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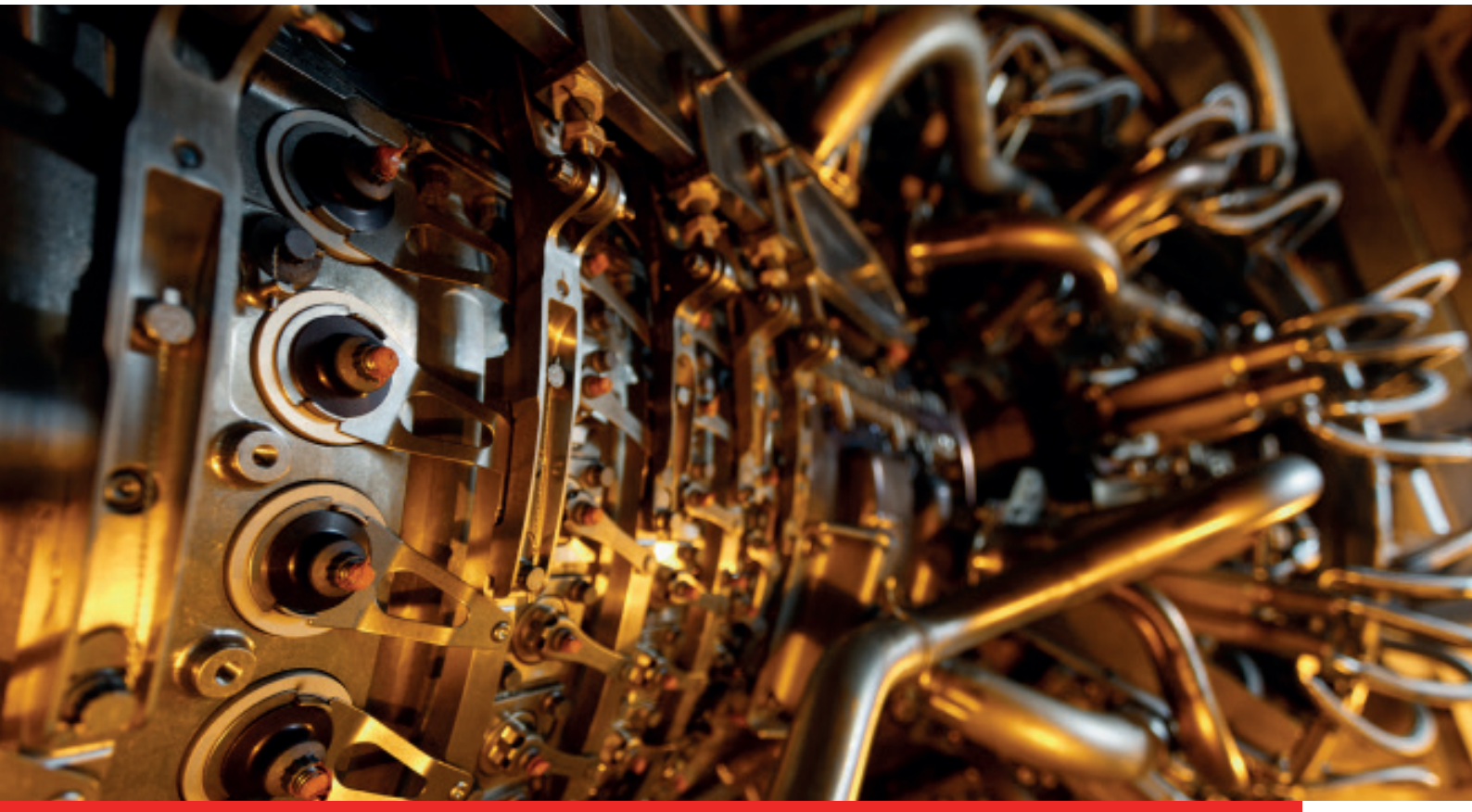
YOUR PARTNER IN TEMPERATURE



