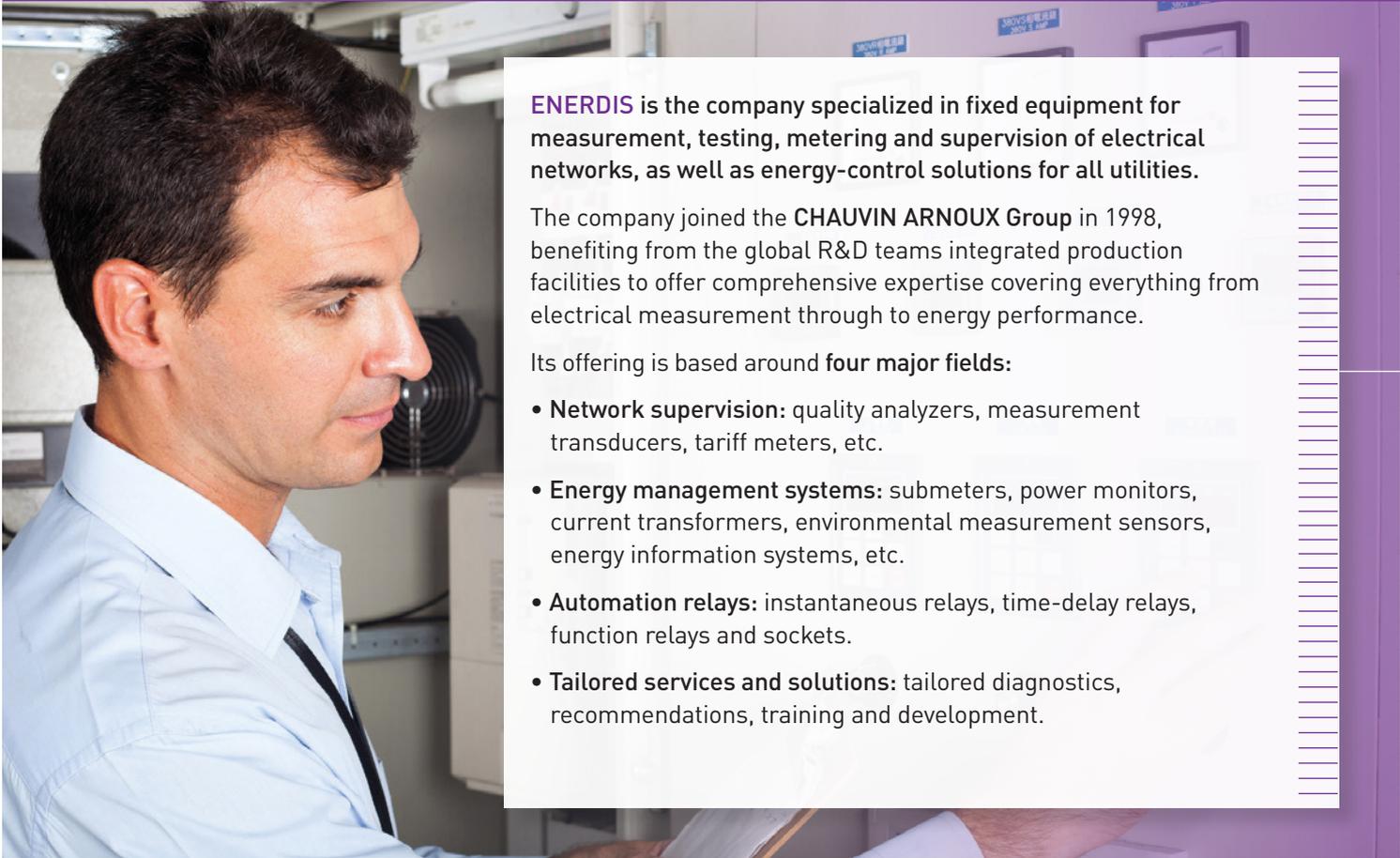


METERING, MEASUREMENT & ENERGY PERFORMANCE





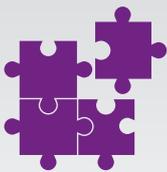
ENERDIS is the company specialized in fixed equipment for measurement, testing, metering and supervision of electrical networks, as well as energy-control solutions for all utilities.

The company joined the **CHAUVIN ARNOUX Group** in 1998, benefiting from the global R&D teams integrated production facilities to offer comprehensive expertise covering everything from electrical measurement through to energy performance.

Its offering is based around **four major fields**:

- **Network supervision:** quality analyzers, measurement transducers, tariff meters, etc.
- **Energy management systems:** submeters, power monitors, current transformers, environmental measurement sensors, energy information systems, etc.
- **Automation relays:** instantaneous relays, time-delay relays, function relays and sockets.
- **Tailored services and solutions:** tailored diagnostics, recommendations, training and development.

