



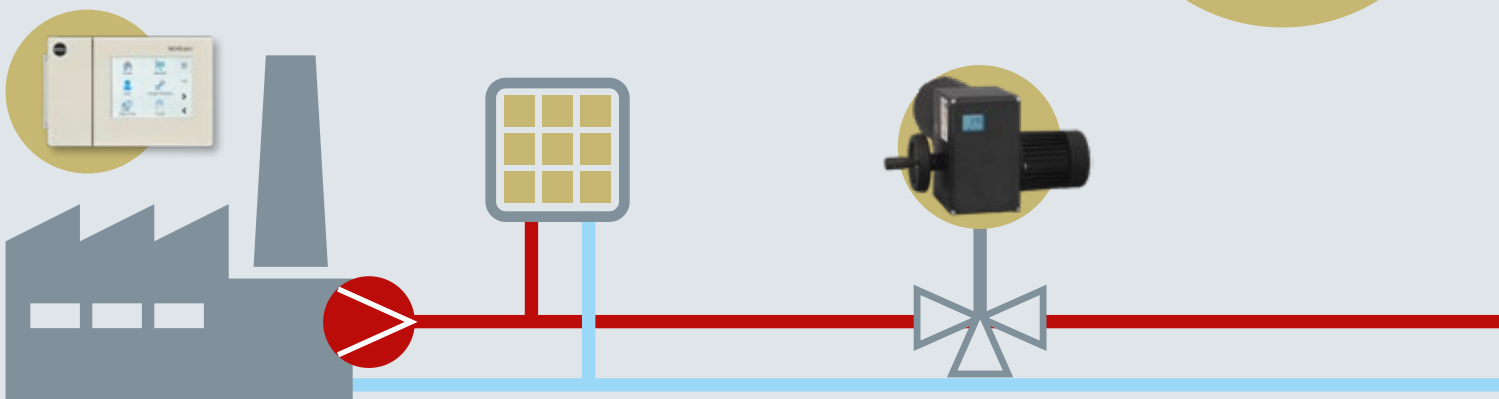
**The Digital Solution for Local Heat Supply  
and District Heating Networks**



# AT A GLANCE

SAM DISTRICT ENERGY is a web-based solution for managing, controlling and optimizing heating and cooling systems. All key data on connected controllers, utility meters and electric actuators are saved at one central location. A gateway is used to log the energy consumption data and make them available on the SAM DISTRICT ENERGY platform. Meter IDs and consumption data are clearly assigned to one

another so that the heat consumption and billing information are logged correctly for every customer. Making trips to read meters on site becomes a thing of the past. The large amount of logged data allows you to analyze your local and district heating networks, increase their efficiency and achieve better system transparency.



