

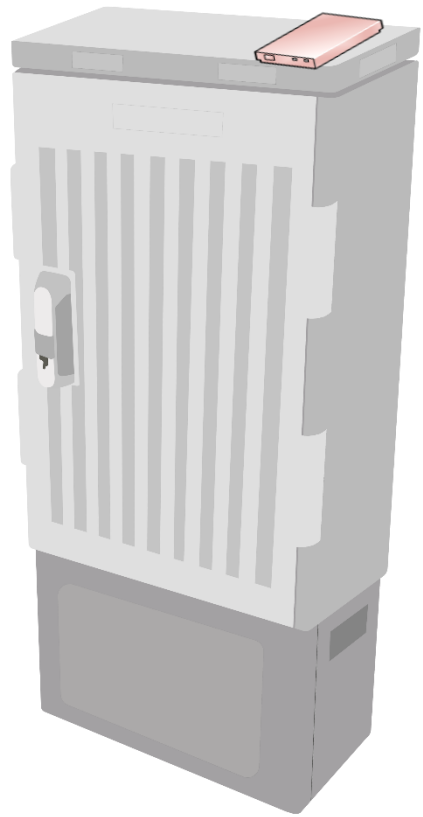
ACCESS CONTROL SYSTEM FOR STREET CABINETS AND ENCLOSURES

KEY FIGURES

- Electronic access control system for street cabinets and enclosures
- Suitable for passive (no internal power source) and active (permanently powered) installations
- Access authorization via smartphone app
- Offline (cloud-less) and online (private cloud) system
- Communication based on Bluetooth® Low Energy (BLE) technology



SYSTEM DESIGN



Optional: *Power Supply Unit* for temporary power transfer

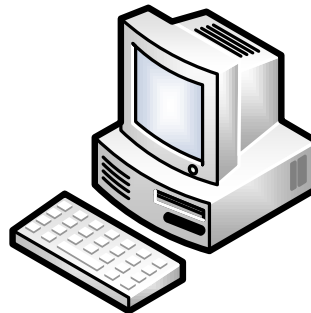
- MSSQL Database
- Web server for management clients
- Application server for mobile clients



Mobile Access Client



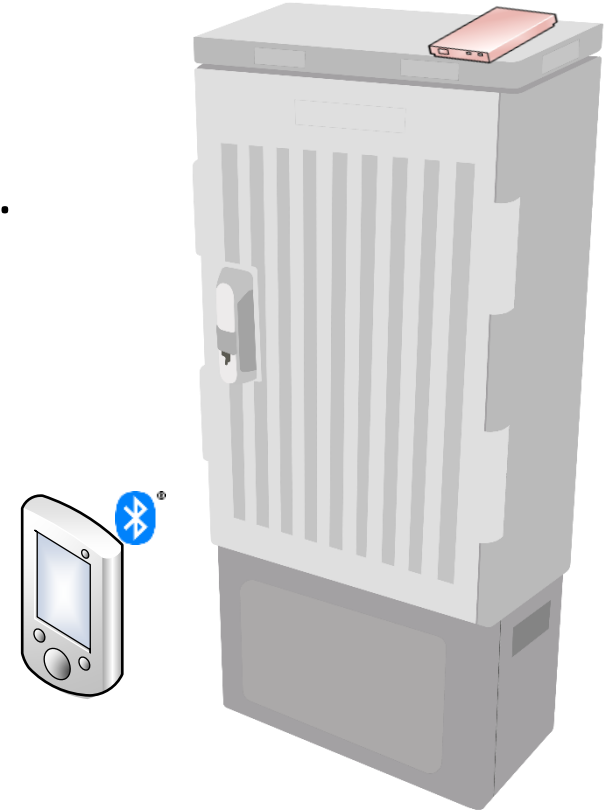
Street cabinet equipped with electromechanical lock and *Modular Access Unit*



Management Application

PASSIVE vs. ACTIVE CABINETS

- **Passive cabinets have no internal power source**
- Application example: Fiber-to-the-Home deployments which include only passive fiber optic components inside cabinet.
- External power source must be temporarily attached during installation procedure to gain access.
- Patented solution: WO 2017/157831 A1, PCT/EP2017/055799
- **Active cabinets are permanently powered**
- *Modular Access Unit* supports DC or AC (with adaptor) power sources