The advantages of ENERDIS



DIVERSITY

Our wide ranges of equipment for metering, electrical measurement and energy supervision enable us to meet the various needs of professionals in industry, the tertiary sector and energy.



INNOVATION

Our ability to innovate and integrate new technology in our solutions make us a **leading partner on the market**.

ENERDIS's development focuses include instantaneous communication between instruments, generation of preformatted, standard-compliant reports for network analysis, comprehensive management of the measurement line and multi-utility energy management.



SUPPORT

Major electricity operators, R&D departments, installers, switchboard operators and professional users: the experts from **ENERDIS** help you to define your requirements, provide suitable solutions and train you to use our technologies. The team of experts guides you throughout your energy performance project.



PROXIMITY

A network of experts in France and worldwide on all five continents and a technical hotline are available to listen to your problems, propose auditing of your installation and support you in your projects to control costs.

Our key sectors

From electrical measurement to energy performance measurement



ENERGY

- Checking installations and the quality of the energy supplied.
- Managing energy flows: energy monitoring systems, meters, power monitors, current recorder-transformers.



INDUSTRY & TERTIARY

- From the energy supply to its distribution on site.
- Ensuring safety on the installations, optimizing consumption, allocating the consumption according to cost centres.



TRANSPORT

A major partner for the rail market, **ENERDIS** designs the relays from the Enerdis® and AMRA® brands for rolling stock and substations.

Our businesses



Energy performance

The energy intelligence system is based around the E.online® software package which can be used to:

- Reduce costs
- Monitor all the energy parameters in real time
- Rebill energy consumption



Network supervision and quality

Range of electrical network quality analyzers:

- Recording
- Analysis and capture of events according to the applicable standards
- Presentation of the results in standardized reports



Meteorological instrumentation

Design of innovative tailored systems to meet the specific requirements of industrial companies and government services (Navy, Defence, etc.) :

- Meteorological sensor
- Temperature measurement
- Measurement and monitoring system



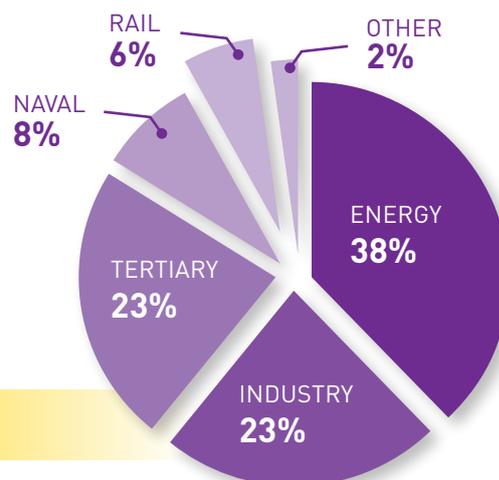
Automation relays

More than 200 references for all your applications, in compliance with the standards:

- Instantaneous, time-delay and function relays
- Rail applications: SNCF and RATP certification
- Energy applications: EDF, ENEL and TERNAL certification
- Nuclear: K3 certification

A few figures

- 70 staff, including 20 R&D engineers
- Sales revenues: € 16 million
- 59,000 electronic meters supplied



ENERDIS business
by market

Founded in 1893 by Raphaël Chauvin and René Arnoux, CHAUVIN ARNOUX is an expert in the measurement of electrical and physical quantities in the industrial and tertiary sectors.

Total control of product design and manufacturing in-house enables the Group to innovate constantly and to propose a very broad product and service offering meeting all its customers' needs.

The Group's quality policy enables it to deliver products which comply with the specifications, as well as the international and national standards, in the metrological, environmental and user-safety sectors.

A few figures



CHAUVIN ARNOUX is a major force on the measurement market in France and internationally.

Locations

7 production sites

- 3 in Normandy (France)
- 1 in Lyon (France)
- 1 in Milan (Italy)
- 1 in Dover (USA)
- 1 in Shanghai (China)

10 subsidiaries

- Germany
- Austria
- China
- Spain
- Italy
- Lebanon
- Sweden
- Switzerland
- United Kingdom
- United States



ENERDIS

a CHAUVIN ARNOUX Group company

PYROCONTROLE proposes tailored solutions for the temperature measurement and control requirements of all process industries. A wide range of sensors and total mastery of the industrial process chain make Pyrocontrole an essential partner for industries such as the nuclear sector, petrochemicals, glass-making, metallurgy, etc.

