Radio Mesh Network

High performance communications network for smart meters

Multiple utilities

A Kamstrup Radio Mesh Network is a network infrastructure, built to collect data from electricity, gas, water, heat and cooling meters. The network communicates with different meter makes and meter types.

Meters from Kamstrup are available with built-in radio unit enabling immediate connection to the network and remote reading capability.

Robust and reliable

A Kamstrup Radio Mesh Network is a true two-way communicating mesh network. All meters act as nodes in the network receiving and forwarding data and operating independently from one another. If a meter is removed, the network will automatically re-route the data communication. When added to a network, a meter will automatically assist in routing communications. This redundancy in routes enhances the overall reliability of the network and provides a very robust data collection.

Intelligent

The mesh network is self-healing. Regardless of disruptions in communication routes, the network automatically maintains a high and constant performance no matter how many meters are added, removed or repositioned in the network. Providing self-healing from and resiliency to interference and network outages a Kamstrup Radio Mesh Network reduces management costs.

Kamstrup

Superior stability with mesh technology

Basic network setup with few components

A Kamstrup Radio Mesh Network consists only of a few components. In battery-operated networks a limited number of routers are required, but unlike other metering systems, no filters, repeaters or other external devices are required. In networks with mains-operated meters even routers are not required.

Each meter has a built-in radio unit, which communicates with other meters in the network. Concentrators in the network identify and maintain the optimal communication routes. With few components and dynamic routing the mesh network is fast and simple to deploy and with lower costs than other metering systems.

Comprehensive coverage

The communication routes in a radio mesh network overcome the physical limitations of a traditional wired system like PLC. The network stays intact even when load is transferred between substations. There is no need for a concentrator in every substation to communicate with the meters.

With only a few concentrators a comprehensive coverage can be achieved, even in harsh environments.

Low noise and interference susceptibility

In opposite to common PLC networks noise and interference are not a potential threat to radio mesh networks.

In license-free frequency bands noise and interference problems are few and far between. ISM bands are regulated by national authorities with regards to transmission power and duty cycle. In licensed frequency bands, which are restricted to smart communication networks, interference problems are non-existing.

High bandwidth

A Kamstrup Radio Mesh Network has more than sufficient bandwidth to transfer data.

It easily supports 15-minute load profile data from all electricity meters, while still leaving bandwidth available for online readings in relation to customer support and analysis.

It allows for uploading of Time-Of-Use tariff structures and other configurations performed on a daily basis. And without compromising the daily reading it provides possibility for dynamic control of loads.

Connected meters may also initiate communication. In case of a water leakage, a rupture or a critical malfunction in the power supply, the meter will initiate an alarm and send it via the network to the utility.

A final major advantage of high bandwidth is the possibility of over-the-air upgrades and functionality updates, which is a crucial requirement for future developments in smart metering.