HARDWARE COMPONENTS

Modular Access Unit

- Internal unit mounted inside enclosure
- Supports several locks per cabinet, each one can be individually authorized
- In active installations permanently powered (wide input voltage range: DC 12V – DC 76V*)
- In passive deployments receives temporary power from *Power Supply Unit*
- Several ways to communicate: BLE, RFID*, LoRA*, Ethernet*
- Secret device keys are defined by customer during initialization.
No factory master key!



HARDWARE COMPONENTS

Power Supply Unit

- Required for applications where the enclosures are not permanently powered (e.g. Fiber-to-the-Home network cabinets).
- The unit provides inductive power according to Qi standard through the housing!
- Applications are limited to plastic (typ. PC) enclosures or metal enclosures with plastic window.
- No mechanical or galvanic connection => No damages of contacts through corrosion
- Internal battery pack sufficient for more than 1000 openings, charging via USB-port



HARDWARE COMPONENTS

Example of compatible Swing Handles / Locks

EMKA

EMKA Beschlagteile GmbH & Co. KG
Langenberger Str. 32
42551 Velbert, Deutschland

For active applications:

- Swing handle 1317 (48V)
P/N: 1317-U151-02HJ

For passive applications:

- Swing handle 1317* (12V)
P/N: on request*



Any other product
(e.g. single point latch)
with following specs:

For active applications:

- Voltage: 12V DC or 48V DC

For passive applications:

- Voltage: 12V DC
Max. current: 250mA

Example:

