

## **Industry-Grade Control Systems for Tomorrow's CANS**

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Particle accelerator systems are becoming more complex with each new installation, yet reliability remains a fundamental requirement for both industrial and research installations. Ensuring that beams are delivered on time and within specified parameters is essential. While the combination of complexity and high reliability may seem challenging, this can be addressed effectively through systematic engineering of the control system. A well-engineered control system not only ensures reliability but can also enhance the overall performance of the entire accelerator.

Cosylab specializes in providing engineering and turnkey software solutions tailored to sophisticated systems, among which are also compact accelerator-based neutron sources (CANS). With over 20 years of experience and hundreds of successfully delivered projects, we have built a strong reputation in the industry, and our commitment to quality is demonstrated by our ISO certifications and a global presence with subsidiaries in China, Japan, Switzerland, the United States, and Slovenia.

What distinguishes Cosylab is our ability to deliver complex projects that require deep domain expertise and a solid understanding of physical operational principles. Our services span from the development of turnkey control systems to systems engineering, architecture, and multi-year project planning. In addition to control software, we provide custom hardware in small quantities, ensuring that every phase—specification, procurement, development, assembly, delivery, and testing—meets the highest standards.

We develop and integrate subsystems such as timing systems, machine protection systems, interlock systems, slow and fast orbit feedback/feedforward systems and we integrate them into a modern central control system, providing also device list consultancy and validation. This is achieved by a holistic project approach and a keen understanding of each project's unique use cases. Our deep knowledge of accelerator control systems and project management ensures that projects are completed on time and within budget, mitigating risks and lowering the total cost of ownership.

We recognize the significant potential of the CANS domain, both in industry and research, and have already contributed to multiple projects within this area. With a strong technical and project management foundation, we bridge the gap between scientific advancements and industry developments, driving the industrialization of novel CANS systems.

Cosylab is proud to deliver cutting-edge software and engineering solutions to organizations such as ITER, CERN, RPI, SLAC, ESA, FAIR, Varian, Leo Cancer Care, MedAustron, Mevion, Northwestern Memorial Hospital, ProTom, DESY, ALMA, and Massachusetts General Hospital, among others.

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### **Presenter if not the submitter of this abstract**

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