TURBINE TEMPERATURE SENSORS

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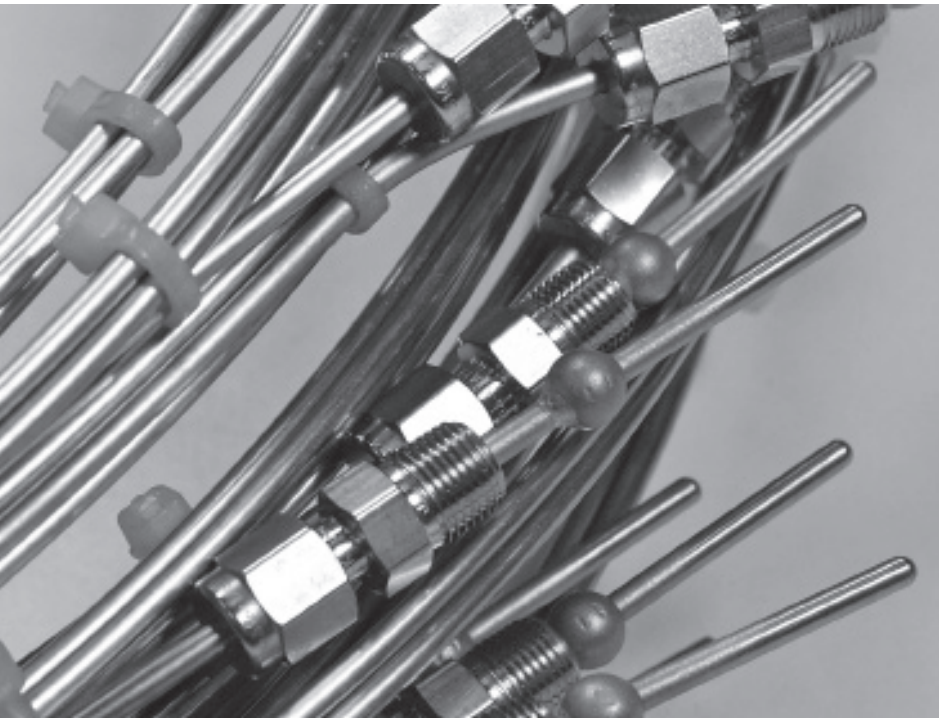

Turbine Temperature Sensors

Thermo Electric Instrumentation has been at the forefront of temperature sensing technology since 1969. Specializing in the design and manufacture of high-quality temperature sensors for multiple types of turbines, we serve diverse industries worldwide. From monitoring critical inlet and exhaust gas temperatures to overseeing bearing, oil, wheelspace, cooling, and steam temperatures, our sensors are engineered to meet the most demanding applications.

Our turbine temperature sensors, including thermocouples and Pt100 RTDs, are designed using mineral insulated cables and are available in various configurations to withstand extreme conditions, including high temperatures and vibrations. These sensors are designed to ensure reliable performance in challenging environments.

HIGHEST GRADE MATERIALS

We offer fully customized solutions using the very best materials, including stainless steel and exotic alloys, tailored to each application. Whether you are an original equipment manufacturer (OEM) or an end-user, we provide the precision, durability, and dependability required for gas turbine operations.