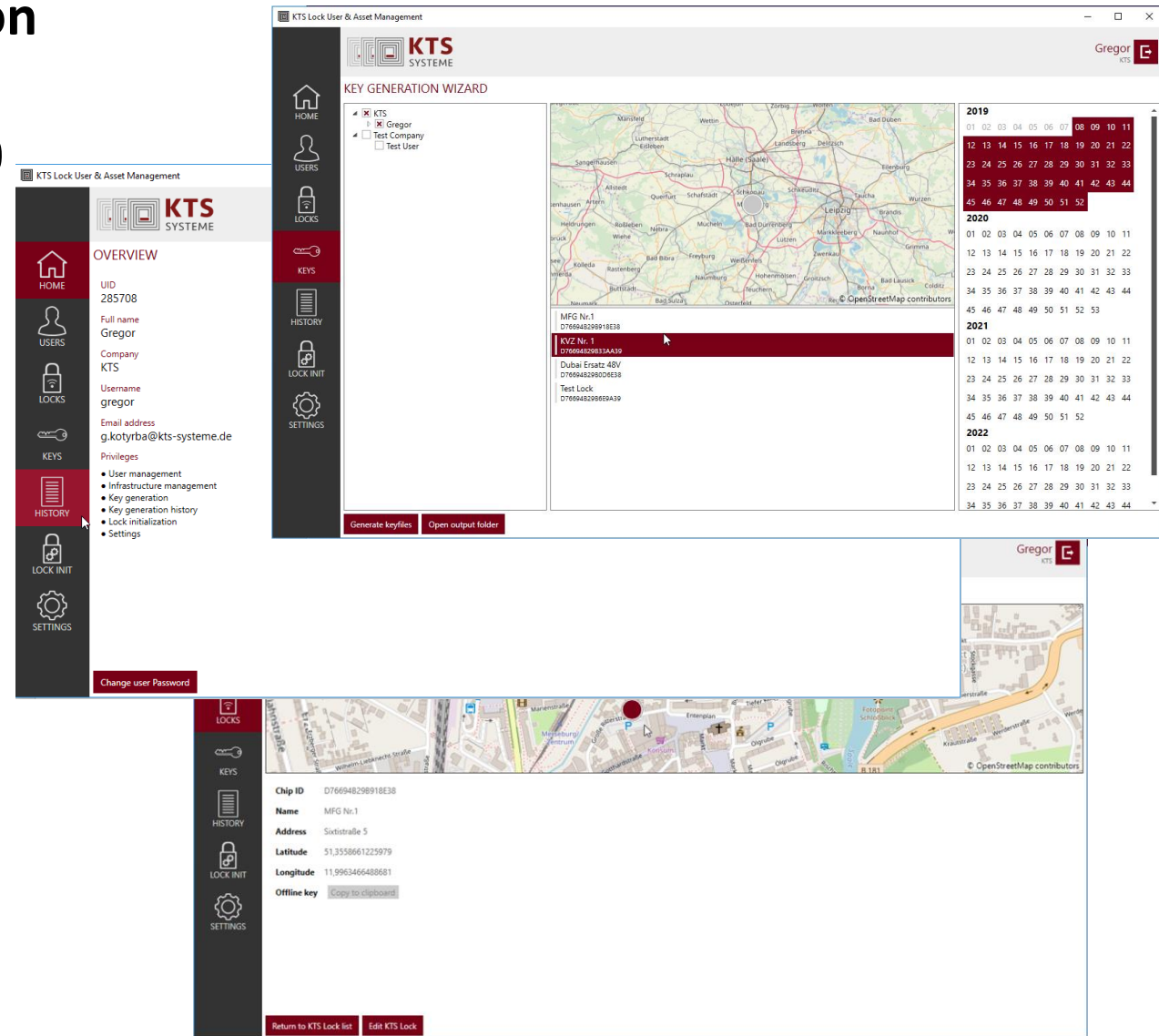
- EMKA P/N: 3000-U301-XX



SOFTWARE COMPONENTS

Management Application

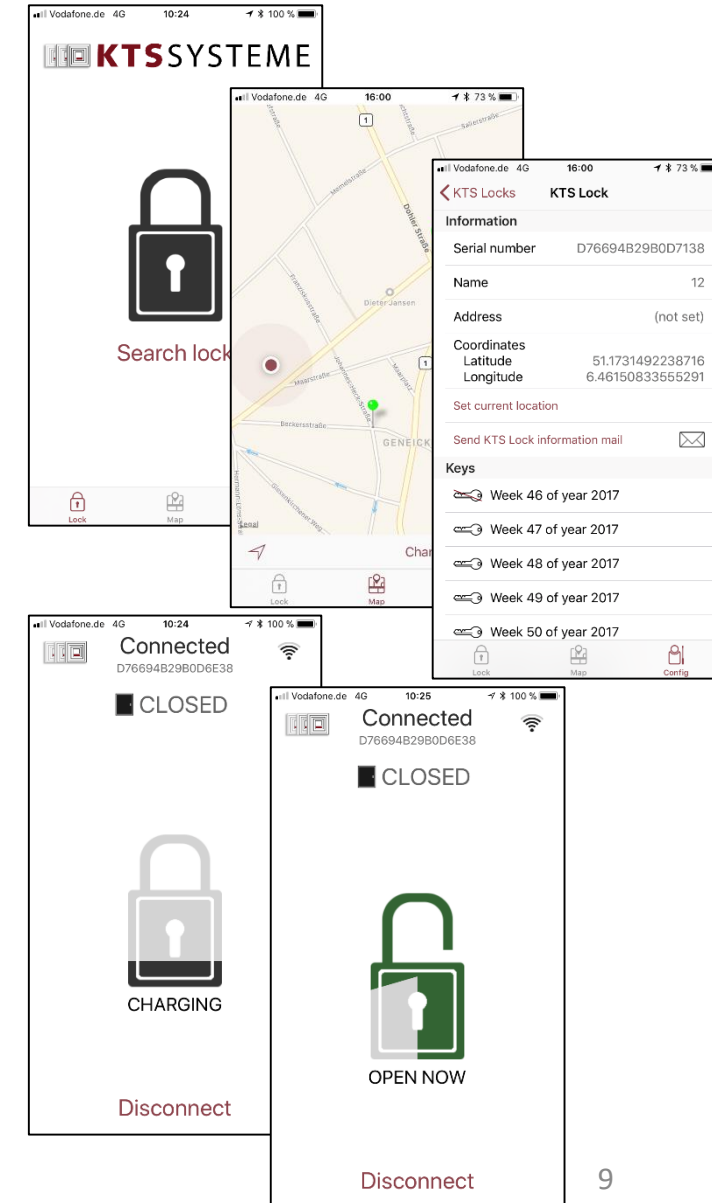
- Runs as a local application on Windows 10 installations
- Minimum requirements:
 - .NET Framework 4.6
 - Windows 10 x64 Build 17134 (April 2018 Release)
- Main functions:
 - User Management
 - Lock Initialization
 - Asset (Location) Management
 - Access Rights Management



