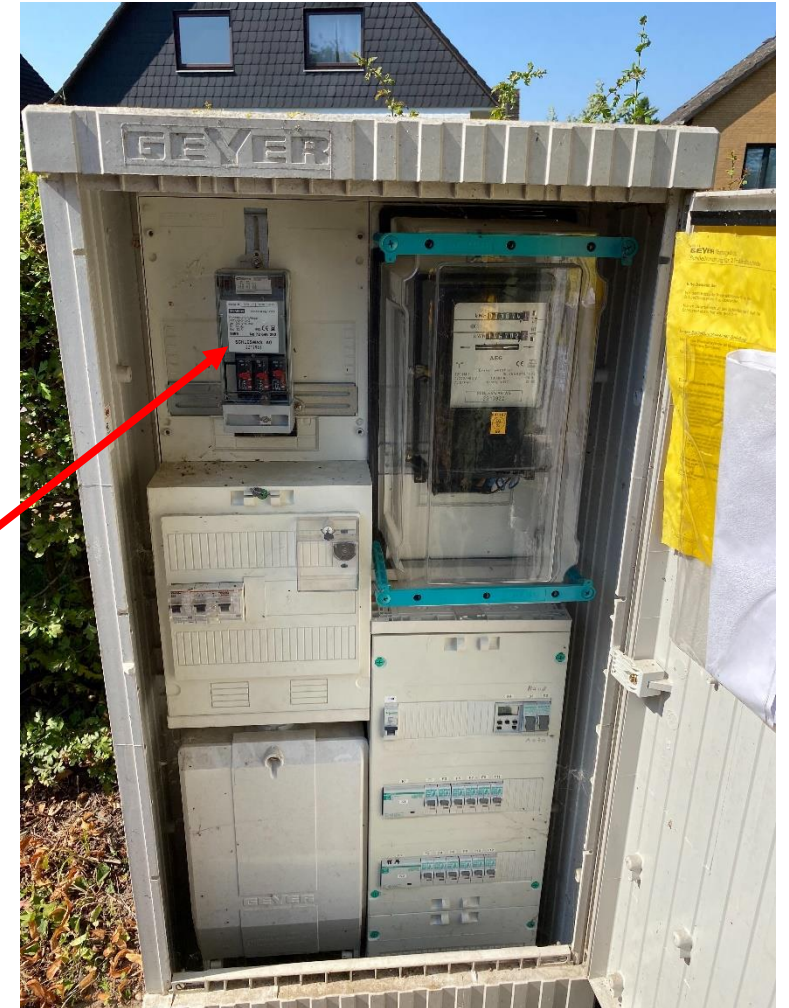
GreenBox Compact 3 – String Control

From ripple control receiver to LoRaWAN connected in 3 steps / max. 15 minutes:

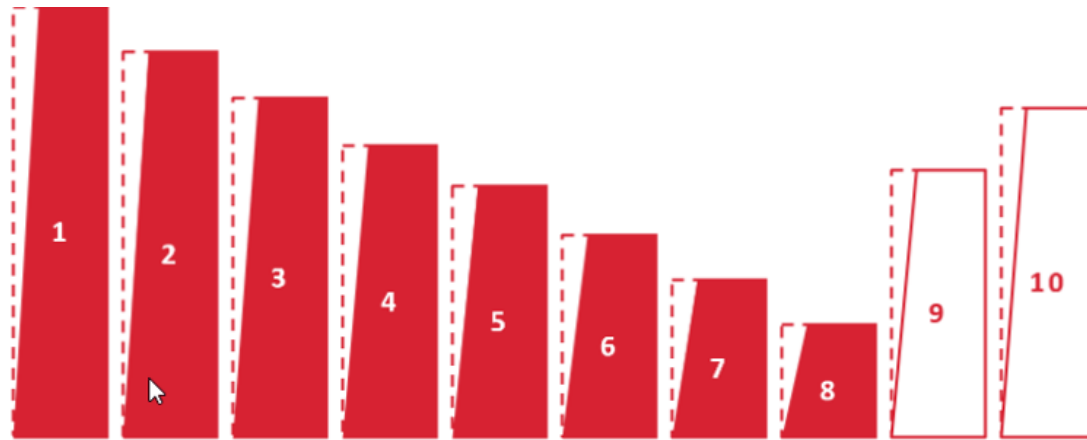
1. Configure GreenBox Compact 3 at workstation (or order pre-configured)
2. Exchange of ripple control receiver with GreenBox Compact 3 (1:1 exchange)
3. Mounting of the antenna (directly on the device or on the distribution cabinet)

