Sofrel

LACROIX

SOFREL S4W RANGE

TELEMETRY AND SCADA 4.0 REMOTE TERMINAL UNITS

FOR CONNECTED AND CYBERSECURED WATER NETWORKS

Connected and cybersecure water networks management

SOFREL S4W Remote Terminal Units bring telemetry into the 4.0 era.

Based on IP (Internet Protocol) technologies, S4W integrates communication modems and relies on specific ready-to-use water features to monitor your sites 24/7, alert you in case of anomaly, manage and automate your technical facilities.

SECURITY

BADGE READER

IP CAMERA

SCADA & AUTOMATION

VALVES

MOTORS

PLCS

METERS

SENSORS

ANALYSERS

INTER-SITE M2M

- **Monitoring/control** of remote facilities

SUPERVISION & MONITORING

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

* Available for Europe, Africa, Middle East, for other geographical areas please contact us

ON-SITE MOBILE ACCESS

REMOTE VIEWING

1010   1010101101101
1110   01010101010101
11010   110101011010101
111010   10101010101010101

SOFREL S4W modular architecture and "Water" industry
TO **ADAPT** TO ALL TYPES OF OPERATIONS

RESERVOIRS

- **Inter-site communication** between water tanks and pumping stations
- **Dynamic refilling** according to need and electricity time-of-use rates
- **Chlorination pump control**
- **Access control and management**
- **Data logging**: levels, flow rates, etc.
- **Management of overflow** and underfill levels

PUMPING STATIONS

- **Inter-site communication** between stations and water tanks
- **Control of pump flow** and pump performance
- **Computation of volumes** withdrawn from the natural environment
- **Water** physico-chemical characteristics monitoring
- **Access control and management**

ON-CALL AND FIELD RESPONSE TEAMS

- **On-site and remote data visualisation**
- **Malfunction immediate alert**
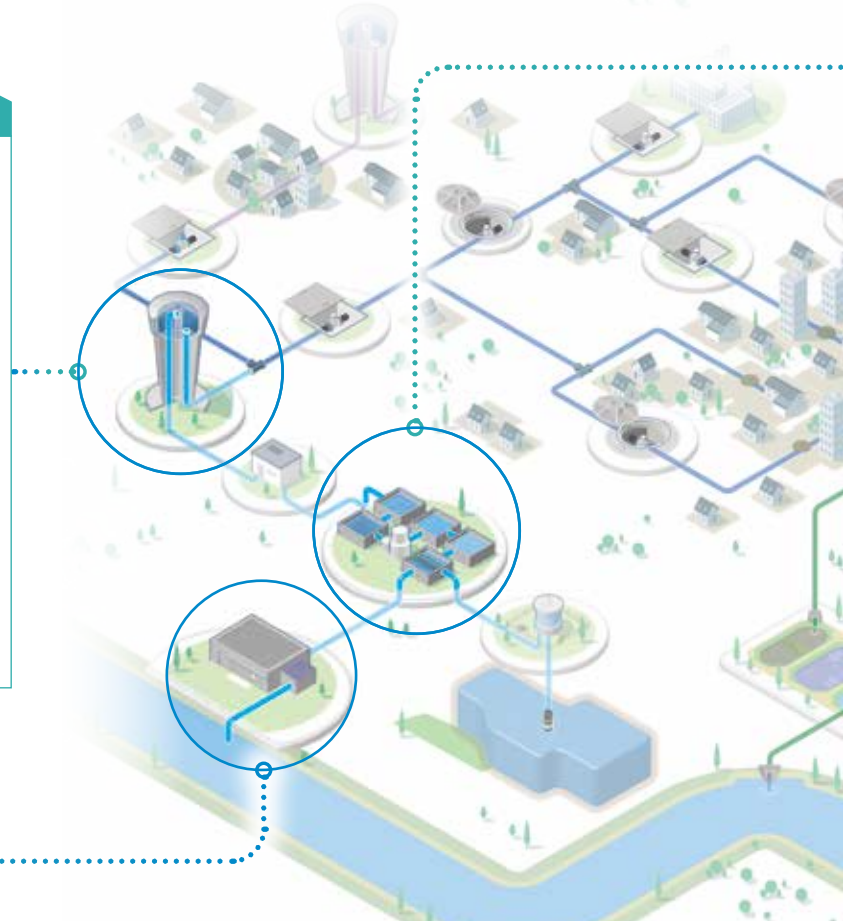
features