Temperatures
in industrial
processes



Metering,
measurement and
energy performance



Portable test
and measurement
instrumentation



Metrology and
regulatory
testing

CHAUVIN ARNOUX draws on its two brands, Chauvin Arnoux® and Metrix®, to propose a wide range of measuring instruments. The offering covers electrical measurement (testers, multimeters and current clamps), electrical safety checking, wattmeters and electrical network quality analyzers. Oscilloscopes, electronic equipment testers and environmental measurements complete the range of its expertise.

MANUMESURE provides industrial metrology, regulatory testing and environmental measurement services. With its network of 12 technical centres and its teams of roving experts, **MANUMESURE** proposes services in France and internationally.



Measurement and network supervision

Drawing on its experience with the major players in electrical energy production, transmission and distribution, **ENERDIS** proposes its technological expertise organized around a range of accurate, reliable, long-lasting products.

Its extensive product offering enables **ENERDIS** to cover the multiple requirements in a sector where tried and trusted existing installations can be found alongside more innovative systems to handle the issues linked to the integration of new types of energy production:

- Automation relays
- Analogue and digital measurement transducers
- Power monitors
- Tariff meters
- Measurement transformers
- Network analyzers
- Analogue and digital panel meters, etc.



In the electricity production sector, **ENERDIS**'s automation relays and analogue transducers are qualified for accident conditions and meet the particularly severe requirements for nuclear power plants. Thanks to their various measurement and connection possibilities, the measurement transducers in the **ENERDIS** offering can be adapted to operate with common and more rare network configurations (TNE with 3 or 4 wire, TE with 3 or 4 wires, single-phase, split-phase, etc.).

The very high accuracy of the **ENERDIS** digital transducers and the parameterization of their response times make them ideal for applications involved in the remote operation of electricity transmission networks. **ENERDIS** helps to improve the accuracy of the metering measurement line by proposing current measurement transformers for tariff metering applications in Class 0.2S.

When used with the **ENERDIS** tariff meters designed for end-consumers (> 250 kW), these current measurement transformers constitute a measurement solution which meets the needs of distribution network managers.

Energy management system

At the core of a smart system, **ENERDIS** has developed comprehensive expertise in energy supervision for all utilities, based on a set of communicating metering, measurement and analysis equipment.

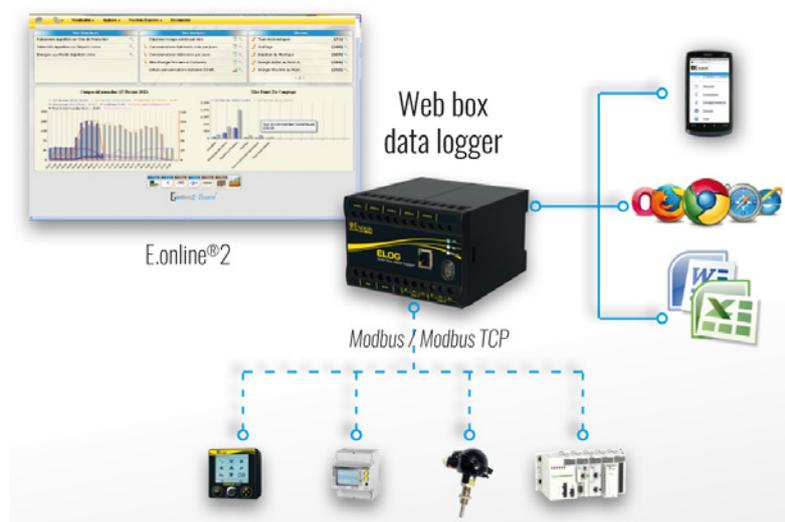
When coupled with the meters, power monitors and recorders, the E.online® solution guarantees control of the energy costs on an installation.

This system complies with the applicable regulations (HQR certification, ISO 50001 certification, energy performance contract) and can be used to:

- Reduce costs
- Monitor all the energy parameters in real time
- Rebill energy consumption

The **ENERDIS** offering is part of this global solution:

- Submeters
- Power monitors
- Current transformers
- Networks & communication
- Environmental measurement sensors
- Monitoring and data processing software





Automation relays

Thanks to long experience in the development of relays, particularly for the rail sector, we are able to propose specific solutions for integration in rolling stock, infrastructure and power supply substations, such as monostable relays, monostable safety relays, time-delay relays and control and surveillance relays.

- Instantaneous relays
- Time-delay relays
- Function relays
- Sockets and accessories



Part of the Chauvin Arnoux Group, **ENERDIS** offers the rail industry thorough expertise in automation relays for severe environments. The company also draws on the experience and know-how of the Group's Italian subsidiary, AMRA Spa, which has been building electromechanical relays since 1975. With its acquisition of the RIA-MTI relays, **ENERDIS** is now a major player in the world of automation relays.