SOFTWARE COMPONENTS

Mobile Application

- Available for both major platforms iOS and Android for free
- Smartphones with Bluetooth® Low Energy (BLE 4.0) support required
- Every installation is unique! No key transfer between devices (not even for the same user) is possible!
- Shows location of all registered assets on map (OSM based)
- Indicates the access status and provides access to the cabinet



ONLINE vs. OFFLINE OPERATION

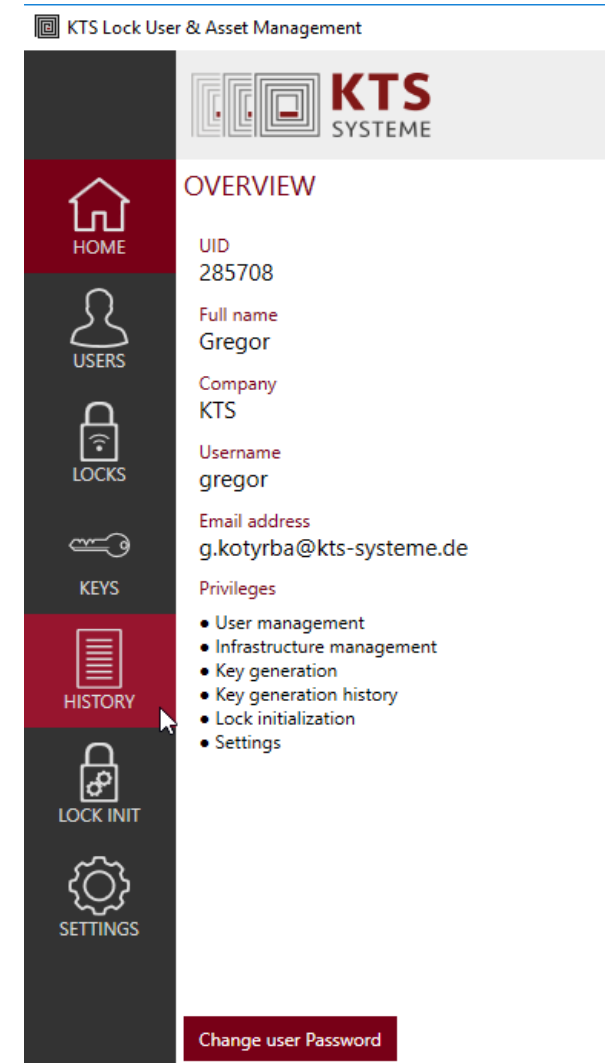
- **Offline Operation:** Neither asset nor user smartphone have internet connection!
- Keys must be provided before access and stored locally on user smartphone
- Key distribution via email
- Key validity on weekly basis
- No realtime reports
- No key revocation on user smartphone

- **Online Operation:** User smartphone has internet connection, Mobile Application is permanently connected to the Management Software
- Access key is generated and sent to the user's smartphone exactly when the user requests access to the location.
- Offline fallback option for pre-loading of keys available
- Realtime reports about all activities