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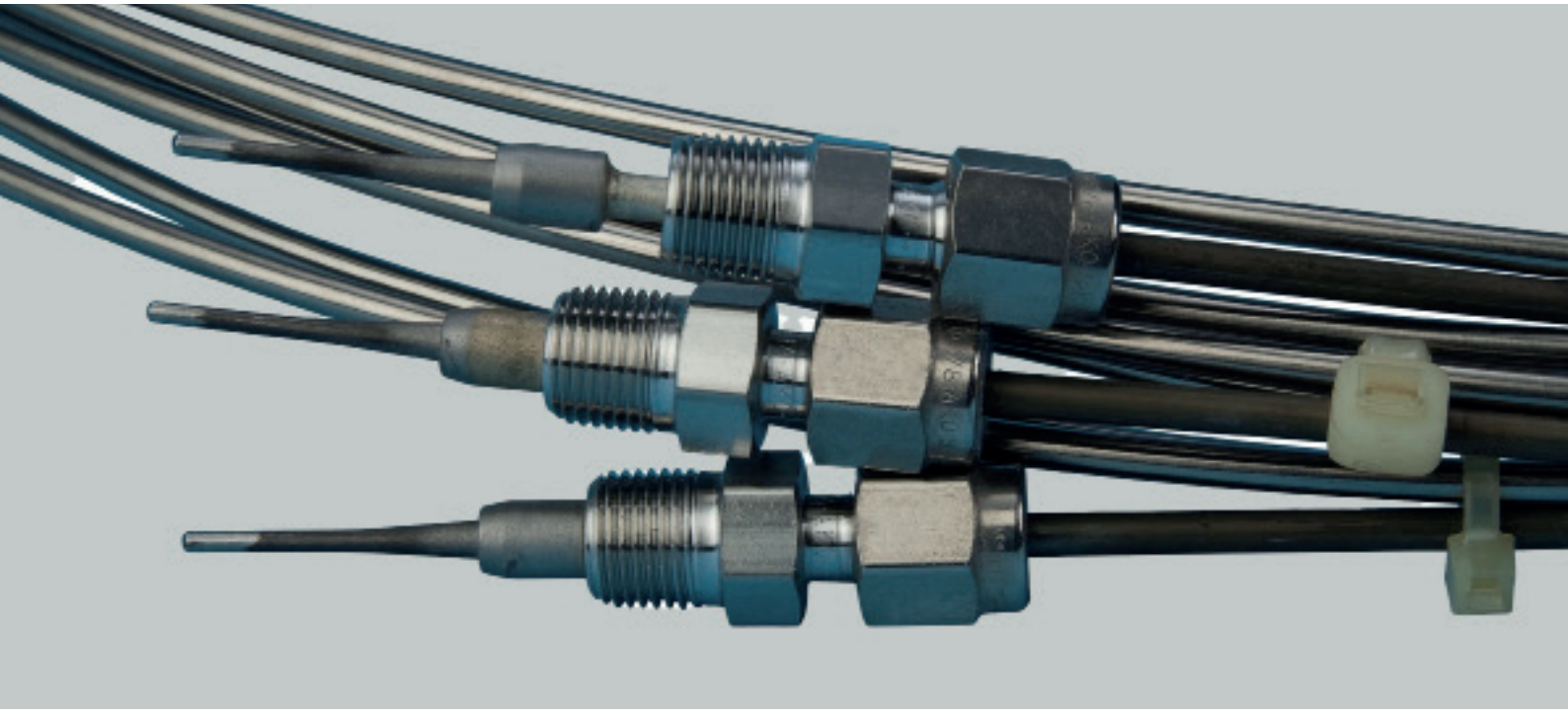

Solving Industry Problems

We understand the critical challenges industries face when operating turbines. High temperatures, vibrations, and aggressive operating conditions demand sensors that deliver both durability and accuracy. Our temperature sensors are designed to solve the most pressing issues in turbine operations.

For inlet and exhaust gas monitoring, precise temperature control is essential to optimizing turbine efficiency and ensuring compliance with environmental standards. Our exhaust gas thermocouples deliver accurate, reliable readings even in extreme heat, ensuring optimal performance.

When it comes to bearing, oil, and wheelspace temperature measurement, overheating can cause catastrophic failures and costly downtime. Our temperature sensors provide continuous monitoring to protect these critical components, enabling timely intervention to prevent damage and extend operational life.

Additionally, we design sensors for cooling systems and steam monitoring, where stable temperature control is critical to maintaining turbine performance and efficiency. Our solutions are tailored to endure harsh environments, ensuring consistent and precise temperature measurements.

With a focus on solving your unique industry challenges, Thermo Electric Instrumentation doesn't just offer sensors—we deliver reliable solutions that keep your turbines running efficiently and safely in the toughest conditions.

