

# SOFREL S4TH Range

Remote terminal units 4.0 for connected and cybersecure energy facilities



# Managing connected and cybersecure Heating Ventilation

## ACQUISITION/REGULATION

TEMPERATURE SENSORS

HEAT, ELECTRICITY,  
WATER METERS

VALVES

BOILERS

HEATING CIRCUITS

SANITARY HOT WATER

AIR-HANDLING UNITS





# and Air Conditioning facilities

**SOFREL S4TH Remote Terminal Units bring telemetry into the 4.0 era.**

Based on IP (Internet Protocol) technologies, S4TH integrates communication modems and harnesses specific ready-to-use HVAC functions to monitor your sites 24/7, alert you in the event of an anomaly, and manage and automate your technical facilities.



**SUPERVISION  
& MONITORING**



**AUTOMATIC REDUNDANCY OF  
COMMUNICATION MODES:  
2G / 3G / 4G & ADSL / XDSL...**

**MOBILE ACCESS  
IN THE FIELD**



**REMOTE  
VIEWING**



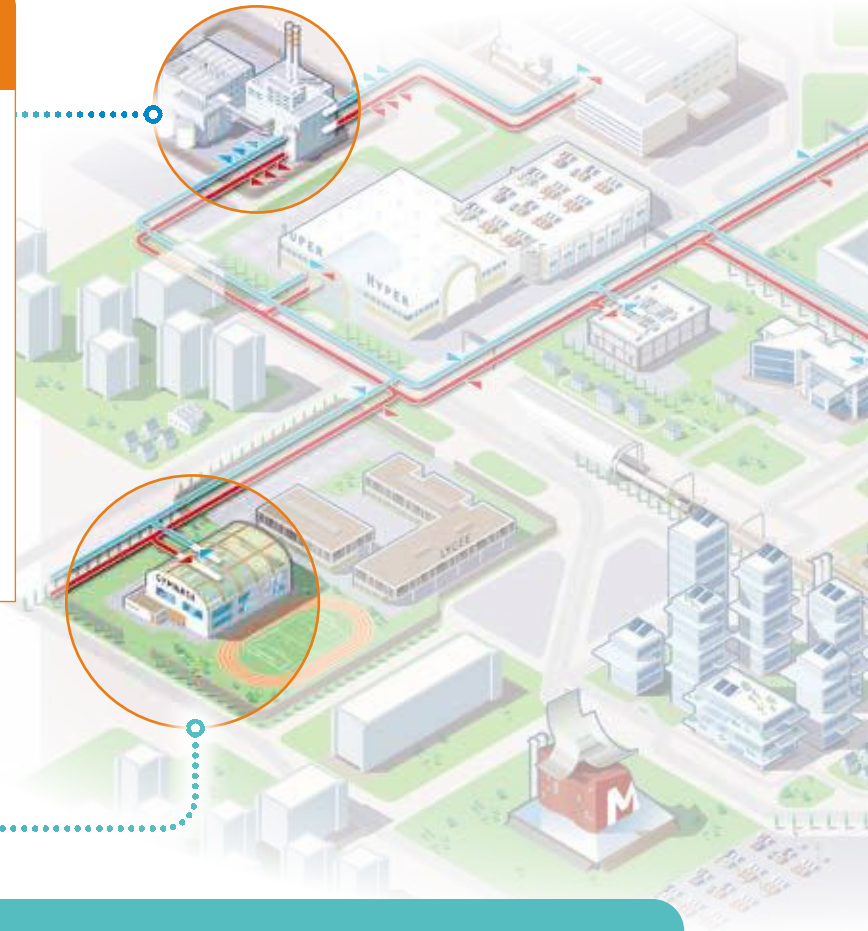
# SOFREL S4TH modular architecture and specific HVAC function TO **ADAP** TO YOUR APPLICATIONS

## SUBSTATION

- **Heat-exchange** regulation
- **Native communication** with energy meters
- **Control of exchanged power** and able to limit it
- **Monitoring** of exchanger clogging
- **Recording** of temperatures, flow rates, energy, etc.
- **Communication via 2G/3G/4G** to scada or analytics dashboards
- **Inter-RTU** capability with central boiler room or substation

## HEATING POWER PLANT

- **Native communication** with energy meters
- **Calculation** of production reports
- **Communication** with boilers, PLC, regulators, etc.
- **Recording** of temperatures, calorie level, etc.
- **Communication via 2G/3G/4G** to scada or analytics dashboards
- **Inter-RTU** capability with substations



