

# WORLDWIDE I&C SOLUTION PROVIDER



NEUTRON AND GAMMA DETECTORS FOR SAFETY CRITICAL APPLICATIONS

## GLOBAL LEADER IN NUCLEAR INSTRUMENTATION

EXOSENS IS A GLOBAL LEADER IN NUCLEAR INSTRUMENTATION, DELIVERING HIGH-PERFORMANCE SOLUTIONS FOR THE MOST DEMANDING SAFETY-CRITICAL ENVIRONMENTS.

Formed through the merger of Centronic Limited and Photonis Nuclear Instrumentation, Exosens brings together decades of specialized expertise in the design, manufacturing, and testing of nuclear detectors. This unified identity supports the nuclear industry—and adjacent sectors—with a broader, more advanced portfolio of detection solutions.

With fully integrated in-house capabilities, including precision machining, inspection, engineering, and radiological testing, Exosens maintains full control over its production processes to ensure unmatched reliability and performance. Our multidisciplinary team of scientists and engineers—experts in physics, materials science, and electronics—work closely with customers to deliver tailored solutions that meet the most rigorous industry standards.

#### A LEGACY OF INNOVATION

With a history of expertise and commitment to innovation dating back to the 1940s, Exosens partners with reactor developers, nuclear operators, and research institutions to advance the future of nuclear safety and reliability.



Photonis France, SAS | Brive-la-Gaillarde, FR



Centronic Limited | Croydon, UK



### **CORE PRODUCTS & TECHNOLOGIES**

#### **GAS-FILLED NUCLEAR DETECTORS**

Exosens specializes in designing and manufacturing highperformance nuclear instrumentation, including neutron flux monitors such as fission chambers and ionization chambers. Our products support all major nuclear reactor designs, including AGR, BWR, CANDU, PWR, and VVER as well as leading particle accelerators, research reactors, and advanced reactors.



Image Credit: CEA



**NEUTRON FLUX MAPPING** in-core fission chamber

#### NEUTRON FLUX MEASUREMENT FOR REACTOR PROTECTION SYSTEM, FUEL LOADING, REACTIVITY METERS

proportional counters, neutron ionization chambers, ex-core fission chambers

**BORON CONCENTRATION METER, FUEL CLAD FAILURE DETECTION SYSTEM** fission chamber and proportional counter

**SIGNAL TRANSMISSION** mineral insulated cable extension (coaxial, triaxial) and feedthrough

SIGNAL TRANSMISSION connectors for harsh environments

AMBIENT RADIATION MONITORING gamma ionization chamber



## WHY EXOSENS?

Choosing Exosens means partnering with a trusted leader in nuclear instrumentation backed by decades of proven experience and cutting-edge technology.



#### **PROVEN RELIABILITY**

Our nuclear instrumentation solutions are engineered to perform in the most extreme conditions, including high radiation fields, elevated temperatures, Loss of Coolant Accidents (LOCA), vibration, seismic activity, and shock.

#### **COMPREHENSIVE IN-HOUSE CAPABILITIES**

We maintain complete control over production, ensuring the highest quality and reliability. Our expertise spans design engineering, procurement, manufacturing, testing, and development. This is further reinforced by an extensive network of trusted suppliers and specialist test facilities.



### **UNCOMPROMISING QUALITY & EXPERTISE**

At Exosens, we are committed to excellence by adhering to rigorous international standards, including:

- ♦ ISO 9001
- ASME NQA-1
- ♦ ISO 19443
- HAF604
- ♦ RCC-E

#### In addition, Exosens has been successfully audited for compliance with key elements of:

- QN-100 Generic Rev. B
- NSQ-100
- CSA Z299.2, N299.2
- 10CFR50 Appendix B/Part 21

• IAEA 50-C-Q; GSR Pt2; GS-R-3

WITH A COMMITMENT TO EXCELLENCE, EXOSENS DELIVERS HIGH-PERFORMANCE SOLUTIONS THAT DRIVE SAFETY AND RELIABILITY ACROSS THE NUCLEAR INDUSTRY



### **& INNOVATION**

Our multidisciplinary team of scientists and engineers collaborates closely with customers to develop advanced, tailored solutions that meet the strictest industry standards

## A COMPREHENSIVE PRODUCT PORTFOLIO

The Exosens nuclear instrumentation portfolio includes gas-filled neutron and gamma detectors, which play a critical role in the safety and monitoring of:

- Nuclear Power Plants
- Small Modular Reactors
- Advanced Reactors
- Nuclear Propulsion

- Research Facilities
- Fusion Reactors
- Fuel & Waste Management
- Health Physics

#### NEUTRON IONIZATION CHAMBERS

Available in compensated and uncompensated designs, they provide accurate neutron flux measurement for reactor power monitoring, safety systems, and nuclear research.



### PROPORTIONAL COUNTERS

Available in  $BF_{3}$ , <sup>3</sup>He, and boron-lined configurations, they provide reliable neutron detection solutions for low flux in research, health physics, and nuclear source range applications.



#### FISSION CHAMBERS

Fission chambers designed for flux monitoring in both in-core and ex-core reactor power monitoring, safety systems and nuclear research.



#### GAMMA IONIZATION CHAMBERS

Gamma detection and measurement for diverse applications, including health physics, area monitoring, fuel reprocessing, and research activities.



#### COAXIAL/TRIAXIAL TRANSMISSION LINES & CONNECTIVITY

Comprehensive range of transmission line solutions, including mineral-insulated or organic cables, custom assemblies, and advanced termination options.



#### CAPABILITIES & CUSTOMIZATION

Wide spectrum of customization, including size, material, clustering capabilities, LOCA-housing, harsh environments connectors.



### MAJOR NUCLEAR POWER PLANT REFERENCES



Exosens I&C are trusted worldwide, with installations in over 30 countries, including the United States, United Kingdom, France, China, India, and across Western Europe. Designed for reliability and precision, they support critical safety applications in nuclear facilities globally. Power reactor installation types include, Boiling Water Reactors (BWR), Pressurized Water Reactors (PWR), and Water-Water Energetic Reactors (VVER), as well as advanced and research reactors globally.

Other installation references include fuel reprocessing plants, Accelerated Driven Systems (ADS), Fast Breeder Reactors (FBR), and TOKAMAK.





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