

ALTERO MeterCam

Remote Electronic Readings of mechanical utility meters

The logo for Sterna, featuring the word "Sterna" in a white, sans-serif font centered within a solid blue rectangular background.

Sterna

About Sterna

- Sterna is a Singapore (www.sterna.sg) based company that develops, manufactures and distributes Cloud-based security products and monitoring devices for market segments like the Telecom, Petroleum, Utility, Transport, Finance, Medical, Defense and Governmental. We also distribute products for smart and efficient meetings.
- Our main products are all managed and controlled via The Cloud with 24/7 status in real time and all event data is collected centrally:
 - Sterna RIKE, Electronic Locks to IP-rated steel cabinets.
 - Sterna MONIT, Monitored Padlocks and Transport Monitoring Systems.
 - Sterna KIMS, Key Management Systems and Deposit Boxes.
 - ALTERO, Reading mechanical utility meters (www.altero.com).

We also represent EVOKO, Meeting room products. (www.evoko.se)

Current Status of Sterna

- Sterna RIKE electronic motor locks have been installed in over 250,000 telecom sites and is operating in one on-line Cloud based system in the Indian telecom market controlling the IP-rated steel cabinets in base stations eliminating battery theft and monitoring service staff performance.
- Sterna MONIT Padlocks are being implemented when we upgrade the existing 8,000 petrol trucks that already are using our system. These trucks are now being upgraded to our new INTERGRA system, which ensures that the tank trucks can only be opened by an authorized person in a certain geographical area.
- Sterna KIMS Key Management Systems and Deposit boxes are being developed to the next generation introducing cloud based monitoring.
- Altero MeterCam readers are going through POC's (Proof Of Concept) projects on mechanical gas and water meters in several markets.
- EVOKO is a market leader in modern meeting management products with an extensive international reference list.

The Companies



Altero GreenTech AB (Altero), www.altero.com, is a Swedish based company that has developed the Altero MeterCam, which is a smart remote reader that can read all types of mechanical utility meters and then transfer the readings via The Cloud.

Sterna (Singapore) Pte Ltd is a Singapore based company that represents Altero in the Asia Pacific.

Sterna and Altero has a common product development on applications to various market segments.

Background Altero concept

- The majority of all mechanical utility meters for Electricity, Gas and Water are mechanical.
- Today's consumer of the utility services requires regular and correct readings and this creates operational hurdles for the operating companies.
- Human reading are costly and can also have fraud aspects involved in the reading process.
- The environmental side of this is also of importance, as the consumer more and more want to be involved in saving our resources.
- Lately utility companies have a need to understand the overall status of their distribution grid network and how local consumption is changing during daytime, weekly and seasonally, as they want develop a remote diagnostic system to predict future consumptions in the grid.

Altero makes all meters talk



The MeterCam installed on a gas meter.



The MeterCam installed on a water meter.



Converts all mechanical meters to modern cloud connected meter devices. Can be used on Gas meters, Electrical meters, Water meters and all kind of other mechanical meters, where remote meter reading is needed.

The Altero MeterCam Reader

The Altero MeterCam is an easy-to-install battery operated reader, which remotely can read standard mechanical meters.

- Easy and low cost installation.
- IP67 ABS housing, about 130 g.
Size depends of which meter type.
- Hacker proof as no processor and unit only communicated out.
- Battery operated with a life time of minimum 10,000 readings or 5-7 years battery life.
- Wireless communication to a Gateway.
- Selectable reading intervals. With 4 readings/day the battery lasts for 5 - 7 years and with 8 readings/day it lasts about 2 to 4 years.



The numbers on the mechanical meter can be seen through the Altero MeterCam

Installation of MeterCam Reader



Attach the MeterCam to the mechanical meter.



Automatic calibration by just "touching a button".



Software setup to match water meter ID with the MeterCam ID.

The Altero readings

- At each reading the MeterCam sends a data string consisting of :
 - Serial number of the mechanical meter.
 - The actual reading of the mechanical meter.
 - Date and Time of the reading.
 - Battery voltage level.
- This data is sent Wireless to a Gateway.
- The Gateway collects data and sends via the Cloud to a central server collecting all the data readings.
- The Management software in the server is customer unique.

