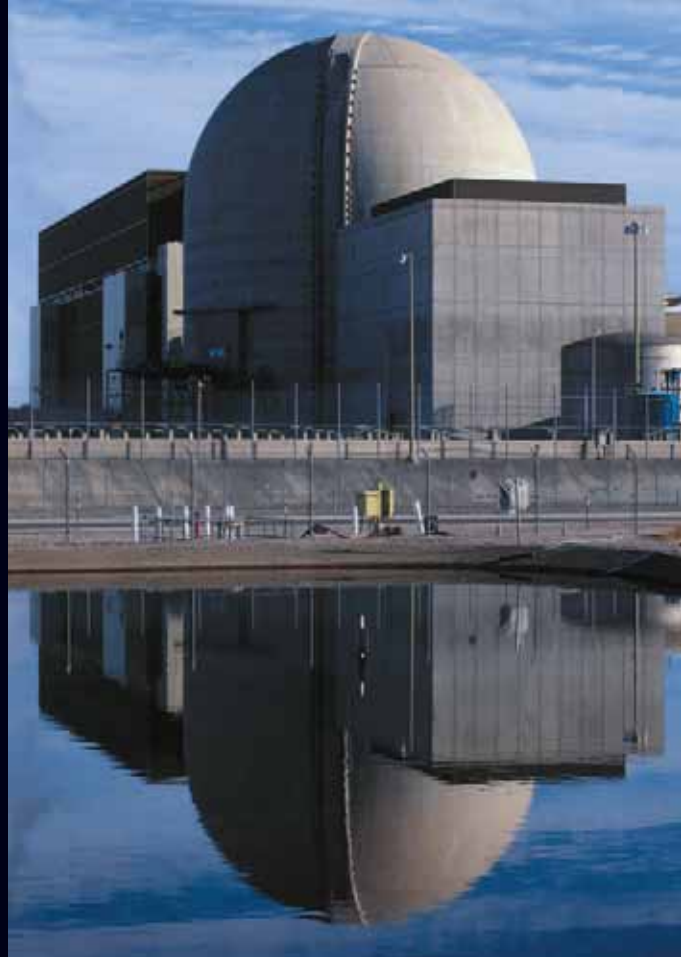


Optimize Your Process



Nuclear Power Generation

Analyze • Detect • Measure • Control™

Thermo
ELECTRON CORPORATION



Evolving to Serve You Better

Thermo: the world's leading manufacturer and marketer of advanced instrumentation.

Once comprised of more than 75 instrument companies — each a leader in its field — Thermo today is unifying to offer nuclear power customers a broad spectrum of high-level application solutions from a single point of contact — Thermo.

We invite you to unite with us in this quest for answers as we work to bring you the products, the services, and the expertise you need. Our mutual goal is to improve the financial performance, longevity, safety, and regulatory compliance of your nuclear power operations — relicensed or new.

When you're looking for answers, call Thermo.

Commitment to the Nuclear Power Industry

Thermo brings system solutions that solve today's problems while providing stepping stones to the future.

Thermo: System Solutions for the Nuclear Power Industry

You know us by our reputation for superior instrumentation. Now meet the new Thermo, a company bringing together all the product and application expertise from previously stand-alone business units into one Thermo.

Thermo can help you upgrade and standardize your systems, consolidate your engineering and procurement, trim your vendor list, lower your total cost of ownership, and enhance your profitability. Take advantage of Thermo power — the amazing breadth of solutions we bring to the nuclear power industry worldwide.

Stepping stones to the future

Almost never before has the nuclear industry faced so much uncertainty: What is the role of nuclear in a world focused on financial and operating performance but uncertain about the deregulation trends of electricity markets? How can we extend the life of existing reactors and reassure the public of their safety? Can new reactor technologies generate electricity safely and competitively while providing a return to investors? Will comprehensive international safety standards be developed and agreed upon — and what impact will they have?

At Thermo, we are committed to working through these difficult issues with you. When you need system applications to ensure plant-wide safety or simplify maintenance through redundancy and self-diagnosis, Thermo has the answer. When you need to upgrade your systems but need to ensure inter-connectivity and instant access to critical information, both real-time and archival, Thermo brings solutions that replace aging equipment and old technology seamlessly.

Thermo brings system solutions that solve today's problems while providing stepping-stones to the future.