DRINKING WATER TREATMENT PLANTS

- **Management and monitoring** of the water treatment process
- Pump and actuator operation **optimisation**
- **Monitoring** of treatment product levels
- **Access control and management**
- **Logging of data** from plant and process operations

WASTE WATER TREATMENT PLANTS

- **Management and monitoring** of the purification process
- Pump and actuator operation **optimisation**
- **Logging of data** required for operation and regulatory self-monitoring reports
- **Control and management** of access to structures

WASTEWATER LIFT STATIONS

- **Overall management of pumping** according to system load
- Pump operation **optimisation and automation**
- **Management of the grease ring and tide mark build-up**
- **Computation of volumes and flows pumped** (hours/days)
- **Pump operating reports** for preventive maintenance purposes
- **Detection of clear water infiltration**
- **Energy monitoring and optimisation**
- **Data logging** required for operation and self-monitoring reports
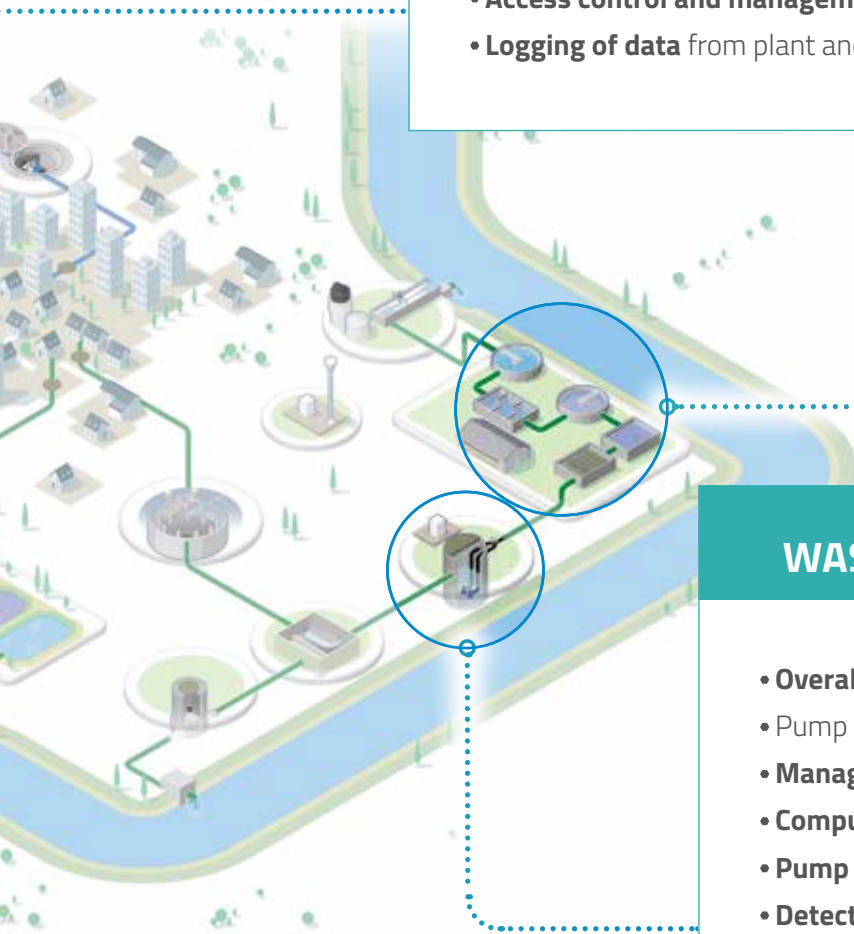
SOFREL S4W a Remote Terminal Units range and software suite

TO SUPPORT THE **SECURITY** AND **PERFORMANCE** OF WATER SYSTEMS

In addition to **compact, connected and robust** industrial equipment, we propose a full cybersecure **remote management solution.**

Its **simplicity of implementation** and use via **graphics-based, user-friendly software** make the daily life of users as easy as possible.

