

SOFREL AS range Telemetry and process control of water networks



SOFREL AS RTUs perfectly illustrate the integration between remote monitoring and process control of water networks. They benefit from the 40 years of technological expertise acquired by LACROIX Sofrel in the fields of electronics, industrial IT and telecommunications, backed up by the company's specialisation in the market for remote monitoring of water networks.

In addition to the integrated secure communication and smart data archiving features, SOFREL AS has an ST and LADDER process control workshop. This offers great program creation flexibility in order to provide solutions that perfectly meet the expectations of integrators and operators. Key devices in optimum management of water networks, SOFREL AS RTUs enable:

- Remote monitoring and control of facilities
- Optimised pumping
- Lower energy costs
- Optimised call-outs to facilities
- Preservation of water resources and the environment



Reliability and robustness: the demands of remote monitoring

Strengths of the SOFREL AS range

RTUs IOO% designed for water network management

- Monitoring of network installations and 24/7 alarm management
- Optimised operation of facilities (ideal for energy savings and preventive maintenance)

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- Remote control and inter-RTU communication
- Automated functions from simple commands to process control
- Extended remote control and monitoring functions (archiving, automatic balances, etc.)

Integrated Human Machine Interfaces

- Integrated interactive graphical display
- Web server for processing data and adjusting settings
- SMS server for sending alarms, viewing data and sending commands

Integrated communication interfaces

- Modem boards entirely developed by LACROIX Sofrel ensuring:
- safe and reliable communications
- consistent solutions
- easy set-up
- Numerous communication protocols and media

An industrial product range that ensures reliability and durability of installations

- 40 years of expertise in industrial electronics, telecommunications and IT
- Expert knowledge of the entire design and manufacturing process
- Manufactured at the LACROIX Electronics ISO 9001 and 14000 certified factories
- High EMC level (level 4 immunity -EN 55024 standard)

Watch the video about the design and manufacture of LACROIX Sofrel products



Native remote monitoring functi



Data processing and archiving

- 1000 data points processed per facility (faults, current status, measurements, commands, etc.)
- Time out/disabling of an input/alarm when an event appears or disappears, etc.
- Smart archiving of data, alarms, communications, calculations, operating balances, etc.



Communications

- Numerous protocols supported (MODBUS, SOFBUS-PL, LACBUS-RTU, IEC 60870-5-104, DNP3, etc.)
- Real-time communication with devices at the facility (smart sensors, PLCs, flowmeters, etc.)
- Inter-RTU communication for slave control of remote installations (AS, S500, HF-BOX)
- Sending of current statuses, historic values, calculations, etc. to SCADA central stations or supervisors



Alarm reporting

- 24/7 facility monitoring
- Automatic call cycle on appearance of alarm
- Reception and acknowledgement of alarms by simple mobile phone



Operating safety

- Secure password access
- · Self-checking of internal data with automatic calls in case of fault
- Integrated battery charger (secure power supply in case of power failure)
- CPU controlled modem boards (extended diagnostics, reset, etc.)
- "Watchdog" output to switch operation of the installation to degraded or out of service mode in case of fault
- Data back up to flash memory if power fails



Telecommunications, LACROIX Sofrel's core business

Since it was founded in 1971, LACROIX Sofrel has specialised in telecommunications. This expertise, across several technological revolutions, has enabled LACROIX Sofrel to design modem boards that are fully integrated within its RTUs for all traditional communication formats (GSM 2G / 3G, License-free radio, ADSL, Ethernet, Serial, PL, etc.). Developing and manufacturing its own modems means perfectly integrated products and guarantees availability and upgradeability to operators for their remote control and monitoring devices, whatever technological developments occur.

ons and integrated process control

All operators share the desire to save time and improve efficiency. AS process control programs use standard languages (ST and LADDER) via SOFTOOLS AS, the user interface. A wide range of industry-specific function blocks, designed by our engineers, can be provided for direct integration with programs, offering invaluable assistance.



Remote monitoring and process control of a facility



Inter-RTU communications

AS is part of the SOFREL device ecosystem (S500, BOX, etc.) installed in interdependent facilities. Thanks to the inter-RTU feature, devices can communicate with each other and automatically control the facility, based on various settings (E.g.: optimisation of reservoir filling by a remote pumping station during times with lowest electricity costs.