One Thermo — a single point of contact

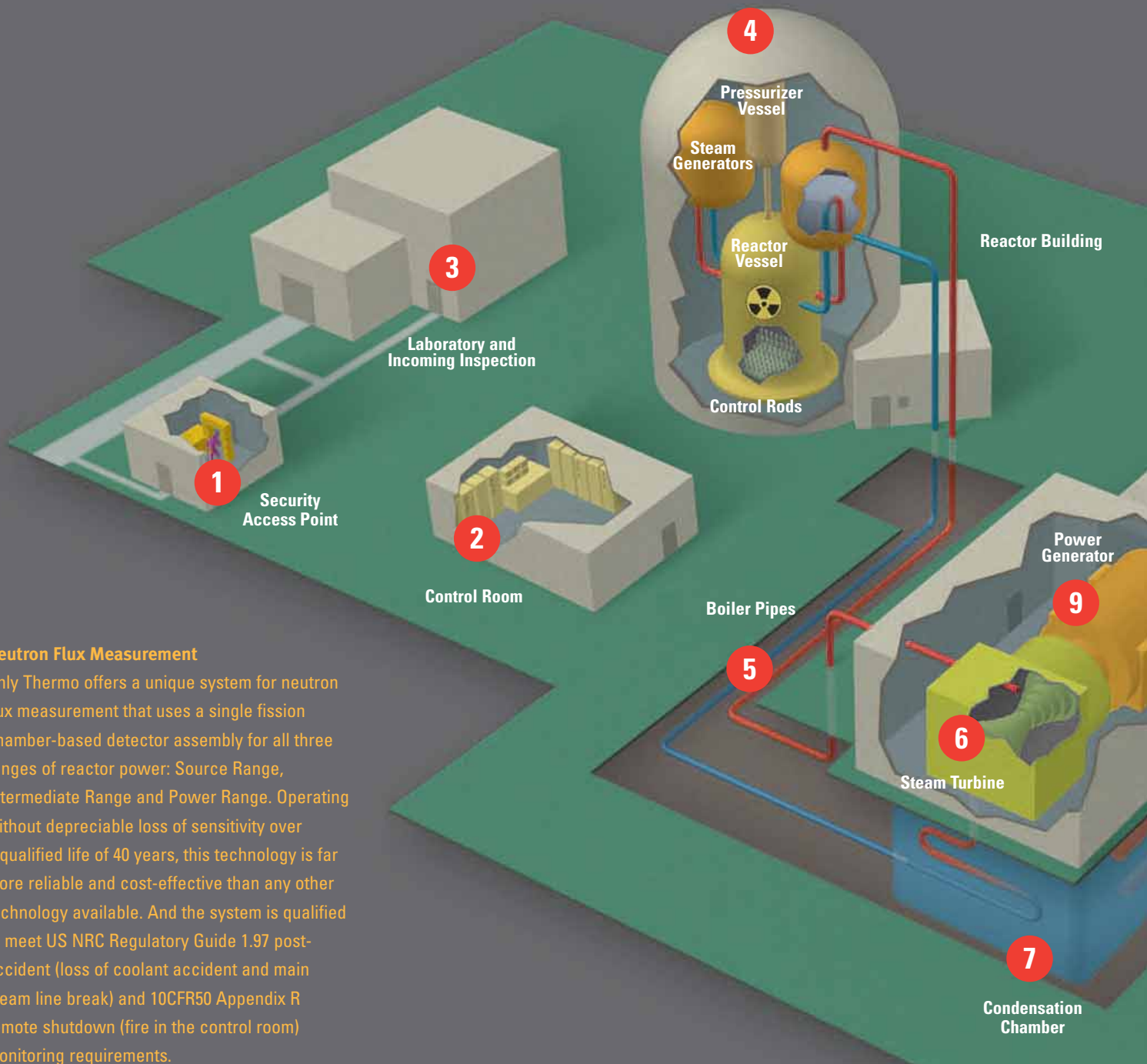
In the past, you focused on instruments, and you might have relied on a dozen companies for sales and service. Today we recognize that your needs go beyond instruments to application and system solutions.

Take advantage of the growing breadth of Thermo's solutions for Nuclear Power. We bring a single source for nuclear power applications expertise, installation, training, and post-sales support with a single set of terms and conditions. A single place to take your questions.

The best companies in the business are now one company, Thermo.