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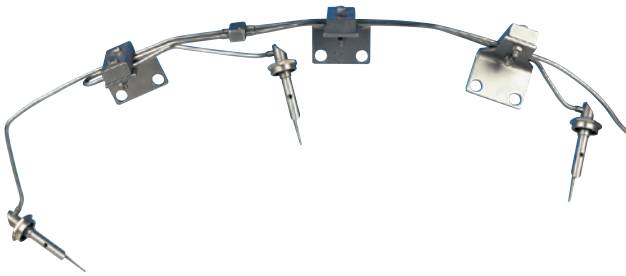
Experts in Sensor Manufacturing

Our manufacturing process is built on precision engineering, quality control, and decades of expertise. Every temperature sensor we produce is manufactured in our advanced facilities, utilizing the latest technology to meet the highest industry standards. From thermocouples to RTDs, our products are engineered for durability and performance in demanding turbine applications.

MINERAL INSULATED CABLE

A key component of our turbine sensors is the use of mineral insulated cable, which offers superior insulation, flexibility, and resistance to extreme temperatures. This versatile material is available in various grades of stainless steel and exotic alloys, ensuring the right fit for specific applications such as inlet and exhaust gases, bearings, wheelspace, oil, cooling, and steam monitoring. These materials are selected to withstand the harsh environments that turbines operate in, ensuring long-term performance.



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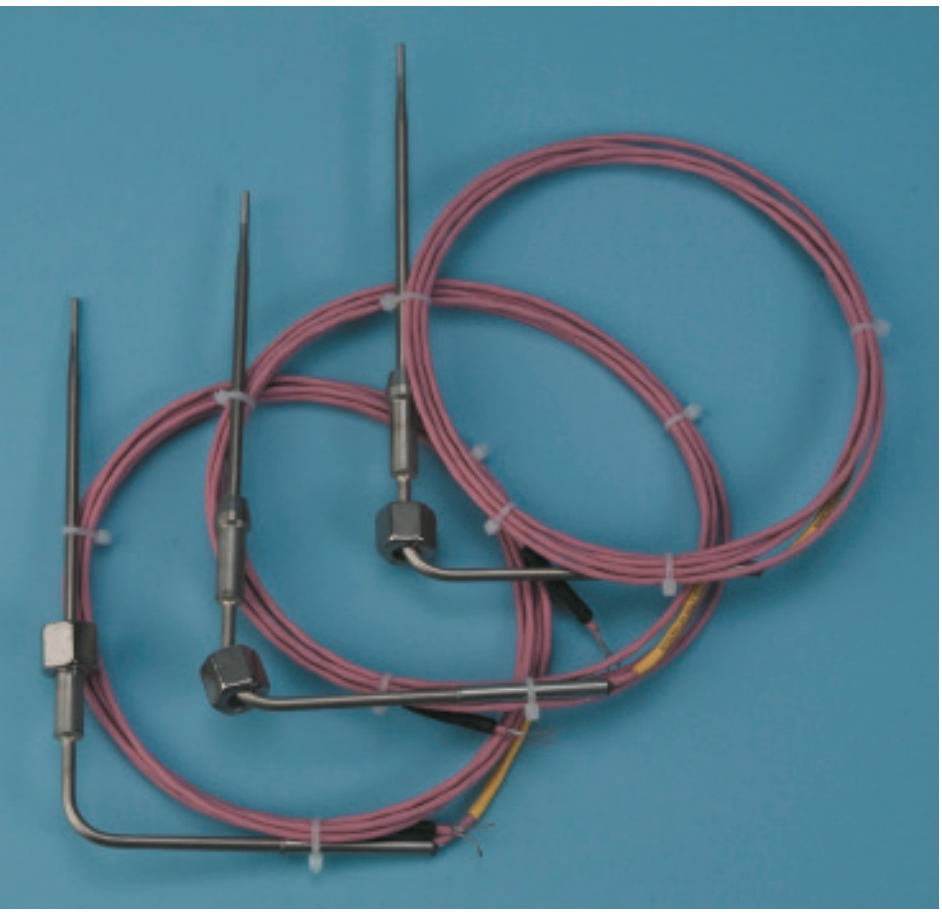

Why Choose Us

TRUSTED PARTNER

With over 50 years of experience, we've earned a reputation for delivering high-quality, reliable solutions tailored to the toughest applications. Our sensors are built to meet the unique demands of gas turbine operations.