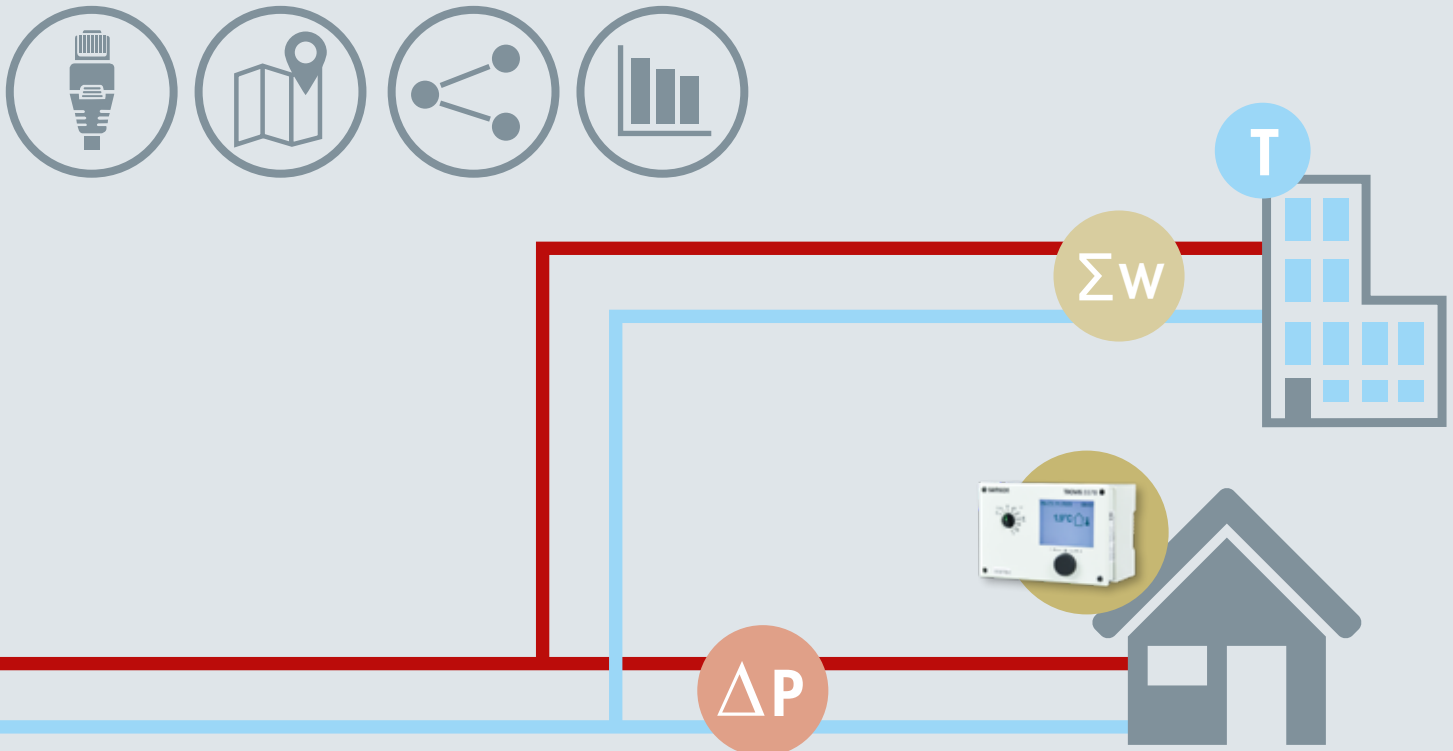
# APPLICATIONS AND MARKETS

## Energy suppliers and network operators

- Detailed analysis of the district heating networks
- Information on water flow times and routes
- Reduced operating temperature, resulting in lower fuel cost and CO<sub>2</sub> emissions
- Data pool for analysis and operational plans

## Property management companies and service providers

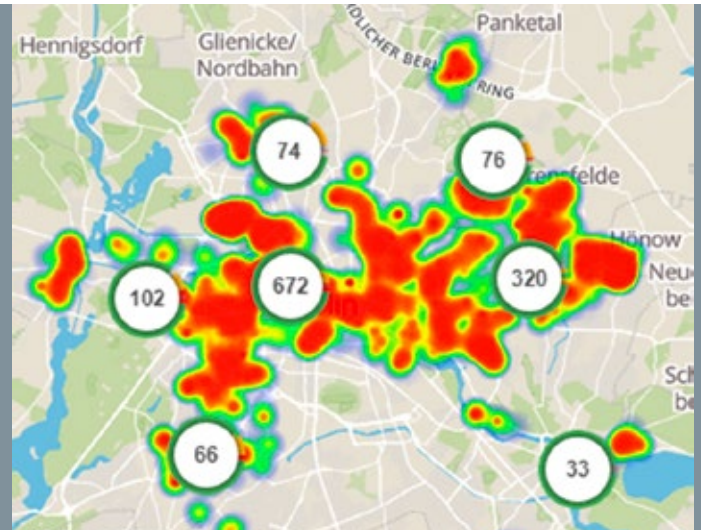
- Support in configuring, optimizing and monitoring systems
- Assistance in planning service jobs
- Strengthened customer loyalty through improved service
- Early alarm notification in the event of malfunctions



# ADDED VALUE

## Visual network analysis

- Heat map in time-lapse mode
- Dynamic detection of a network's point of worst efficiency
- Route management
- Theoretical and actual hydronic balancing of the district heating network
- Connection of pressure sensors for upstream and downstream pressures, safety circuits and pumps



## Sensor sharing

- Fewer sensors (e.g. outdoor sensors) required, shorter mounting times and less corehole drilling
- Data exchange between controllers within a branch
- Forwarding of demand
- Remote switching of pumps (e.g. feed pumps)

## Data export to third-party ERP systems

- SAP
- Oracle®
- FTP etc.