Thermo in the Nuclear Power Process

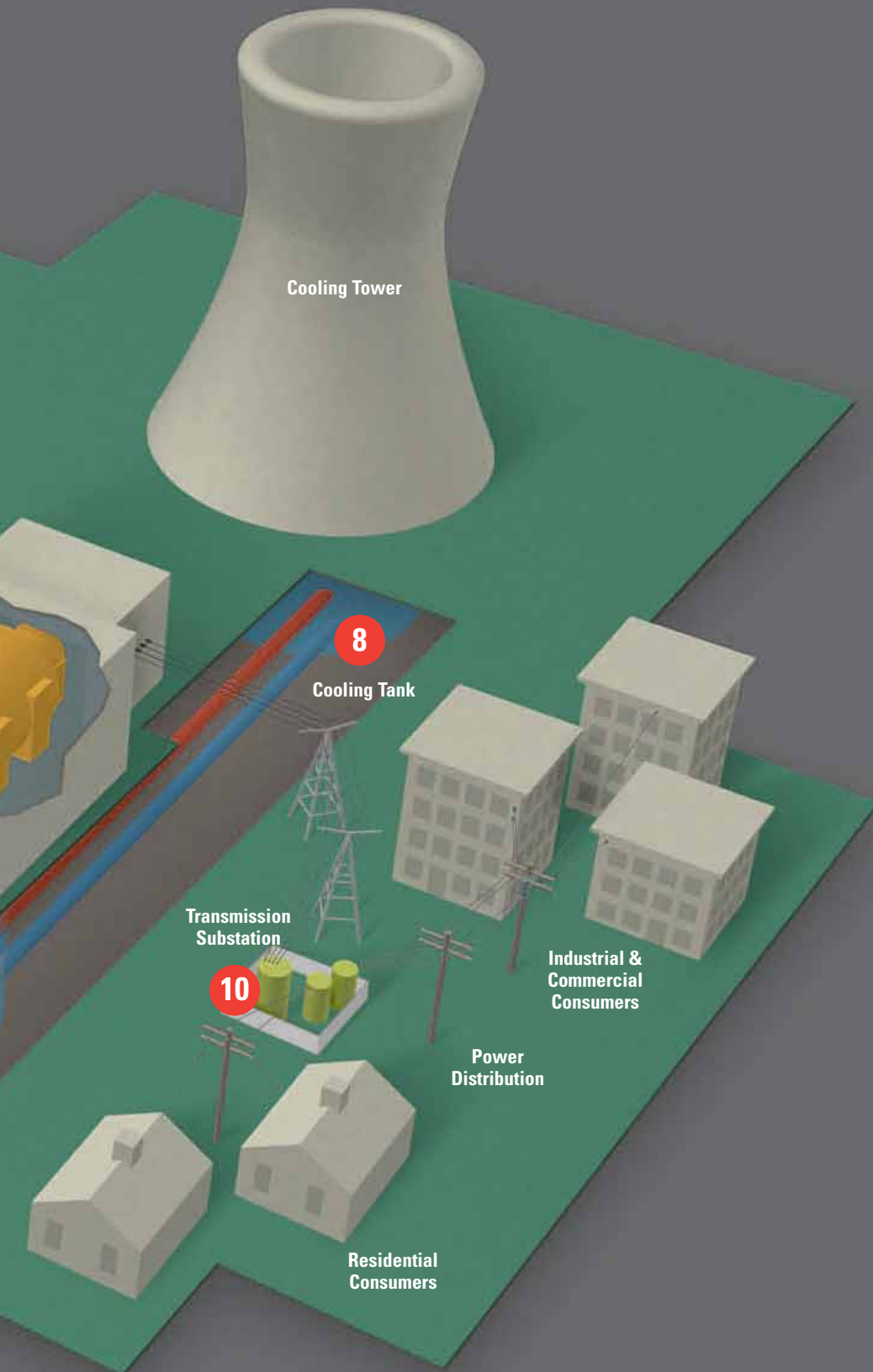


Neutron Flux Measurement

Only Thermo offers a unique system for neutron flux measurement that uses a single fission chamber-based detector assembly for all three ranges of reactor power: Source Range, Intermediate Range and Power Range. Operating without depreciable loss of sensitivity over a qualified life of 40 years, this technology is far more reliable and cost-effective than any other technology available. And the system is qualified to meet US NRC Regulatory Guide 1.97 post-accident (loss of coolant accident and main steam line break) and 10CFR50 Appendix R remote shutdown (fire in the control room) monitoring requirements.