MANAGEMENT SOFTWARE

User Management

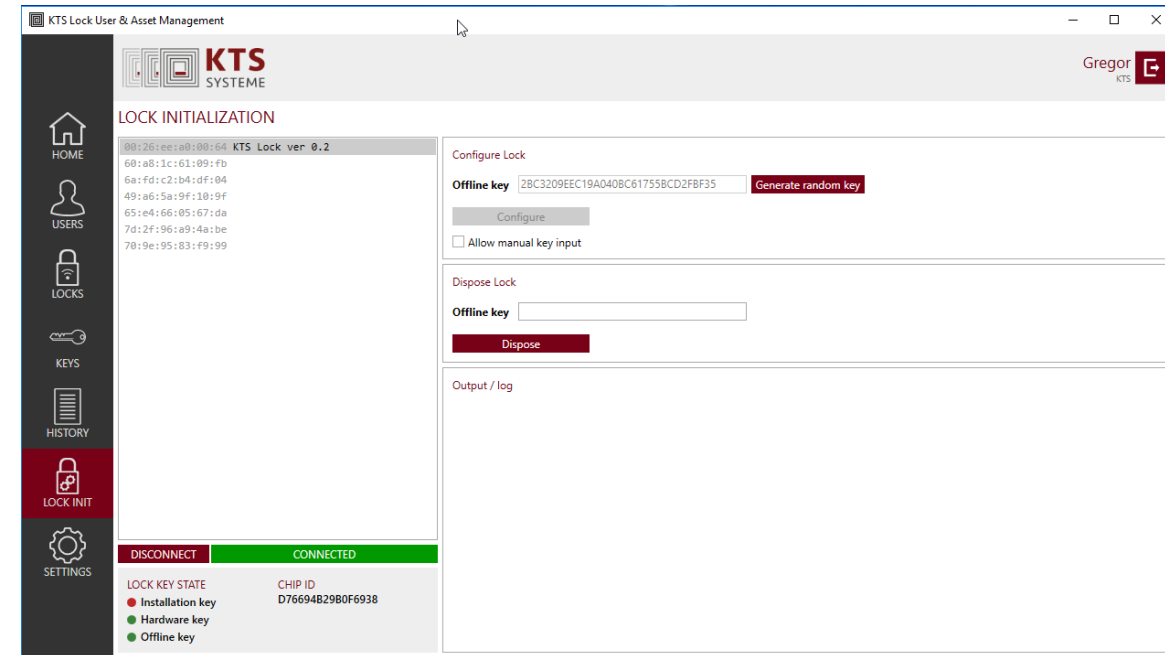
- Every user has an unique User ID (UID) generated by the system
- Additional user data:
 - Full name, User Name, Company, Email address
 - Privileges
 - List of assigned devices
- Hierarchical privilege inheritance:
Existing user cannot grant more privileges than he owns by himself!