Product advantage:

- Single and group control
- Bidirectional communication
- Smart meter interface (optical head) to read out power and meter data (option "S")
- Functions ensured even without communication

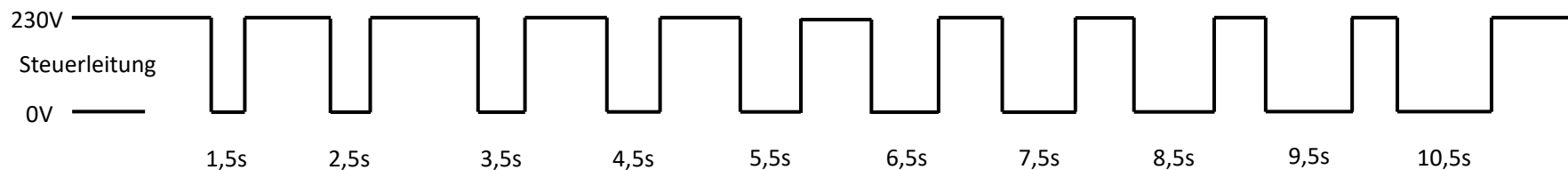


GreenBox Compact 3 with Smart Wire



Additional features with Smart Wire:

- String control with Smart Wire for brightness control
- LED driver, e.g. Osram, Siteco iQ APP Setup
- **Classical control (2-steps), 100 % / 50 %**
- **Advanced control (10-steps. Siteco only)**



GreenBox Compact 3 in the Light Pole

From ripple control receiver to LoRaWAN connected in 3 steps / max. 15 minutes:

1. Configure GreenBox Compact 3 at workstation (or order pre-configured)
2. Exchange of ripple control receiver with GreenBox Compact 3 (1:1 exchange)
3. Mounting the antenna (e.g. pole antenna)

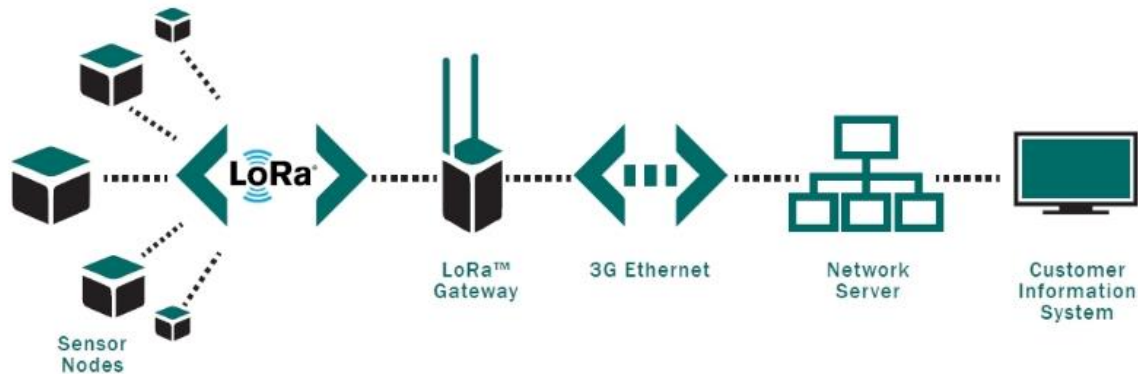


Product advantage:

- Single and group control
- Bidirectional communication (feedback from lamp state)
- Functions ensured even without communication