## Network pump control

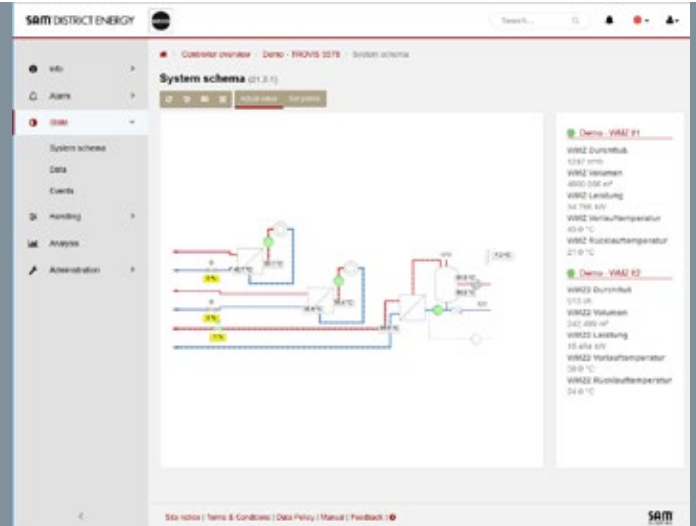
- Reduced pump output
- Control based on differential pressure and/or control signals issued by heating controllers
- Centralized overview
- Easy installation thanks to cross communication

## Maximum transparency

- Historical data for documentation, certification and analysis
- Heat consumption of individual meters or entire branches recorded by virtual devices
- Event and alarm tracking
- Overview of states and network behavior
- Opportunity to create new business models

## The bigger picture

- Lower temperature in the district heating network by reducing the safety margin
- Fewer network losses
- Optimized service
- Easy isolation and opening of entire pipeline sections
- Improved utilization of network pumps thanks to flexible analysis of pressure sensors
- Energy limitation



## Unlimited scalability

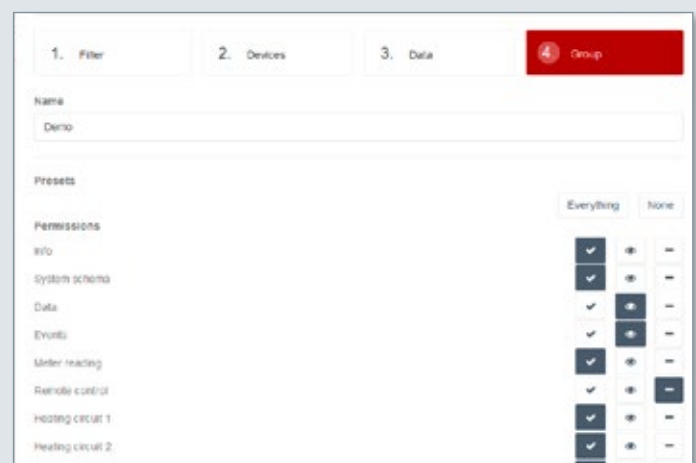
- Unlimited number of users
- Unlimited number of stations
- Integration of existing plants
- Integration of stations away from the existing infrastructure

## 24/7 customer support

- Only one point of contact for both connectivity and district heating
- Alarm management
- Remote access saves unnecessary trips to the field