MANAGEMENT SOFTWARE

Lock Initialization

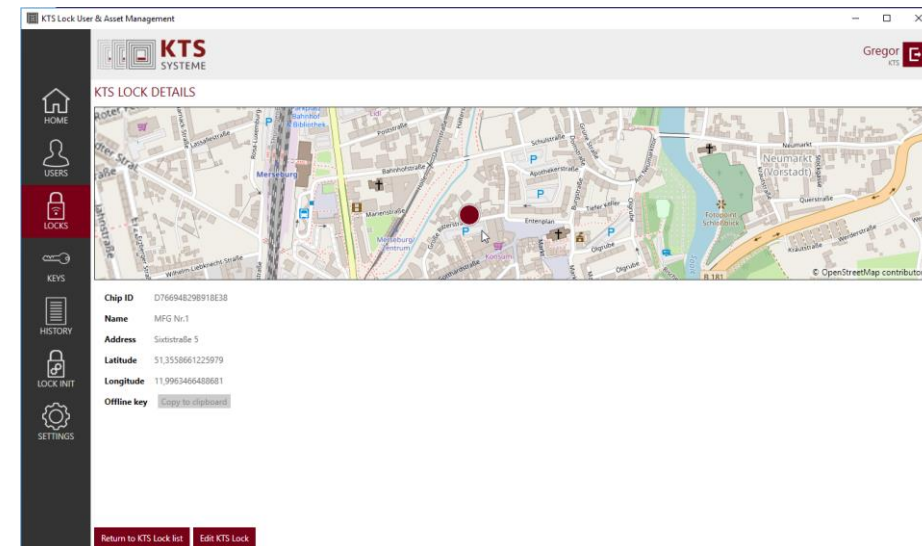
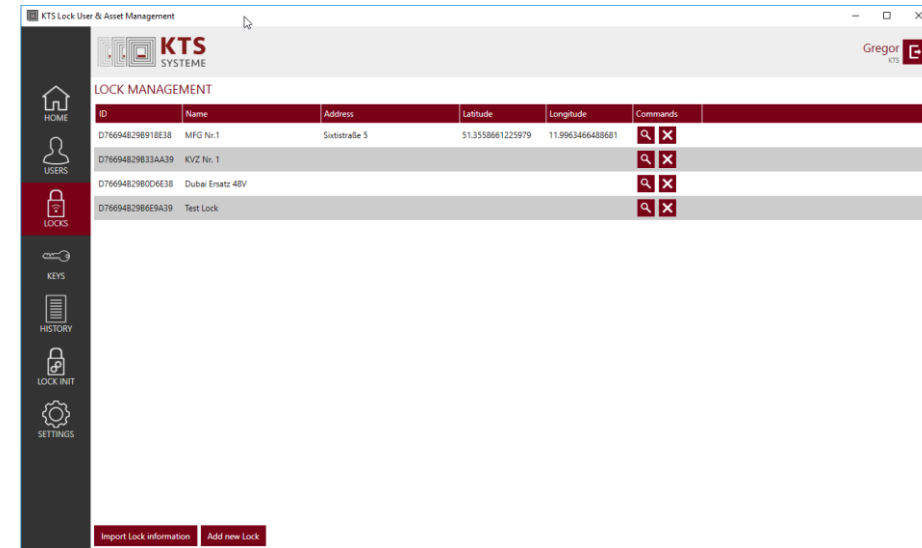
- Prior installation every lock must be initialized with unique device key.
- Lock owner is responsible for secure key management!
- There is no master key available!
- Lost keys require factory reset of entire device!



MANAGEMENT SOFTWARE

Location (Lock) Management

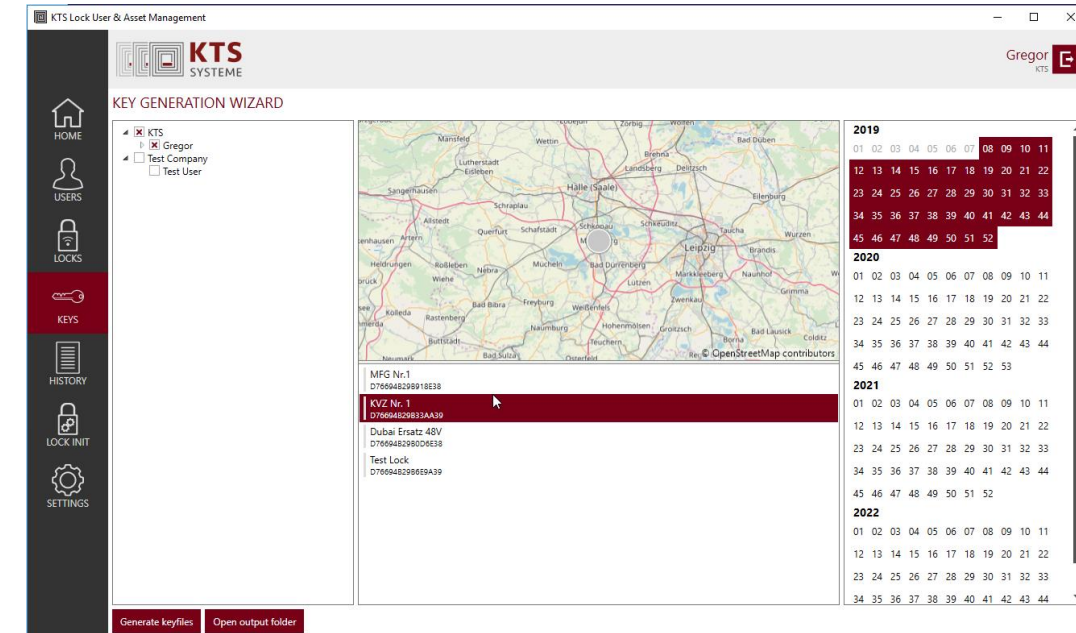
- Locations / Locks must be registered in the management system with mandatory parameters:
 - Device ID
 - Device key
- Following parameters are optional:
 - Name
 - Address
 - Coordinates