## ON-CALL AND FIELD RESPONSE TEAMS

- Remote control
- On-site and remote data visualisation
- Malfunction immediate alert



## HEATING FACILITIES

- **Full boiler room regulation** : boilers and heating circuits
- **Consideration of occupancy schedules** for control
- **Regulation and monitoring** of sanitary hot water production
- **Calculation of degree day data** to monitor consumption and deviations
- **Native communication** with energy, gas and electricity meters
- **Recording of data** on temperature, flow-rate, gas consumption, etc.
- **Communication via 2G/3G/4G** to scada or analytics
- **Inter-RTU** capability with secondary substations

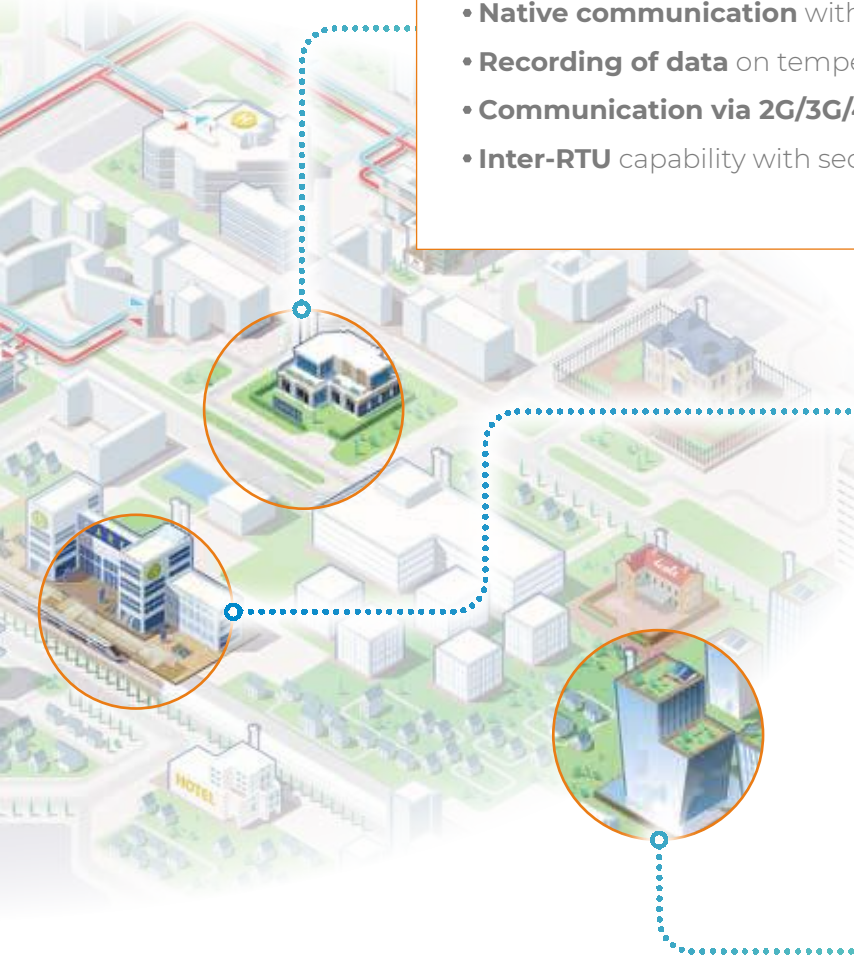


## VENTILATION AND AIR CONDITIONING

- **Regulation of heating or cooling process**
- **Management of air recycling and renewal rate**
- **Take into account**
- **Communication via 2G/3G/4G** to scada or analytics dashboards

## SOLAR SANITARY HOT WATER

- **Complete regulation** of sanitary hot water production
- **Monitoring** of production temperatures to prevent material damage or legionella
- **Native communication** with energy meters
- **Recording of data** on temperatures, flowrates, calories, etc.
- **Calculation** of production reports
- **Communication via 2G/3G/4G** to scada or analytics dashboards
- **Inter-RTU** capability with back-up boiler room



# SOFREL S4TH and its ecosystem

## DRIVING **PERFORMANCE** AND **SAFETY**

*IIoT* **SMART DATA**

### 100% AGILE OPERATION



- **Plug and play**” touchscreen display units
- **Integrated HTML 5** web server (mimic diagrams, curve charts, current statuses)
- **Centralised** network management
- **Easy interfacing with SCADA systems**
- **Real-time viewing of information, statuses, etc.**