CUSTOM SOLUTIONS

We offer fully customized sensor solutions, engineered to withstand extreme temperatures, high vibrations, and harsh environmental conditions. Our expertise in selecting the right materials—whether stainless steel or exotic alloys—ensures your equipment runs optimally and reliably. From OEMs to end users, we work closely with our customers to design sensors that exceed expectations.

Our experts are always ready to guide you in selecting the right materials and configurations for your sensing needs, and we provide comprehensive installation, operation, and maintenance guidelines to ensure optimal performance.

ACCREDITATIONS

Our laboratory is accredited in accordance with ISO 17025 standards for the calibration of temperature measurements ranging from –200°C to 1,500°C, as well as for the evaluation of electrical parameters, including millivolts (mV), milliamperes (mA), ohms, and volts (V).

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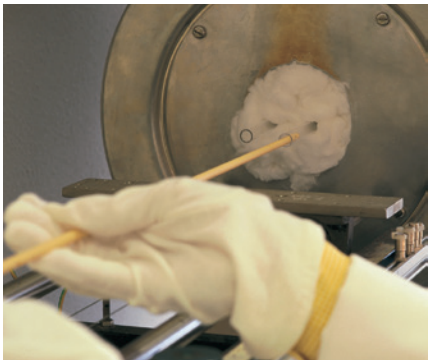
Manufacturing Facilities Overview

Our production and engineering facilities are centrally located in the Netherlands and manned by our highly skilled employees. This setup is essential for upholding our high standards and best practices in engineering and design. The expertise of our personnel, coupled with state-of-the-art facilities, guarantees the efficient manufacture of Thermo Electric temperature sensors and their consistent high-quality performance in the field.

CALIBRATION FACILITIES

Our laboratory holds ISO17025 accreditation for temperature measurements ranging from –200 °C to 1,500 °C, as well as for evaluating electrical parameters including millivolts (mV), milliamperes (mA), ohms (Ω), and volts (V).



SERVICES

- Wake frequency calculations for Thermowells as per ASME PTC19.3
- Cleaning for oxygen services
- Customized drawings
- Customized Inspection and test plans / procedures

CERTIFICATIONS

- Material certificate as per EN10204 3.1 or 3.2 and NACE
- Welding procedure specification (WPS) including procedure qualification records (PQR) and Welder performance qualifications (WPQ) as per ASME IX and ISO15614
- Certificate of conformance (EN10204 2.1)
- Certificate of origin

HAZARDOUS AREA CERTIFICATES

	XPS1	XPS2	XPS3	XPS4
IECEx:	Exeb	Exia/b	Exdb	Exec
ATEX:	Exeb	Exia/b	Exdb	Exec
CSA/US:	(A)Exe	(A)Exia/b	(A)Exd	(A)ExnA
KTL:	Exe	Exia	Exd	ExnA
CCOE(PESO):	Exeb	Exia/b	Exdb	
CCC:	Exia	Exdb		

TESTING FACILITIES

- Visual inspection
- Dimensional check
- Pressure testing (up to 1100Bar)
- High pressure testing (up to 5500Bar)
- Dye penetrant examination (DP)
- Radiographic testing (X-ray)
- Ultrasonic testing (US)
- Vacuum testing
- Helium leak testing
- Positive material identification (PMI)
- Batch calibration certificates
- Sensor calibration certificates