## Secondary use

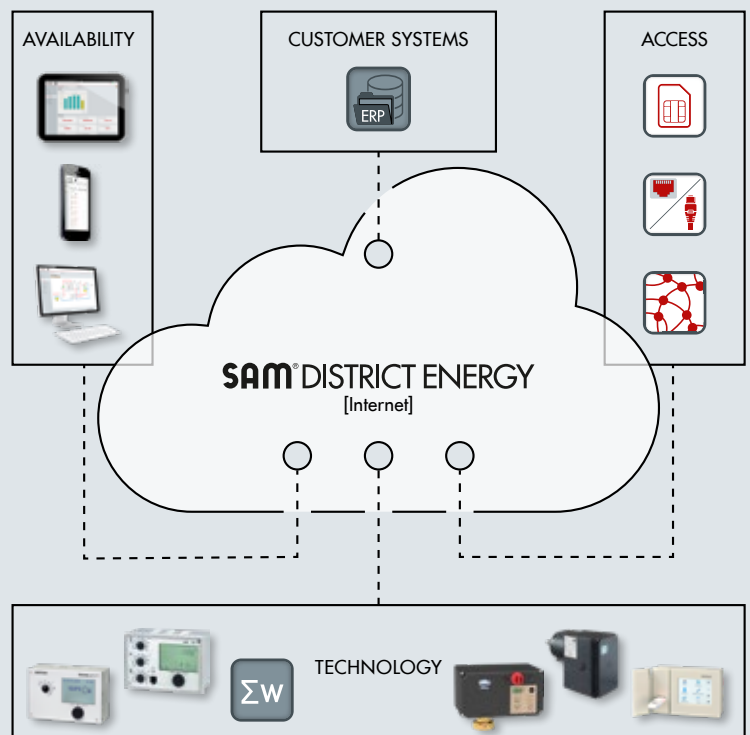
- Individual access authorization for key account users
- Consumption readings in real time
- Export function
- Detailed user administration
- Active assistance for customer support staff



# TOPOLOGY



- Browser-based app with responsive web design (suitable for all devices, e.g. notebooks, computers and smart-phones)
- Link existing systems over web services (API)
- Flexible connection to the web portal
- Combination of various connections within a system
- Connection of all relevant devices in a station, such as controllers, actuators, heat meters, differential pressure meters, pumps, safety circuits, door contacts etc.
- Versatile use of heat meters, e.g. for temperature monitoring

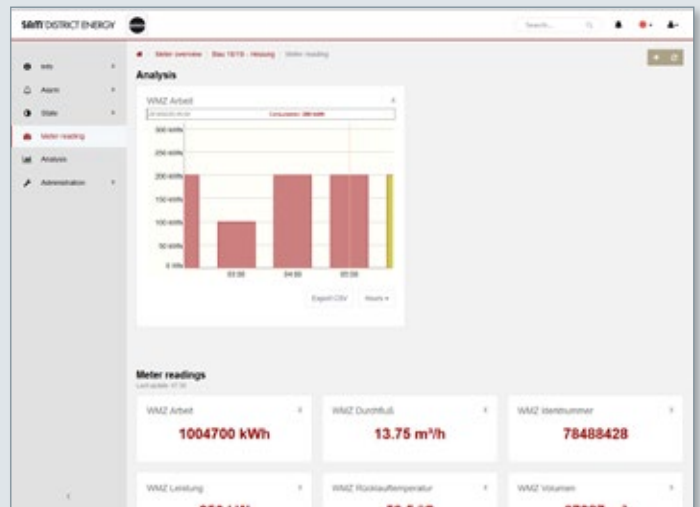


# THIRD-PARTY SYSTEMS



SAM DISTRICT ENERGY makes it easier to integrate third-party systems, e.g. customer servers. Functions include billing, data management, start-up, protocols and map data. An application programming interface facilitates the integration of such functions.

- Synchronization of administration data
- Exchange of information excluding personal data
- Integration of ERP system protocols
- Network route plans
- Location IDs and names
- Geographic coordinates