*M2M*



## EASY SET-UP



- **Configurable** and programmable devices
- Ready-to-use **sector-specific libraries**: Heating, Communication, Ventilation and Air conditioning, etc.
- **Built-in communication modules**
- **Configuration and user** administration software (S4-Manager)

## ROBUSTNESS AND LONGEVITY



- **Complete control over** development and manufacture (100% French design and production)
- Provides a **high degree of EMC** or surge protection
- Robust **equipment** for installation in harsh environments
- **Regular updates** to ensure telemetry network longevity
- **3-year warranty** including surge cover

# SMART ENVIRONMENT

## HIGH LEVEL OF SECURITY



- **Built-in cybersecurity** (encryption, VPN server, authentication certificates, etc.)
- **Centralised** access management
- **“Watchdog” mode** for switching to a degraded PLC in the event of process anomaly

## RELIABILITY OF COMMUNICATIONS



- **Auto** switchover or initial selection of 2G/3G/4G mode
- **Automatic mobile operator** selection function according to criteria defined for multi-operator cards
- **Double ADSL/3G/4G/GSM support**: in the event of ADSL communication outage, the S4TH automatically switches over to GSM
- **Monitoring of exchanged data volume and communication cost control**
- Option of **adding free communication modes** (radio, LP)
- **No loss of data**: everything is transmitted to central systems
- **Device backed up by battery** to ensure continuity of communication and recording

# SOFREL S4TH sturdy industrial devices

## FULLY INTEGRATED INTO YOUR FACILITIES IN THE



Built-in modem



Backup battery



Simplicity



Robustness



S4-Manager



Cybersecurity



HTML



Communication redundancy ADSL

GSM

USB terminal

Up to 3  
communication  
modules (option)

Ethernet Port

2G/3G/4G modem

4 or 8 Analogue T° inputs

4 to 8 Digital inputs



USB port  
(Display)