The Communication

- The Altero reader can communicate with the Management software in several ways, depending of type of installation or customer requirements:
 - Wireless M-Bus (169/868 Mhz).
 - SigFox (Low power network)
 - LoRa (Alliance for LPWAN – Low Power Wide Area Network)
 - NB-IoT (Narrow Band Internet of Things)
- There are other communication formats and there is a separate MeterCam and Gateway for each type of Communication, which mostly is requirements from the end-user.

The M-Bus Gateway

The Altero M-Bus Gateway collects data from the MeterCam II and sends it in a structured way to the clients requirements and needs.

The Altero Gateway Features:

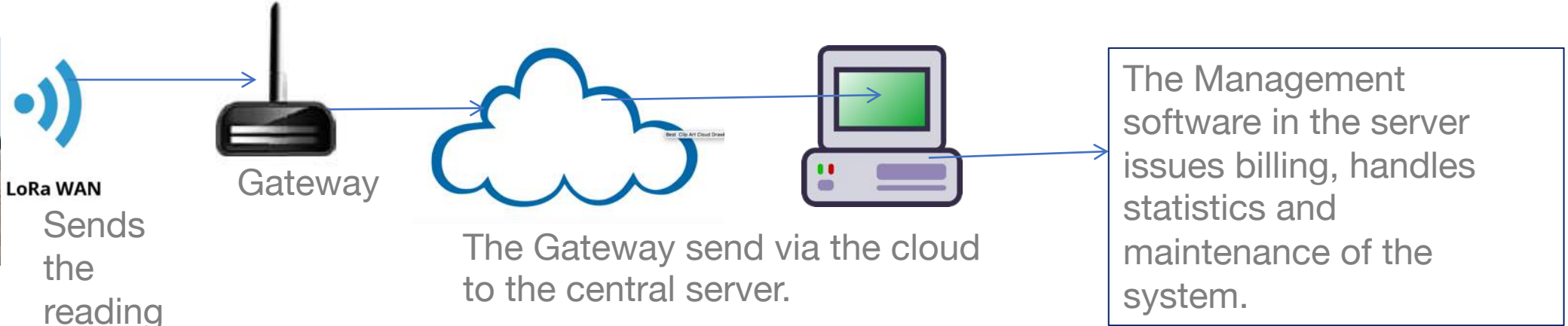
- Easy to install.
- Each Gateway handles 100 MeterCam.
- GPRS, 3G, 4G or Ethernet connections.
- Battery or external power supply.
- IP67 ABS housing.
- AES128 (Mode 5) + CMAC (Mode 7) security



System structure



A MeterCam installed on a water meter.



The network (e.g. SigFox, LoRa or NBloT) operates like a mobile phone network, so each Altero reader tries to find a Gateway and then connects. The SigFox and LoRa Gateway covers 2 – 15 km area depending of location and it can communicate thousands of readers. NBloT will have different structure. The data is then sent via the cloud to a server which processes the data.



NBloT

The Management Software

- Normally the utility company have their own Management Software and Sterna can assist in integrating the data transmission from the Altero System to the Management Software.
- Sterna designs customer unique Management Software, when this is required.
- The Management software handles features like Billing, Maintenance, End user statistics and graphs and other customized functions
- Many utility companies requires the Management Software to handle Remote Diagnostics. By looking at individual readers as well as large geographical areas, the algorithms in the Remote Diagnostics will try to establish a system to predict certain behavior patterns at an individual user or on a certain regional area.

References

- The Altero reader is a relatively new concept, but no installations in Sweden as all electrical meters are smart-meters, there are hardly no gas meters in the country and water readings are done annually. Presently the status for Altero readers are:
 - Denmark. Electrical meters in operation at Modström and pilot test at SEAS on gas meters.
 - Portugal: Pilot tests at WhyEnergie on gas meters.
 - Brazil: Pilot tests at Lao Industrial on gas meters.
 - Malaysia: Pilot tests on water meters (in a LoRa network).
 - Canada: Preparation for pilot test.

END OF PRESENTATION

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