SMART DATA

SMART WATER

IIoT

100% AGILE OPERATION

- **"Plug and play"** touchscreen display units

- **Integrated web server** (Synoptics, graphs and data accessible on PC, smartphone and tablet)

- **Centralised** network management

- **Easy interfacing with SCADA systems**

- **Real-time viewing of information, statuses, etc.**

M2M

EASY SET-UP

- **Equipment configurable** via a graphic user interface
- **Ready-to-use** "water" features (alarm reporting, time-stamped archiving, reports, management functions, etc.)
- **Built-in communication modules**
- **Configuration and user** administration software (S4-Manager)

ROBUSTESSE AND LONGEVITY

- **Full control** of development and manufacture (usine LACROIX France)
- Provides a **high degree of EMC** for 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

- **ADSL/4G dual support**: in case of ADSL communication failure, the S4W automatically switches to 4G
- Mobile operator **selection optimisation**
- **Exchanged data volume** and **communication cost control monitoring**
- **Add-ons available** (radio, LP modules)
- **No loss of data**: everything is transmitted to central systems
- **Equipment backed-up by battery** to continue logging and transmitting data in the event of power failure

SOFREL S4W robust industrial equipment
TO **SUPPORT YOUR WATER SYSTEMS**
FOR MANY YEARS

Battery backup

100% software configuration

Reduced size

Built-in modem
GSM Ethernet

Personal identification

Communication redundancy
ADSL
GSM

S4-Display touchscreen display unit

Warranty
3 year

Up to
4 inputs (AI)

Up to
16 inputs (DI)

2G/3G/4G modem

USB terminal

Ethernet Port

USB port
(Display)

Up to
3 communication
modules (option)

Up to 4 outputs
(DO)
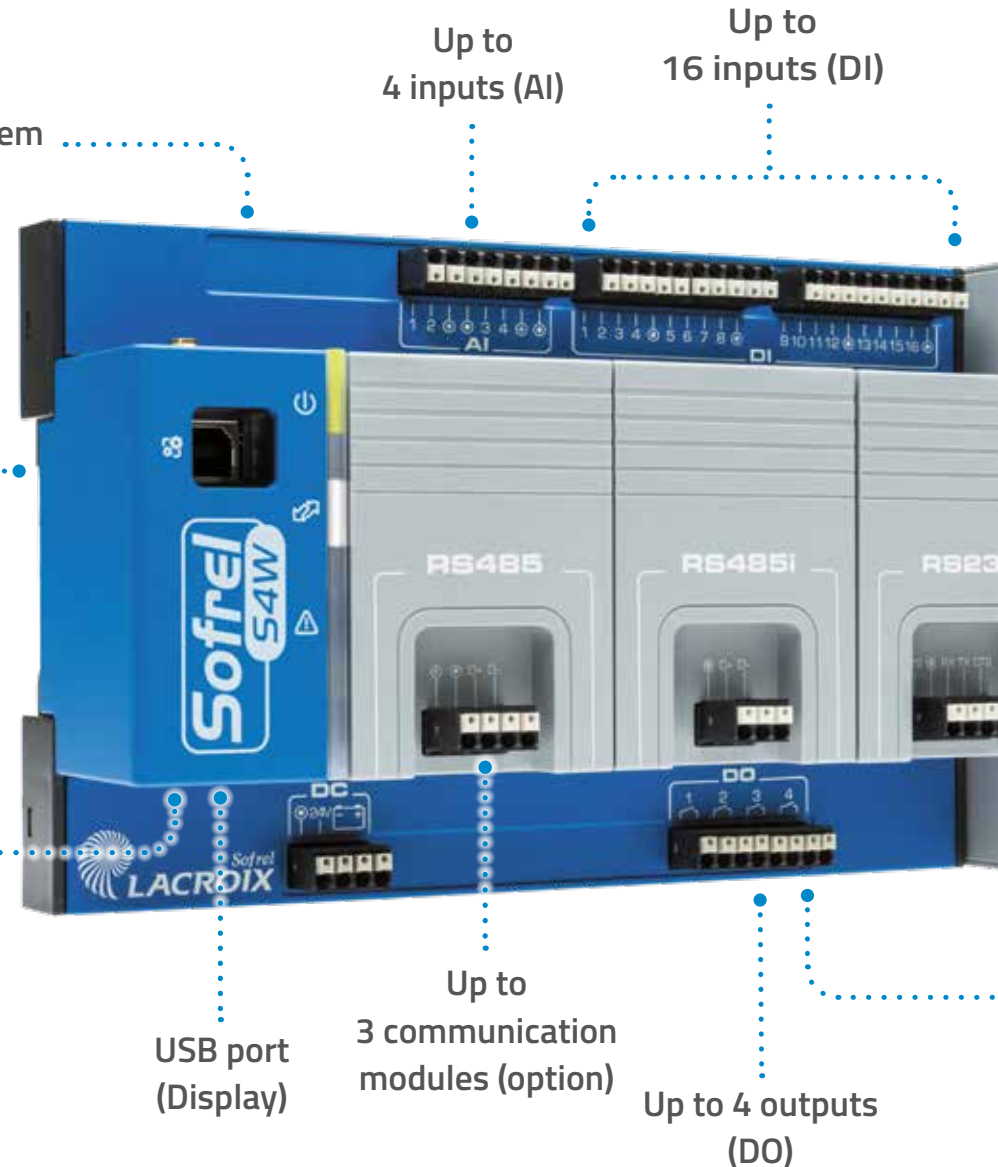
EXTREMELY **MODULAR**