MANAGEMENT SOFTWARE

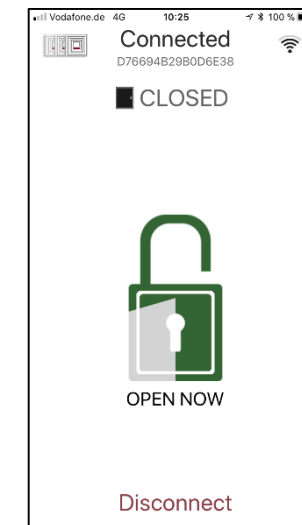
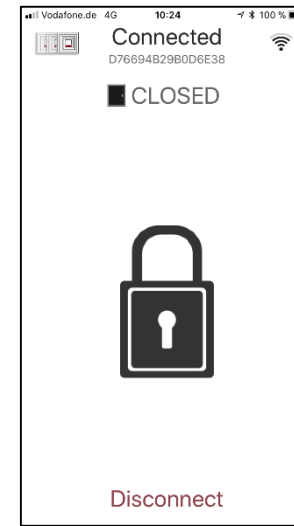
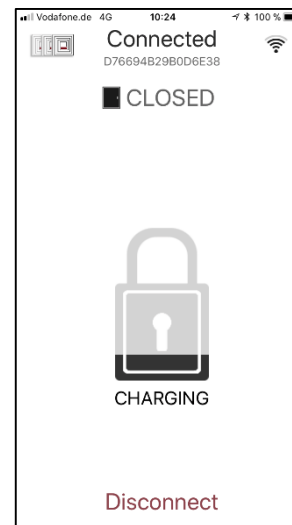
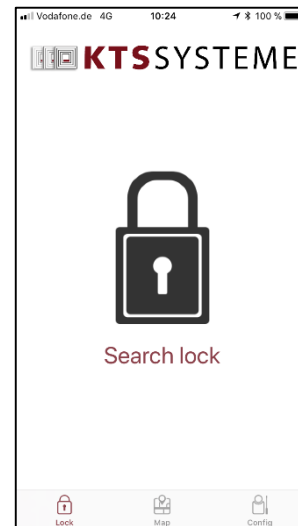
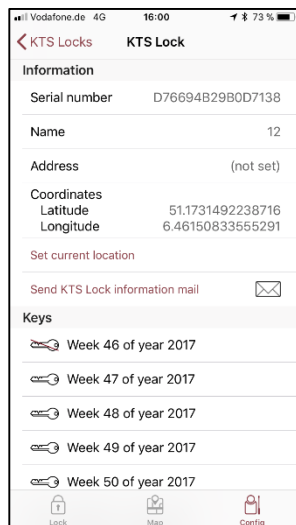
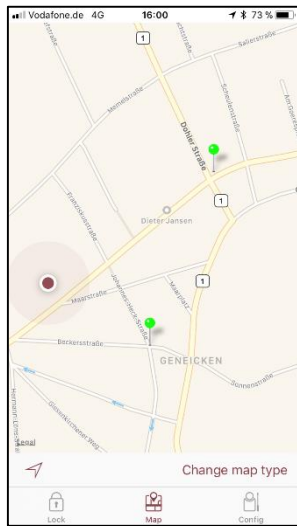
Access Right Management

- Access rights are generated based on combination of
 - User ID
 - Device ID
 - Lock ID
 - Validity period



- In offline mode access rights are provided as email attachments.
- Forwarding access right files from one user to another or from one device to another device for the same user will not grant access to the corresponding locks!

TYPICAL WORKFLOW USING MOBILE APPLICATION



CONTACT US

KTS – Kommunikationstechnik und Systeme GmbH

Schlossstrasse 123
41238 Moenchengladbach
Germany

Gregor Kotyrba
Tel. +49 2166 991139
info@kts-systeme.de

www.kts-systeme.de