

SAMSON

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DYNAMIC · **SMART** · WIRELESS

SAM-LAN: The Wireless Network for Local and District Heating Systems



COMMUNICATION AND TECHNOLOGY



RELIABLE COMMUNICATION

- Simple consumption metering and data handling
- Convenient control and remote maintenance access
- Remote monitoring in urban and rural areas
- Reliable, stable communication through brick walls and from basements

INSTRUMENTATION AND VISUALIZATION

A district heating control station with broadband connection is used to access the wireless network. The following products can be used for visualization and include additional functions:

- TROVIS HEATING NETWORK XL
- TROVIS HEATING NETWORK 60
- TROVIS 55 Pro/Home (smartphone apps)



TECHNICAL DATA

- Internet of Things (IoT) using IPv6
- Data transmission with up to 100 kbit/s
- AES-256 encryption
- Wireless technology using 869 MHz ISM band
- 80 nodes per aggregation node
- Multiple antenna system
- Firmware updates over the aggregation node



SAM-LAN MEETS IoT



SAM-LAN is a smart, dynamic wireless network (based on LoRa Alliance™ technology) to connect house substations in local and district heating systems. The stand-alone network is particularly dynamic and flexible with its own topology. Unlicensed radio frequency bands are used to enable communication between substations. The wireless network and data exchange over SAM-LAN help save energy and optimize existing systems.

BENEFITS AT A GLANCE

- Easily upgradable system
- Logging of heating and meter data
- Wide range covered in urban and rural areas
- Self-configuring, self-healing wireless network connections
- Excellent energy efficiency
- No additional cost resulting from third-party suppliers



 **LoRa Alliance** Member

FUNCTIONS AND SECURITY



BENEFITS OF USE

- Many possibilities to cut cost
- Optimized operation
- Optimized costing
- Fault management
- Simultaneous connection of heating controllers and consumption meters

SAVING OF DATA

The required data to be saved are logged based on static lists. The aggregation node collects all consumption data within the network and makes them available for retrieval.

DATA LOGGING

The following consumption data and states can be logged, for example:

- Operating state
- Error status
- Flow rate
- Volume
- Capacity
- Work
- Flow and return flow temperatures
- Key data on billing day
- ID number
- Maximum values

INTEGRATED INTELLIGENCE

The self-organization of SAM-LAN prevents data loss. If a connection between two nodes temporarily fails, the network automatically searches for the next possible path to transfer data packages.

SECURITY

A high level of data security is provided by SAM-LAN's network topology with its security features. AES-256 encryption prevents unauthorized access, data manipulation, and data theft.

PLANNING AND SIMULATION



PLANNING

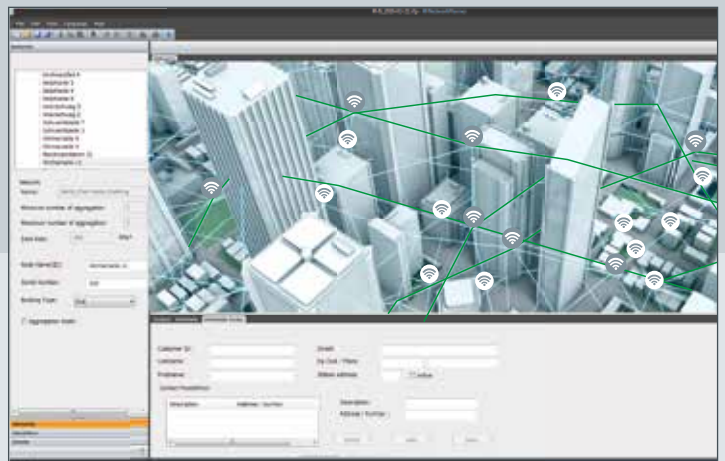
The "RFNetworkPlanner" software assists users in planning and customizing their wireless networks. Geographic data are used as the basis for mapping and facilitate network planning. After determining the house substations and nodes, the attenuation values are selected based on the type of building. Through simulation, the appropriate network structure is found and the ideal position of the aggregation node (wireless network access point) calculated.

STATUS

The wide range of data collected by the aggregation node guarantees the network's proper functioning.

CUSTOMIZATION

The metadata serve to customize the controller and aggregation nodes. Customer-specific data, such as name, address, phone number, and station number, help achieve a well-structured data management.





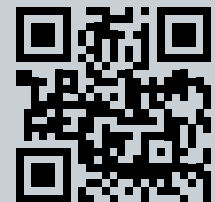
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● Production sites ● Subsidiaries



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SMART IN FLOW CONTROL.