2 to 4 Analogue outputs

2 to 4 Digital outputs

Push-in wire  
connectors

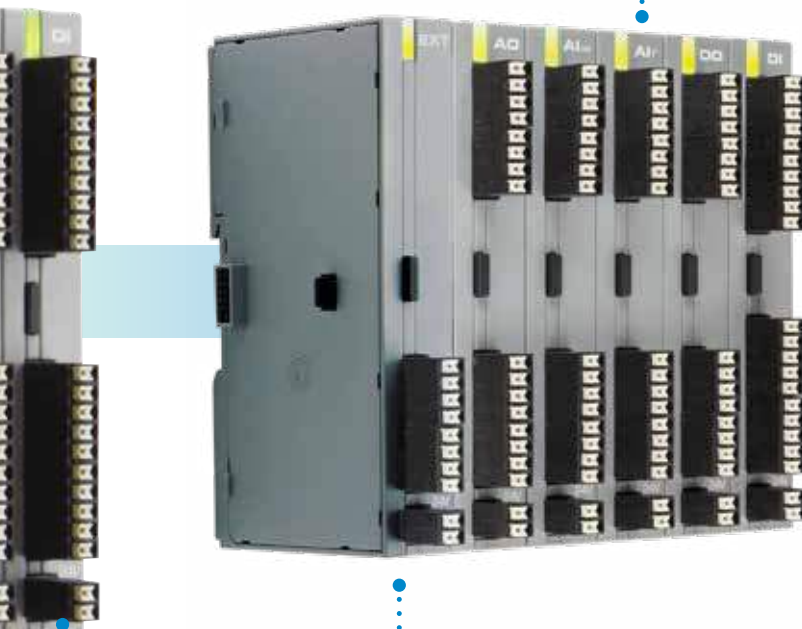
Warranty

3  
years



# E LONG TERM

Up to 10 I/O  
extension modules



EXT bus extension  
modules

## SOFREL S4TH Substation Medium Fibre RS485 or RS232

4DI, 4AIT°, 2DO, 2AOv,  
2 EXT I/O - 100 data



## SOFREL S4TH Substation Medium GSM RS485 or RS232

4DI, 4AIT°, 2DO, 2AOv,  
2 EXT I/O - 100 data



## SOFREL S4TH Substation Large GSM RS485 or RS232

8DI, 8AIT°, 4DO, 4AOv,  
4 EXT I/O - 600 data



## SOFREL S4TH HVAC Small GSM

4DI, 4AIT°, 2DO, 2AOv,  
2 EXT I/O - 600 data



## SOFREL S4TH HVAC Medium GSM

4DI, 4AIT°, 2DO, 2AOv,  
10 EXT I/O - 1000 data



## SOFREL S4TH HVAC Large GSM

8DI, 8AIT°, 4DO, 4AOv,  
10 EXT I/O - 1000 data



**HIGH MODULARITY**

## ◆ Built-in HTML5 web server for multi-terminal operation

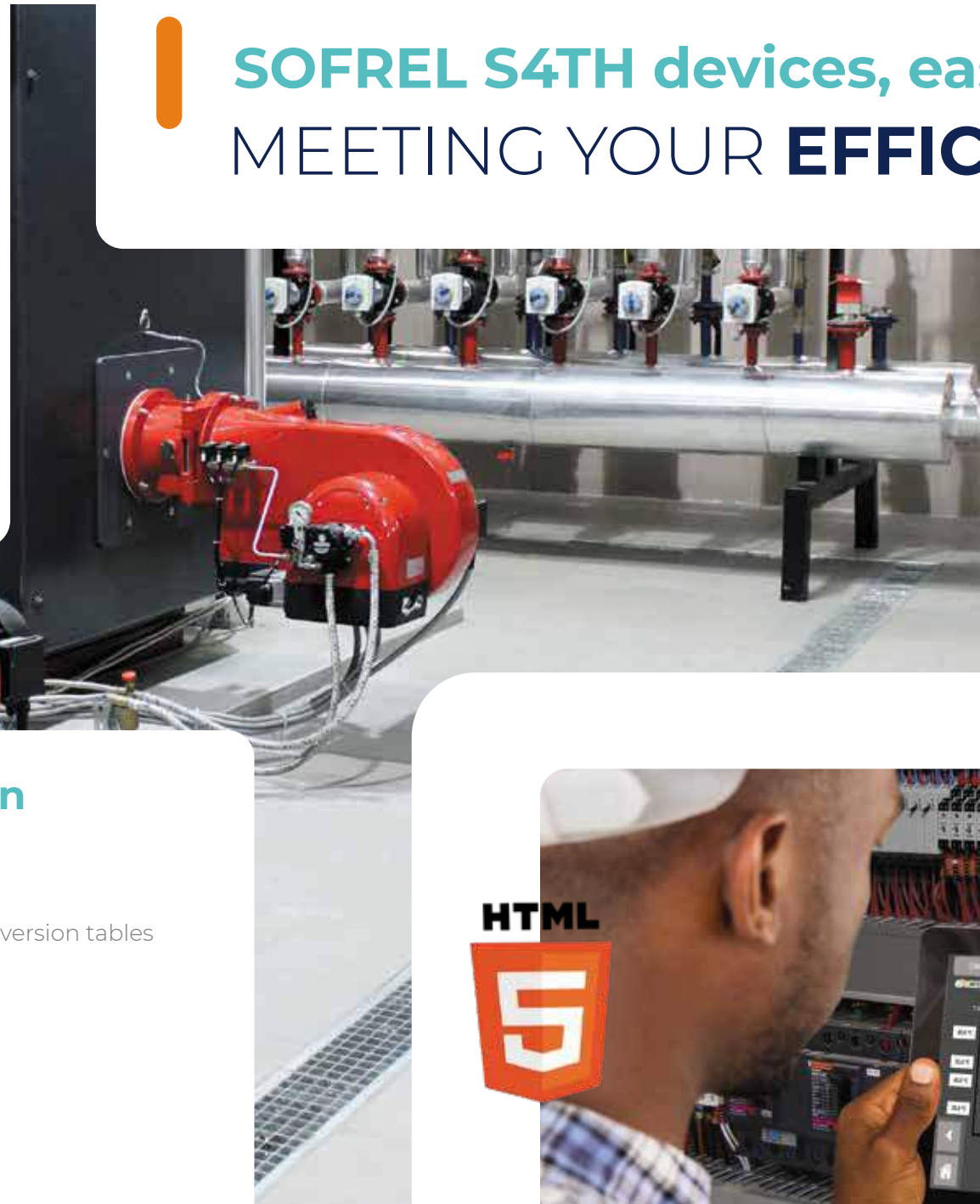
- Responsive HTML-5 web server
- Data access via smartphone, PC or tablet
- Data viewing
  - Logs and alarm acknowledgements
  - Facility operational log
  - Adjustment of setpoints/schedules
  - Data curves
- Animated graphic mimic diagrams
  - Editor included in S4TH-Software