High performance

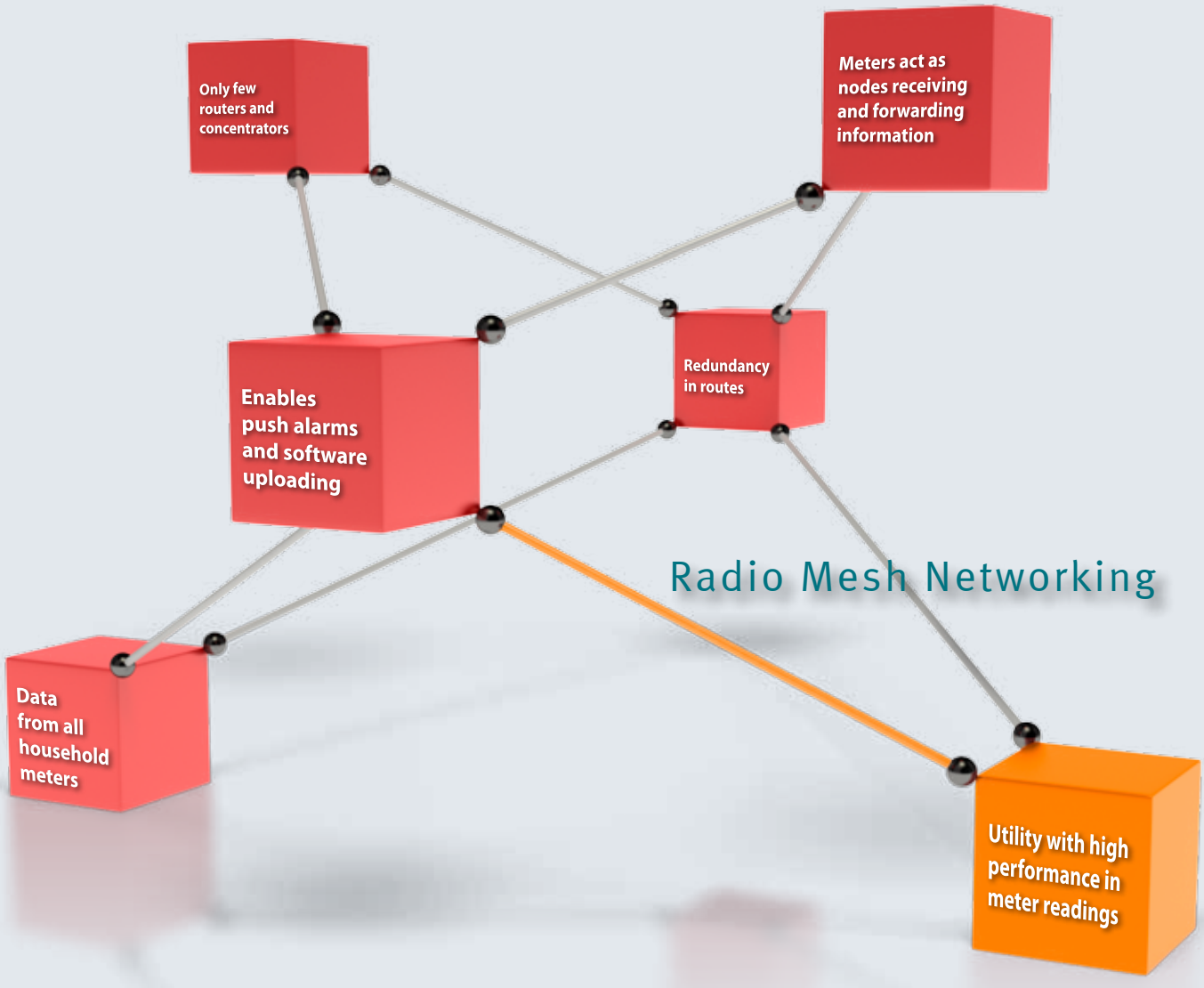
During the periods of the day when no readings or configurations are performed, concentrators control and maintain the communication routes to keep them constantly optimized. In this way a Kamstrup Radio Mesh Network maintains a constant and high performance, which is unique to this kind of system.

The network operates at radio frequencies between 433-444 MHz. In this range radio signals easily penetrate buildings, travelling through windows, walls and partitions.

Proven experience

Kamstrup has developed metering systems based on radio mesh communication since 2002 and has delivered more than 2,000,000 meters operating in radio mesh networks.

Performance in Kamstrup Radio Mesh Network is higher than 99.7%, without reservations.



Get started with Radio Mesh Network

If you wish to know more about the Kamstrup Radio Mesh Network and how to get started with wireless meter reading, call us today.

We can offer you our network solution on a trial basis or as a pilot project for you to test the high performance and reliability that our customers are used to.

Facts and Figures about Kamstrup Radio Mesh Network

Frequencies	433 MHz unlicensed ISM band 444 MHz licensed band
Transmit Power	10mW@433MHz (typically battery operated meters) 500mW@444MHz (typically 230V operated meters)
Range urban areas	Up to 500 meters
Range rural areas	Up to 10 kilometres
Standards used	EN13757-3 (M-Bus protocol), EN13757-5 (Network relaying)
Data security	Advanced Encryption AES-128

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Industrivej 28, Stilling · 8660 Skanderborg · Denmark · Tel.: +45 89 93 10 00 · Fax: +45 89 93 10 01 · info@kamstrup.com · www.kamstrup.com