Up to
10 I/O extension
modules

Removable
spring-loaded
connectors

EXT bus extension
modules

SOFREL S4W Small
8DI 2AI 2DO - 500 data points

SOFREL S4W Medium
12DI 2AI 4DO - 1000 data points

SOFREL S4W Large
16DI 4AI 4DO - 1000 data points

SOFREL S4W Dual
8DI - 1000 data points

The S4W offer is distinguished by its **simplicity of use** and speedy installation. S4W is accessible to all thanks to the **graphics-based configuration software** S4W-Tools, its configuration assistant and its pre-configured **"water industry" functions"**.

If necessary, expert users can customise the operation of their process even further using the **integrated automation workshop**.

Using equipment and installations is extremely simple thanks to the S4-View software, the **touch display** and **integrated web server**.

SOFREL S4W easy-to-install,
## ACCORDING TO TO YOUR

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
    - Settings and time period adjustments
    - Graphing of data
- Animated graphic mimic diagrams
    - Editor integrated into S4W
- Archive export (file in CSV format)

Remote facilities monitoring & telemetry

- Data time-stamped at source
- 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
- Inter-site control of remote terminal units and data loggers
- Monitoring and optimisation of electricity usage
- Communication redundancy
- GSM operator selection assistance

easy-to-use equipment

PERFORMANCE NEEDS
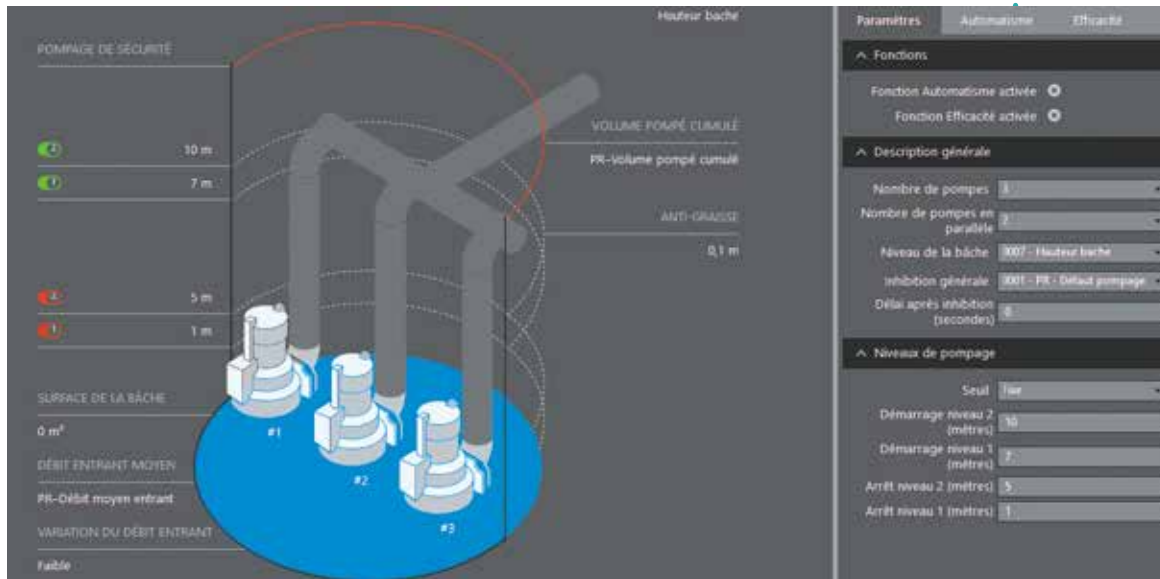
◆ Graphic configuration and management of lift station

- Graphics-based configuration of the lift station
- Pumping automation and efficiency:
  - Level measurement
  - Pump control, monitoring of starts and running times
  - Sequencing and switching of pumps
  - Anti-grease ring and anti-tide build-up offset
  - Detection of clogged or worn pumps
- Hydraulic efficiency:
  - Computation of current volume, cumulative pumped volume filling times and overflow times
  - Computation of clear water infiltration

◆ Process-control suite for adaptation to specific use cases

- IEC61131-3-compliant suite built in to S4W
- Languages: ST, FBD, Ladder, Grafcet
- Industry library (specific archiving, badge management, lift station, communication drivers, etc.)
- Simulator, debugger, analyser

SOFREL S4W meets the needs of communicating solutions for **permanently connected water networks**.

Understanding the advantages offered by All-IP devices, as well as the risks related to the internet, the teams at LACROIX Sofrel have developed a software ecosystem designed 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 S4W ecosystem is simple and efficient.
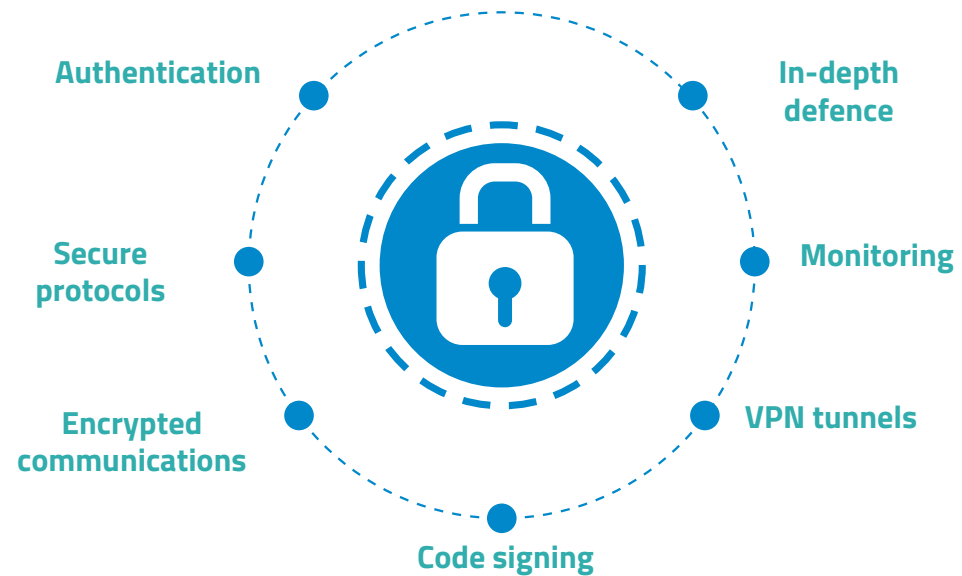
olution