Technical characteristics

HARDWARE			
СРО			
	AS50	AS30	AS10
Rack-mount case external dimensions (HxWxL in mm)	125×111×250	25x x 72	125x111x17
COM boards rack	7	2	2
I/O boards rack	7	4	4
Remote I/O expansion modules	20	0	0
Interactive graphical display	Yes	Yes	No

Power supply

Power supply board

- 24V +/- 20% (max current 500mA)
- 100/240V Option 40/70Hz (max current 500mA)
- I2V Battery charger (max current 500mA)
- Deep discharge protection for the battery

Inputs / Outputs

I/O boards

Boards that fit into the rack mount cases of the AS50,AS30 and AS10. Extractable terminal strips to facilitate wiring.

8DI Digital Input board

- 8 «dry contact» digital inputs
- Power supply isolated from the contacts
- I 500V insulation
- Counting channel up to 300Hz

4AI or 2AI-20 Analog Input boards

- Four multi-standard analog inputs (4AI board) or two 4-20mA analog inputs (2 AI-20 board)
- 0-20mA or 4-20mA current inputs (sensor can be autonomous or remotely powered from the board)
- 0-10V voltage inputs
- Pt 100, Pt 1000, Ni 1000, 0-2500 Ω resistive inputs
- Detection of sensor faults

4DO-wdg or 2DO Digital Output boards

- 2 or 4 Digital Outputs
- Monostable relays
- Max cutoff power 50VA (50V / 1A)
- Watchdog: automatic switch to downgraded mode

4AO Analog Output board

- 4 multi-standard Analog Outputs
- 0-20mA and 4-20mA current outputs
- 0-10V voltage

External I/O modules

Expansion modules supported by AS50 Dimensions: 125H x 37L x 88W (in mm). Power supply from 7 to 15V DC (supplied by AS50 or through an external power supply block) Communication through the RS485 bus

I6DI module

- 16 opto-insulated «dry contact» inputs
- Insulated power supply provided by the module
- Counting channel up to 300Hz

8AI-20 module

- 8 Analog Inputs
- 4-20 mA current inputs (precision < 0.3% of full scale)
- Independent sensors or remotely powered by the module

6DO module

- 6 monostable relay Outputs
- Max cutoff power 250V / IA
- Output no. 6 usable in «Watchdog»

Communications

GSM-GPRS boards

- GSM-2 board: mode Data / GPRS, sending/receiving SMS
- GSM-3 board: mode GPRS / EDGE / 3G, sending/receiving SMS

HF-869 radio solution

- License-free 869 MHz frequency band
- Power: up to 500mW
- Receiver sensitivity: -118 dBm
- Radio module can be placed up to 50 m away. Up to 10 000m line of sight

IOBT board

- I0 Mb Ethernet Networks
- RJ45 socket

DL/HF Modem board

- I multipoint PL communication or I radio communication
- Speed: 1200 bps

RS-232 board

- RS232 serial channel
- Speed: up to 115200 bps

RS-485 board

- RS485 serial channel
- Speed: up to 115200 bps

RS-485i board

- RS485 serial channel
- Speed: up to 115200 bps

SOFTWARE

Archiving

- Periodical and for events
- 25,000 records of values
- 4 archiving criteria
- (of which I is used for changes in the status of logic data)
- Management of 1000 data points

ST and LADDER process controls

- 2 programming languages:
- ST and LADDER which can be combined with one another
- Process control modules in compliance with IEC 1131-3

GSM/GPRS communication

- 20 recipients of automatic calls
- 5 sequences of 8 recipients
- I schedule (6 time periods per day)
- SMS server
- Email server

Serial, Ethernet, Radio Communication

• 30 MODBUS devices (PLC, RTU SOFREL, PC, etc.)

Communication with SCADA

Modbus, Lacbus, IEC 60870-5-104, DNP3, OPC Server

Available interface languages

• English, Spanish, Italian, French



2, rue du Plessis - 35770 Vern-sur-Seiche (Rennes) France Tel. : +33 (0)2 99 04 89 00 - Fax: +33 (0)2 99 04 89 01 E-mai: lacroix-sofrel.en@sofrel.com – Website: www.lacroix-sofrel.en Sofrel LS website: www.ls-leak-detection.com