GreenBox System Solution



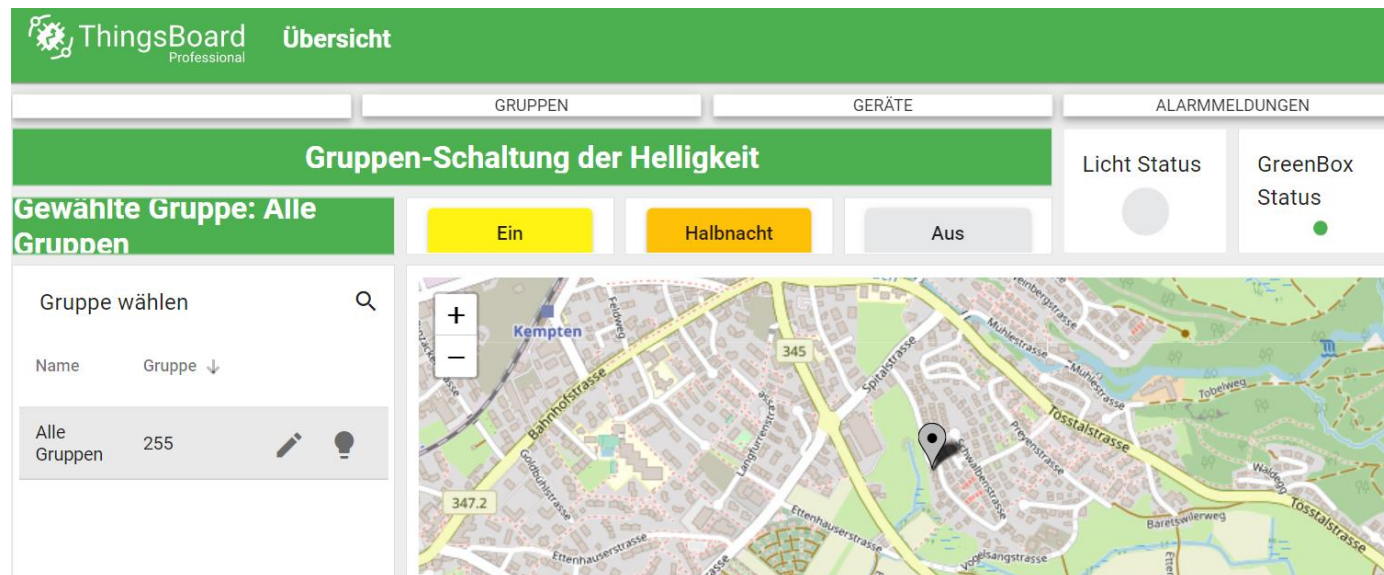
Solution Switzerland:

Services

- User interface
- Local LoRaWAN network / Swisscom
- Installation, Setup and Training

Products

- GreenBox Compact 3
- GreenBox Tiny Zhaga
- LoRaWAN Gateways



Reference SAK, St. Gallen, Switzerland



Business Case:

- Rollout of Smart Metering
- Ripple control exclusively for street lighting not economical
- Large investment required for communication to each light pole (Smart City)
- Open for migration to Smart City

LoRaWAN References

Switzerland

EWD Davos

- Lighting of the ski slope (EWD service)
- Zenner Element IoT platform



EWL Lucerne

- Test with Loriot IoT platform
- System integration by Arcade
- SixData management information system for street lighting



St. Gallen public utility SGSW

- Test with Zenner LoRaWAN platform
- SixData management information system for street lighting



Austria

EWW Anlagentechnik, Wels

- Test with Sens as Systempartner



LoRaWAN References Germany

> **150 Pilot projects** in Germany with the support of CleverCity GmbH

enercity AG

- Common and intensive tests with LoRaWAN, **Firefly** from Digimondo
- Lighting applications on **niota**



Mönchengladbach

- **Rollout of 4000 GreenBox Compact 3**, July to December 2021



Witcom Wiesbaden

- User Event 04/2019, definition and optimizing GreenBox Compact 3



Hamburg Verkehrsanlagen

- Test with Element-IoT LoRaWAN Platform



LoRaWAN Sales Partners

Germany

Zenner International Saarbrücken (since 2018)

- LoRaWAN Elements IoT-Platform

ZENNER

Alpha Omega-Technology (since 2020)

- LoRaWAN platform and Online-Sales Partner


www.iot-shop.de

Thank you