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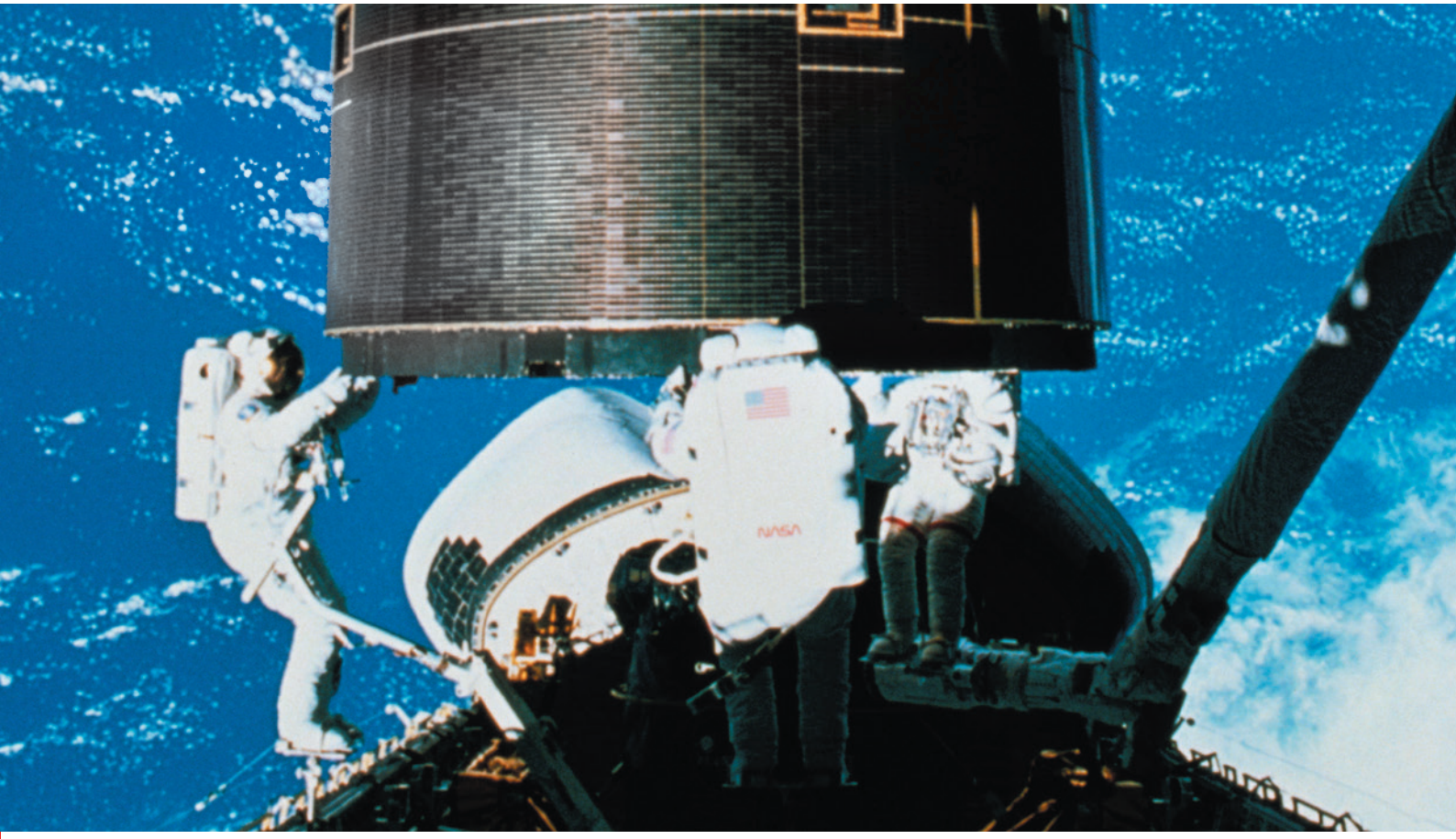


Other Products and Services at a Glance

TEMPERATURE SENSORS

- Industrial temperature sensors
- Multiple temperature sensors
- Profiling temperature sensors
- High-pressure temperature sensors
- Resistance temperature detectors
- PT100, PT1000, NTC
- Miniature temperature sensors
- Tubeskin temperature sensors