ES FACED BY OPERATORS

🔶 **An ideal operating mode for ensuring cybersecurity in water networks**

• User authentication
  ▪ Individual accounts (login, password)

• Authentication of connected systems
  ▪ S4W-Tools, S4-View, S4-Manager, Monitoring, SCADA Central Station, S4W Intersites
  ▪ Mutual authentication by electronic certificate

• Data privacy and integrity
  ▪ Encrypted communications
  ▪ Signature of configurations and software

• Traceability
  ▪ Security monitoring (connections, updates, etc.)
  ▪ Safety monitoring (equipment status, system status, etc.)

Authentication

In-depth defence

Secure protocols

Monitoring

Encrypted communications

VPN tunnels

Code signing

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

Apart from Remote Terminal Units, the S4W remote management solution comes with an **ecosystem** designed to **secure and facilitate administration of remote management networks**.

Centralised management of equipment, configurations and access rights provide **time savings and gains in efficiency** for network managers.

◆ **SOFREL** SG4000
Creation of a permanent and secure S4W network is interfaced with the central site's applications

VPN server over public internet to facilitate management of the remote management network

- S4W VPN network
  - Authenticated log-ins
  - Encrypted exchanges
  - Automatic re-establishment of connections

- Interface with central site LAN
  - RTU VPN/central LAN firewall
  - Sector-specific applications: SCADA central station, monitoring, management
 - Utilities: messaging service, remote access, etc.

LAN

SG4000

VPN

Public network

GSM

ADSL
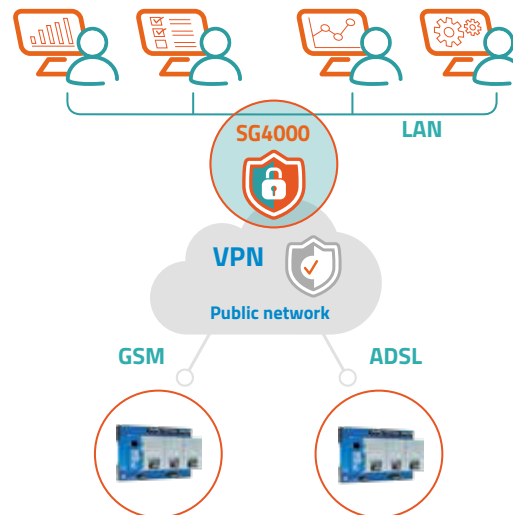
and manage

SOFREL S4-Manager
Centralised administration of remote terminal units

- User management
  - Definition of individual accounts: passwords, rights, revocations, etc.
  - Automatic updating of all S4Ws
  - Access badge management
- Saving and sharing of S4W configurations between users

User administration

Sharing configurations

Configuration backup
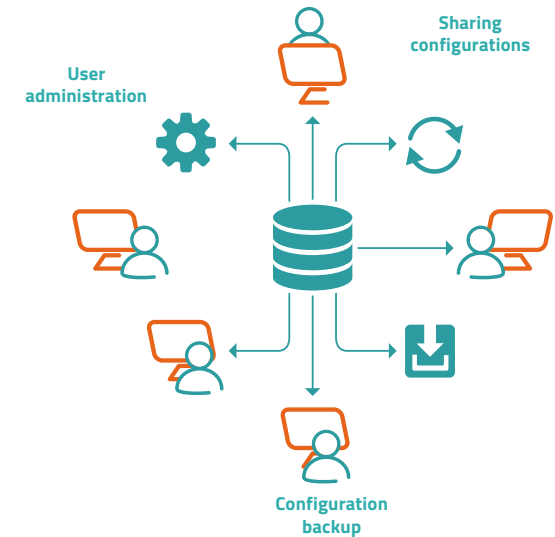
SOFREL S4-KEYS
Creation of certificates for all products in the ecosystem