**SAM**<sup>®</sup>  
DIGITAL  
SAM DISTRICT ENERGY



# CONNECTIVITY

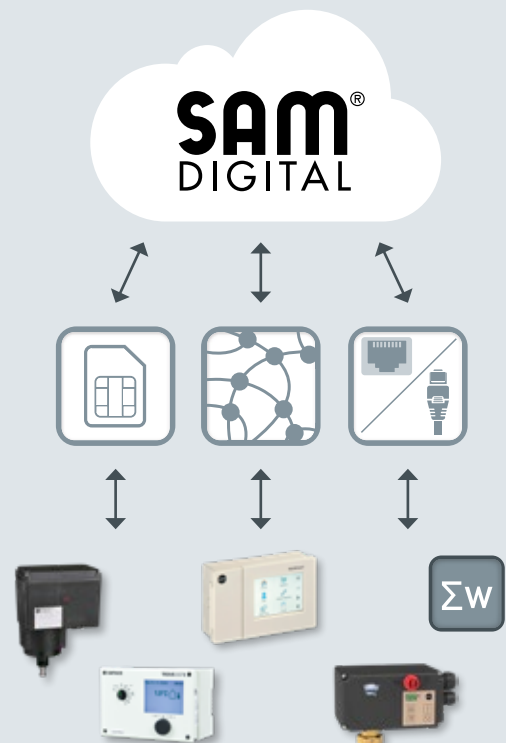


Three different types of technology are available to link systems to SAM DISTRICT ENERGY:

- DSL
- Mobile phone network
- SAM-LAN wireless technology

## Rental instead of buying

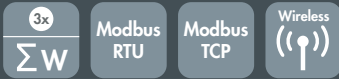
- SAMSON offers attractive rental models as part of an all-included service package for the term of contract.
- Package solutions are available for connectivity to the web portal. Gateways and routers with M2M SIM cards (including data rate) provide a high level of privacy and data security.







### SAM LAN Gateway



- Wireless technology (869 MHz)
- 80 nodes per aggregation node
- One controller per node over RS-232 or TTL
- Remote polling of meters with meter bus interface
- Internet of Things (IoT) using IPv6
- Interface to LoRaWAN™ technology
- AES-256 encryption
- Multiple antenna system
- Controller firmware updates using the aggregation node
- Data transmission with up to 100 kbit/s



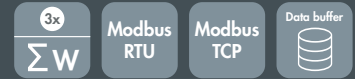
### SAM MOBILE Gateway



- Mobile phone network
- Modbus communication using RS-485 and RS-232 or TTL
- Physical inputs and outputs (two digital inputs, one digital output, one analog input)
- Remote polling of meters with meter bus interface
- Firmware updates of connected controllers over the gateway
- Buffer to temporarily store data while the system is offline for a maximum of 14 days (saved in one-minute cycles)



### SAM HOME Gateway



- Fixed infrastructure (DSL/LAN)
- Modbus communication using RS-485 and RS-232 or TTL
- Physical inputs and outputs (two digital inputs, one digital output, one analog input)
- Remote polling of meters with meter bus interface
- Firmware updates of connected controllers over the gateway
- Buffer to temporarily store data while the system is offline for a maximum of 14 days (saved in one-minute cycles)

# START-UP

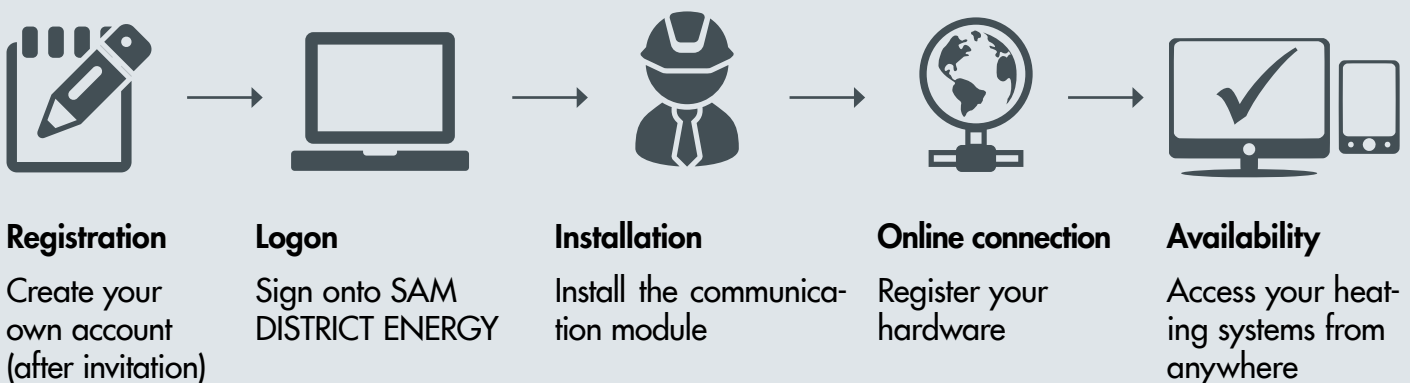


## Consulting and start-up

Start-up according to the plug-and-play principle is easily performed in just a few steps. No complicated configuration of end devices or routers is necessary. SAMSON also offers support through certified partners.