Pebble Bed Modular Reactor

Thermo is contributing to the Pebble Bed Modular Reactor (PBMR), the internationally owned project currently being managed out of South Africa. As part of this contribution, we have developed two new systems, a Burn-Up Measurement System and an Activity Measurement System for the reactor's Fuel Handling and Storage System. It's the commitment you expect from Thermo.



1. Security Access Point
 - Radiation measurement and protection monitoring
2. Control Room
 - Radiation measurement and protection monitoring
 - Data acquisition, monitoring and management
 - Alarm monitoring
 - Neutron flux monitoring
 - Reactor protection systems
 - Audible count rate drawers
 - Boron dilution monitoring
 - Thermal margin monitoring
 - Class 1E qualified safety-related cabinets
 - Class 1E qualified power supplies
 - LCD digital meters
3. Laboratory and Incoming Inspection
 - Radiation measurement and protection monitoring
 - Data acquisition, monitoring and management
 - Weld and alloy verification
 - Laboratory Informatics
4. Reactor Building
 - Radiation measurement and protection monitoring
 - Data acquisition, monitoring and management
 - Level measurement
 - Radiation hardened solid-state camera (black/white or color)
 - Ex-core neutron flux detectors for source range, intermediate range and power range reactor power monitoring
 - Class 1E safety-related post-accident qualified cable assemblies
 - Audible count rate during shutdown maintenance periods
 - Installed gamma area monitors
 - Boric acid storage monitoring
 - Water analysis monitoring
5. Boiler Pipes
 - Cooling water and condensate flow measurement
6. Steam Turbine
 - Radiation measurement and protection monitoring
 - Data acquisition, monitoring and management
7. Condensation Chamber
 - Data acquisition, monitoring and management
 - Level measurement
8. Cooling Tank, Cooling Tower and Reservoir
 - Data acquisition, monitoring and management
 - Influent and discharge flow measurement
 - Density and level measurement
 - On-line water analysis
9. Power Generator
 - Data acquisition, monitoring and management
10. Power Distribution
 - Data acquisition, monitoring and management

Thermo Products

Thermo advances technology to the next level through research and development of new products and expanding the application of existing technologies to new products. We have the depth, breadth, and power to bring system solutions across your operation from one company—Thermo.

These pages can only hint at the breadth of Thermo core technologies – neutron flux monitoring, chromatography, elemental analysis, electrochemistry, Doppler, informatics, lasers and photonics, mass spectrometry, microanalysis, molecular spectroscopy, x-ray fluorescence, gamma detection, microwave, ultrasonic, and more.

This breadth of technologies gives rise to a multitude of product applications – within our core capability of radiation monitoring and protection, for example, we offer survey instruments, counters, detectors, dosimeters, area monitors, aerosol monitors, automated contamination monitors, gateway monitors, TLD readers, multi-channel analyzers, software for networking and survey mapping, and more.

Each application solution has a depth of products for the precise fit, from the simple to the sophisticated. In detectors alone, we offer alpha, beta, gamma, and neutron scintillators, plus smart probes and detectors for neutrons, GM contamination and GM dose rate. When it comes to analysis, detection, measurement, and control, we have a solution to fit your application and your budget.



Neutron Flux Monitoring System

All of our Neutron Flux Monitoring Systems have demonstrated high immunity to electromagnetic interference and noise, and employ modern, proven electronics for high reliability and low maintenance. Thermo manufactures 40-year qualified life 1E Safety-Related neutron flux monitoring systems that are qualified to meet U.S. NRC Regulatory Guide 1.97 Post Accident Monitoring Requirements.



Level and Density Meters

Thermo offers highly reliable full-service level detection systems using radar, gamma, or ultrasonic technologies providing you with flexible options. Thermo's award winning level sensors offer low maintenance non-contacting, non-intrusive level monitoring for a variety of applications including boric acid inventory level measurements.

Thermo also features pressure transducers and density meters to meet the various needs of the power generation market. Our density meters provide non-contacting and inline precision density measurement.



Radiation Detectors

Thermo's diversified product line is in use at nuclear facilities and research centers around the world. Thermo's radiation measurement offerings include everything from detection and identification instrumentation to real-time dosimetry data systems, monitoring systems and remote data acquisition systems.

Our personnel monitoring systems are used throughout the world to ensure the safety of nuclear workers. The PM-7 gamma portal monitor is a microcomputer-based radiation detection system which provides a rapid and sensitive indication of personnel contamination.