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

S4-Keys

LAN

Internet

Inter-RTU
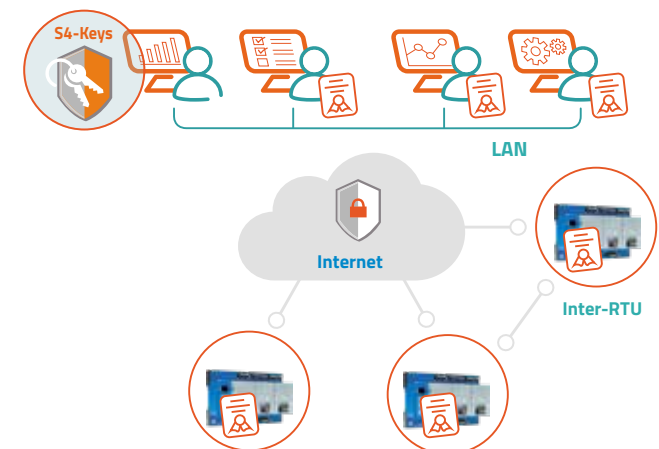
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CONNECTED
TECHNOLOGIES
FOR A **SMARTER**
ENVIRONMENT
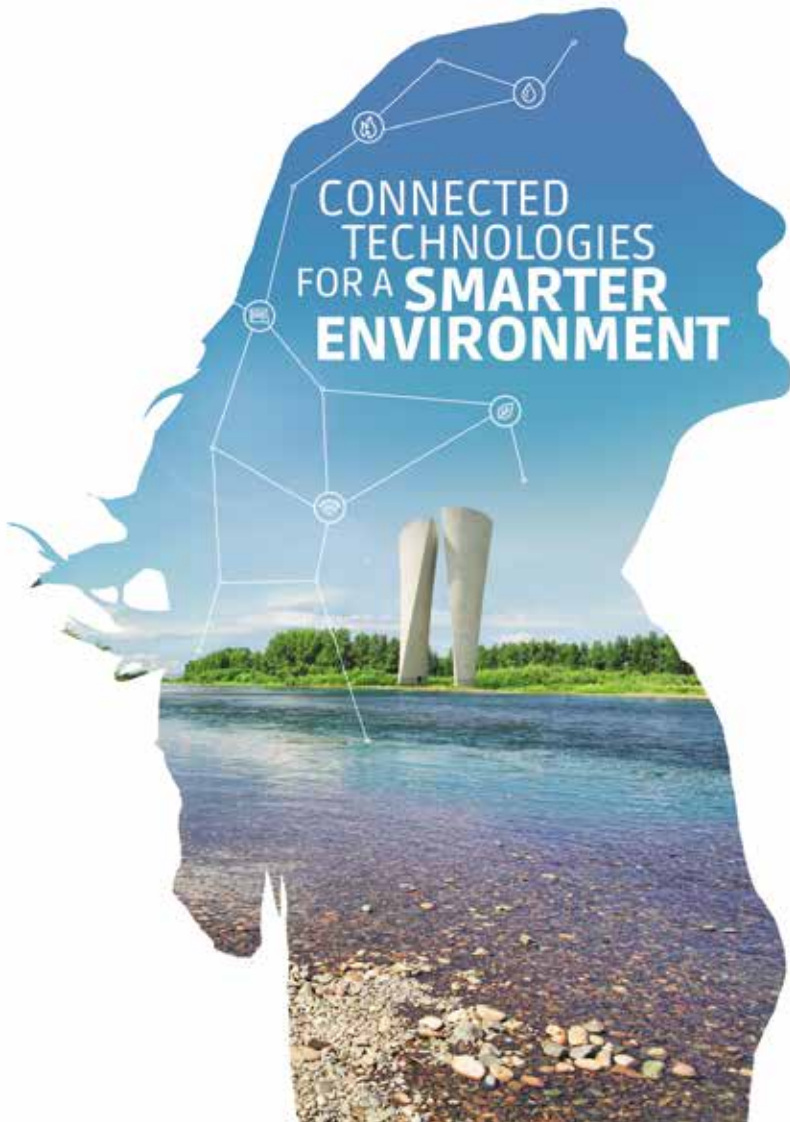
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