**SOFREL S4TH devices, ea**  
**MEETING YOUR EFFIC**

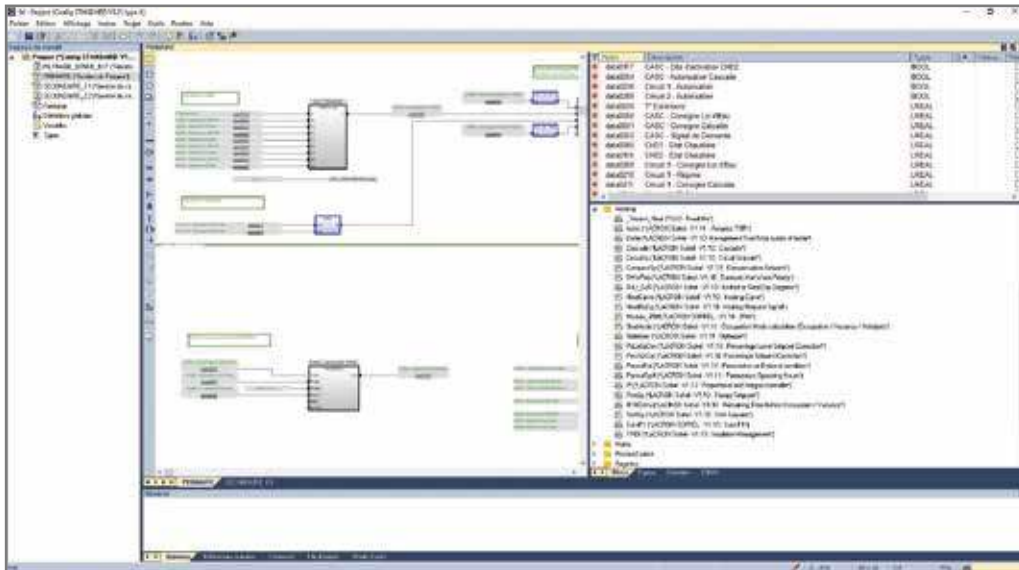
## ◆ Remote monitoring & regulation of facilities

- Data time-stamped in the products
- Calculations & archiving, operating reports, thresholds, conversion tables
- Management of alarms, recipients and alerting sequences
- Permanent facility monitoring
- RTU and peripherals status diagnostics
- Automatic control of actuators and motors
- Monitoring of consumption and deviations
- Communication redundancy
- GSM operator selection assistance



# Easy to set up and operate

## EFFICIENCY NEEDS



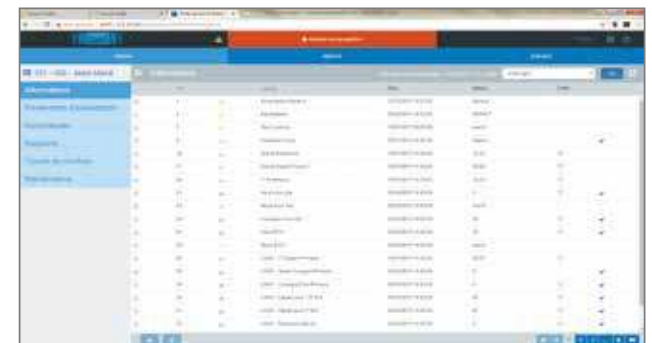
### ◆ Dedicated libraries

- Heating library with functional blocks dedicated to heating: regulators, 3-boilers cascades, boilers, etc.
- Communication with functional blocks dedicated to wireless sensors and heat meters
- Ventilation library with functional blocks dedicated to air-handling units: single flow, double flow, frost-free, etc.
- Saves time and ensures greater efficiency
- Context-sensitive help accessible with one click
- Program simulation



### ◆ Automatism workshop open for any use cases

- IEC61131-3 workshop integrated in S4TH-Tools
- Languages: ST, FBD, Ladder, Grafset
- Dedicated libraries: Heating, Communication, CTA, etc.
- Ability to create your own blocks and library
- Simulator, debugger, analyser





## Core-integrated cybersecurity ANSWERING THE LATEST

SOFREL S4TH meets the needs of communicating solutions for **permanently connected energy networks**.

Understanding the advantages offered by IP devices, as well as the risks related to the internet, The LACROIX Sofrel Teams Have developed several software included in ecosystem in order to **keep your telemetry network cybersecure**.

Cybersecurity is a crucial challenge for smart devices. It is essential for maintaining the integrity of the network. Implementing the S4TH ecosystem is simple and efficient.