INSTRUMENTS

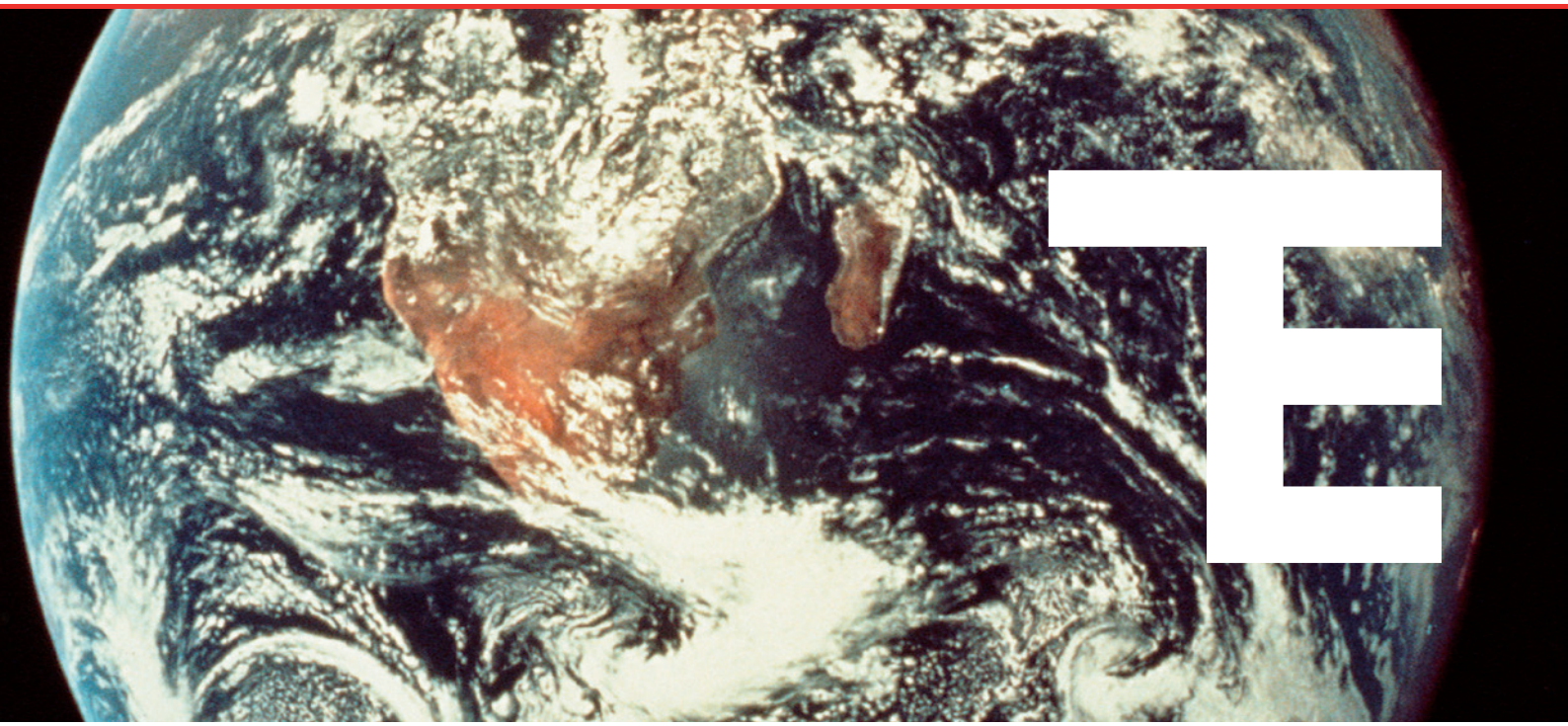
- Optical temperature meters
- Controllers
- Transmitters
- Dry well calibrators

CONNECTORS, PANELS AND WIRES

- Standard thermocouple connectors
- Miniature thermocouple connectors
- Standard thermocouple panels
- Miniature thermocouple panels
- PVC, PTFE, Kapton, Silicon, Glass Fiber

SERVICES - RvA/ILAC ACCREDITED CALIBRATION

- Calibration of temperature sensors
- Repair of instruments



Your trusted partner in the development and production of temperature measurement solutions

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