Tailored service and solutions

Drawing on know-how built up over more than 30 years in the metering and control of **energy flows**, the teams at **ENERDIS** can contribute their expertise to your projects, however varied they may be.

Diagnostics and expert channel

The teams from **ENERDIS** can provide assistance with pre-sale analysis and advice concerning your installation in order to locate any energy losses. The energy, climate and process data are collected via remote data-retrieval units, meters or power monitors which may or may not be connected to a communication network. **ENERDIS** makes recommendations and proposes instruments to meet your needs.

An extensive offering for a global solution

The broad coverage of the **ENERDIS** offering of instrumentation, panel meters and data processing software enables our teams to provide you with a global solution. This couples measuring instruments and data processing software, as well as interfacing with most existing systems.

Training and familiarization with the instruments

Enerdis is an official training organization. To remain close to your expectations and raise awareness of our solutions, **ENERDIS** organizes a large number of technical events for familiarization with the instruments, demonstrations and even roadshows on the changes to the standards or other professional themes. This helps **ENERDIS** to keep up to date with the expectations and developments on the market.

A tailored cell for wind and weather measurement lines

A team of experts designs innovative systems for measuring temperature and meteorological data in special environments. The equipment in the **ENERDIS** digital meteorological measurement lines and analogue wind measurement lines fulfil the precise requirements of the French Navy and Defence Department, while the multi-purpose transducers and acquisition units are designed to meet the needs in industry.

Projects governed by precise specifications can be provided on a turnkey basis by our engineers, however advanced the requirements: meteorological sensors, vane anemometers, barometers, hydrometers, etc.), remote temperature indicators, direction and speed indicators.

ENERDIS

Quality, standards and eco-friendly approach



ISO 9001 and ISO 14001 standards



ENERDIS is ISO 9001-certified (quality management) for its design, manufacturing and commercialization processes.

Our ISO 14001 certification (environmental management) by the international organization INTERTEK shows our determination to reconcile business with respect for the environment.

These certifications, which are regularly renewed, demonstrate the long-term nature of our quality organization.

ISO 50001 standard

ENERDIS supports companies and proposes suitable solutions in the context of a long-term, global approach. The ISO 50001 standard is part of the Energy Management System for continuous improvement of energy performance. It imposes mandatory energy auditing every 4 years for companies with more than 250 employees and revenues of more than € 50 million. This auditing, performed by a competent independent auditor, covers 80% of the company's energy bills.

"EcoConception" eco-design label



Our internal "EcoConception" eco-design label marks our commitment to an approach involving recycling and recovery of the components in our measuring instruments, from the design phase onwards.

International regulations

ENERDIS has succeeded in adapting its manufacturing processes to reduce its environmental impact and fulfil the requirements of the **RoHS standard** on restriction of the use of hazardous substances.

Our products comply with the European regulations and directives such as **REACH, ATEX and MID**.

In our laboratories, we perform strict Quality tests and checks at each step in the design process: **metrological tests, electromagnetic compatibility tests, mechanical, climatic, functional and safety testing, etc.**

ENERDIS is an approved training organization and also proposes a team of experts at customers' disposal for auditing and implementation of solutions according to specifications.



ENERGY

EDF, RTE, ENEL (Italy), CIE (Côte d'Ivoire), EDM (Mali), EDL (Lebanon), EDP (Portugal), EGAT.

INTEGRATORS, INSTALLERS

Alstom, Aglo Alpha Cement Works, Caterpillar, Kanthan Cement Works, New Sulzer Diesel, SDMO, Semt Pielsik, Wärtisilla SACM Diesel

RAIL INDUSTRY

ADP, Eurotunnel, RATP, Métro de Rouen, SNCF, PAM (Port of Marseille), RTM (Marseille transport authority), CAIRO Subway.

OTHER INDUSTRIES

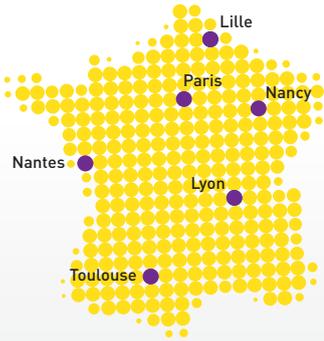
Michelin, PSA, Renault, Valéo, DCN, EADS, Thales, Saint Gobain Emballage, Sanofi Aventis, Shell, Novartis, Total, Nestlé, Péchiney, Alstom, Caterpillar, Siemens, Areva.

TERTIARY

Le Bourget Exhibition Park, Versailles Exhibition Park, CHU Mulhouse, CHU Angers, CHU Quimper, technical colleges, universities, etc.

AND OUR PARTNER DISTRIBUTORS...

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The other 3 companies in the Group