## SCADA OPERATOR CHALLENGES

...◆ An ideal operating mode for ensuring cybersecurity in energy networks



Individual account

Secure VPN tunnel

Encrypted communications

Monitoring of operational records

01001010 0101011010101 01010101010101 110101011101010 01010001010  
01010110 0111010101101 0101010101101 11101010110110 0101010110  
11101010 10111000101010 11000101011101 01010010010010 1100001010

S4-Manager



SG4000 or private VPN



SOFREL S4-Keys certificates or third-party solutions



Monitoring syslog



# From RTU to ecosystem to smoothly safeguard YOUR **TELEMETRY NETWORK**



**SOFREL S4TH**  
the ideal ecosystem for:

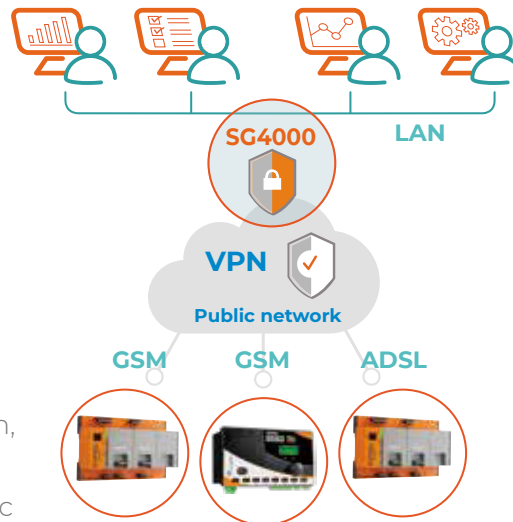
- **Security**
- **Administration**
- **Greater efficiency**



## ◆ **SOFREL SG4000** Sécurité of communications

Create a VPN server via public internet

- S4TH VPN network
  - Authenticated log-ins
  - Encrypted exchanges
  - Automatic re-establishment of connections
- Interface with central site LAN
  - RTU VPN / central LAN firewall
  - Dedicated applications: SCADA central station, monitoring, management
  - Utilities: messaging service, remote access, etc



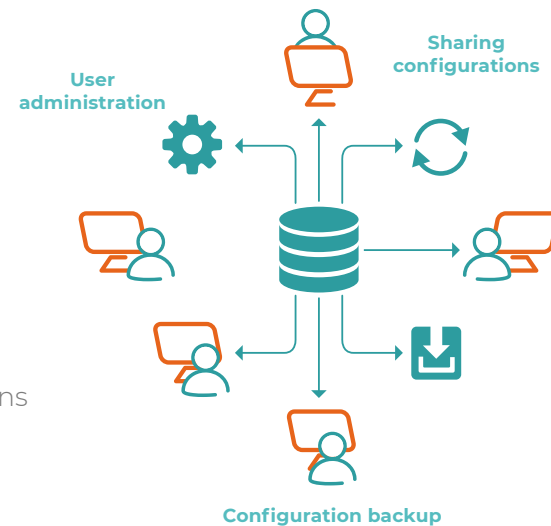


# rd and manage



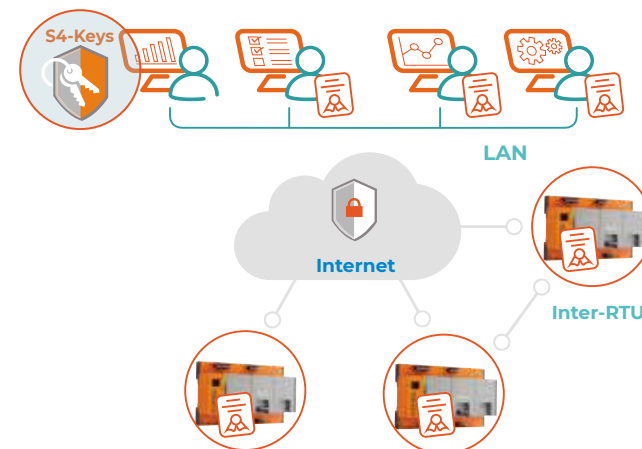
## ◆ SOFREL S4-Manager Centralised administration

- Users
  - Definition of individual accounts: passwords, rights, revocations, etc.
  - Automatic updating of all S4THs
- S4TH remote terminal units
  - Saving and sharing of S4TH configurations between users



## SOFREL S4-KEYS ◆ Enhanced security for all ecosystem elements

- Certification authority for all software and RTUs in the telemetry network
- Certificate issuing and management
- Secure exchanges



CONNECTED  
TECHNOLOGIES  
FOR **SMARTER**  
**WATER** &  
**ENERGY**



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