## Benefits

- Quick and easy installation
- No computer knowledge necessary
- Devices, software and services from a single source
- Traceability
- Pay-per-use billing



# DATA SECURITY



## Data security by design

A holistic approach was adopted for SAM DISTRICT ENERGY to enhance the protection, redundancy and security of data through security procedures.

## Holistic data security

- Professionally managed data center certified according to ISO 27001, ISO 27017, ISO 27018 and ISO 9001
- Hosted in Germany and according to German law
- Fully encrypted data transfer
- Personal accounts protected by strong passwords
- Continuous penetration tests (PCI DSS compliance)
- Compliance with the EU General Data Protection Regulation (GDPR)

# SAMSON AT A GLANCE



## STAFF

- Worldwide 4,500
- Europe 3,700
- Asia 600
- Americas 200
- Frankfurt am Main, Germany 2,000

## INDUSTRIES AND APPLICATIONS

- Chemicals and petrochemicals
- Food and beverages
- Pharmaceuticals and biotechnology
- Oil and gas
- Liquefied Natural Gas (LNG)
- Marine equipment
- Power and energy
- Industrial gases
- Cryogenic applications
- District energy and building automation
- Metallurgy and mining
- Pulp and paper
- Water technology
- Other industries

## PRODUCTS

- Valves
- Self-operated regulators
- Actuators
- Positioners and valve accessories
- Signal converters
- Controllers and automation systems
- Sensors and thermostats
- Digital solutions

## SALES SITES

- More than 50 subsidiaries  
in over 40 countries
- More than 200 representatives

## PRODUCTION SITES

- SAMSON Germany, Frankfurt, established in 1916  
Total plot and production area: 150,000 m<sup>2</sup>
- SAMSON France, Lyon, established in 1962  
Total plot and production area: 23,400 m<sup>2</sup>
- SAMSON Turkey, Istanbul established in 1984  
Total plot and production area: 11,053 m<sup>2</sup>
- SAMSON USA, Baytown, TX, established in 1992  
Total plot and production area: 9,200 m<sup>2</sup>
- SAMSON China, Beijing, established in 1998  
Total plot and production area: 10,138 m<sup>2</sup>
- SAMSON India, Pune district, established in 1999  
Total plot and production area: 18,000 m<sup>2</sup>
- SAMSON Russia, Rostov-on-Don, established in 2015  
Total plot and production area: 5,000 m<sup>2</sup>
- SAMSON AIR TORQUE, Bergamo, Italy  
Total plot and production area: 27,684 m<sup>2</sup>
- SAMSON CERA SYSTEM, Hermsdorf, Germany  
Total plot and production area: 14,700 m<sup>2</sup>
- SAMSON KT-ELEKTRONIK, Berlin, Germany  
Total plot and production area: 1,060 m<sup>2</sup>
- SAMSON LEUSCH, Neuss, Germany  
Total plot and production area: 18,400 m<sup>2</sup>
- SAMSON PFEIFFER, Kempen, Germany  
Total plot and production area: 35,400 m<sup>2</sup>
- SAMSON RINGO, Zaragoza, Spain  
Total plot and production area: 18,270 m<sup>2</sup>
- SAMSON SED, Bad Rappenau, Germany  
Total plot and production area: 10,370 m<sup>2</sup>
- SAMSON STARLINE, Bergamo, Italy  
Total plot and production area: 26,409 m<sup>2</sup>
- SAMSON VDH PRODUCTS, the Netherlands
- SAMSON VETEC, Speyer, Germany  
Total plot and production area: 27,090 m<sup>2</sup>

## SAMSON AKTIENGESELLSCHAFT

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