Ultrasonic Flowmeters

Thermo's array of non-invasive Doppler and transit time ultrasonic flowmeters meet the demands of all your flow measurement needs. Thermo's ultrasonic flowmeters fit a broad range of applications. Thermo flowmeters feature easy installation, high noise tolerance and accuracy within 1% of velocity. Inline and insertion turbine flowmeters are also available for steam, gas, and liquid flow measurement.

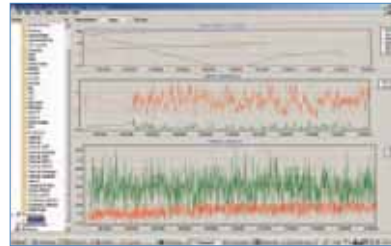


Water Quality Analyzers

Thermo's Orion line of online water monitors meets your application needs for pure water purification, boiler water control, condensate, and effluent applications. Low level sodium, pH, conductivity, dissolved oxygen, calcium hardness, silica, high & low level chloride, ammonia and chlorine measurements are critical to reducing turbine corrosion. Thermo's new Orion ionplus® Sodium Monitor incorporates patented technologies with outstanding performance to exceed all turbine sodium monitoring standards.

Radiation-Hardened Cameras

Thermo manufactures a line of proven radiation-hardened color and monochrome cameras for reactor monitoring, vessel inspection, waste monitoring, accelerator experiments, hot cells, ALARA programs, and other applications which require imaging in radiation environments. Thermo's CID camera is the only truly radiation-hardened solid state camera available. Capable of imaging in high, medium, and low dose rate environments, the MegaRAD series of CID based cameras operate to total dose levels of over 100 times what conventional solid state cameras can tolerate.



Remote Monitoring Software

Thermo's new ViewPoint™ remote monitoring software platform provides real-time personnel and area monitoring during routine and outage operations in nuclear power plants. The system provides users the ability to centrally process and analyze instrument/detector data, and to integrate detectors from Thermo Electron's portfolio as well as third-party vendors. ViewPoint enables increased efficiency and optimization of operational management by integrating personnel, area, and process monitoring for radiation data into a single application.

Informatics

Thermo's Informatics solutions allow you to integrate your laboratory data with online process data to create an enterprise wide information system. This results in complete visibility to all aspects of plant performance, allowing you to maximize efficiency and ensure optimal plant availability.



Data Acquisition Systems

Thermo's SmartView family of paperless data acquisition systems streamlines collection, distribution and analysis of critical process data to meet regulatory requirements, optimize operations and drive efficiency and profitability. The Smartview line features front accessibility to all electronics, flexible media storage, multiple communication ports to interface with your existing network including PI, and direct replacement to a variety of existing paper recorders.





Thermo Service and Training

Your operations will benefit from a comprehensive service offering including installation and maintenance, calibration, training and repair, aimed to reduce down time and keep your process working. We offer multiple levels of product support agreements and repair services to meet the needs of your operation around the globe. We offer field service repair or depot repair on many of our products with options that fit your budget and your deadline.

Thermo offers a comprehensive selection of training options to help you increase productivity by optimizing the use of your products and expanding the skills of your operators. You can receive hands-on instruction in your plant or one-on-one instruction at our training facilities in the US, Europe, or Asia. Courses typically cover basic operation, theory, calibration, and routine user level maintenance, but can include circuit board level troubleshooting and certification, if required. Our spare parts are designed specifically for your Thermo system, and we make it easy for you to secure replacements by maintaining offices around the world that respond quickly to your phone or online request.

When you need answers, call Thermo.



Going Beyond

Planning to upgrade or relicense your plant? Thermo supports legacy equipment – far longer than most suppliers – while we help you evolve profitably into the future with minimal disruption. We can replace drawers while keeping the panel intact – or customize entirely new qualified systems that will interface seamlessly with your other technology.

Building new reactors? Thermo can provide a new choice between isolated instruments and full SCADA. Our SmartView Paperless Data Acquisition System can integrate seamlessly with your current control systems and operate on your network – Internet or Intranet – to present the data you need when and where you need it.

All from a company with a proven track record for advanced technology, reliable performance, and responsive service.

About Thermo

Thermo Electron Corporation is the world leader in analytical instruments. Our instrument solutions enable our customers to make the world a healthier, cleaner and safer place. Thermo's Life and Laboratory Sciences segment provides analytical instruments, scientific equipment, services and software solutions for life science, drug discovery, clinical, environmental and industrial laboratories. Thermo's Measurement and Control segment is dedicated to providing analytical instruments used in a variety of manufacturing processes and in-the-field applications, including those associated with safety and homeland security.

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