Professional Services

EPICS Device and System Integration



Open Solutions with the leading Open Source Control System Framework

EPICS is a control system middleware or framework that allows distributed parts of the control system for Big Science machines to communicate with each other in a standardized way for the purposes of data acquisition and control of equipment.

Cosylab is the leading control system integrator for the EPICS system.



PAL-XFEL, Australian Sychrotron ,ESS, SLAC e.a.: Over the last 15 years major labs from around the globe have contracted Cosylab to deliver EPICS integration services

How can we help you?

- **Single device integration:** integrate a single device of any complexity into an existing EPICS control system
- **Generic Device Support:** get a generic driver development, for example of a digitizer card into EPICS, to increase the uniformity of various beam instrumentations.
- **Complete EPICS Control System:** several customers have engaged Cosylab for a complete EPICS control system integration for their machine.
- **Cover Peak Loads:** whenever your team lacks the manpower, Cosylab can fill the gap with EPICS experts that get up to speed in no time!

Key Benefits for You

- **Open Solution:** You remain in full control of the software and easily extend it any way you want.
- **No bureaucracy**, e.g. about formal specifications. Our experience allows us to **quote** on EPICS projects with confidence, even **with incomplete requirements**.
- **Leverage Expertise:** No one has done more EPICS integrations in a wider variety of applications then Cosylab. We bring you the ideas that have proven to work.
- **Peace of mind:** our software comes fully documented and tested. We come onsite for SAT, commissioning support, etc. And if we "drop the ball", you can be sure we get it fixed.

How to engage us?

Simply by contacting us; either by simple e-mail to info@cosylab.com or by talking to anyone from Cosylab. By ordering a short work analysis study from us, you immediately gain a complete and detailed insight into the total system scope and get a work breakdown of what it will take to complete your project successfully. No need to wait until your requirements are formalized!











Linde Cryoplant Integration at ESS - Sweden

When completed, The European Spallation Source will be the world's most powerful pulsed neutron source. The accelerator cryoplant, delivered by Linde Kroytechnik, is the largest of the ESS cryoplants. Cosylab integrated it into the ESS EPICS environment.

- Siemens Step 7- 400 PLC based plant control
- Interface between the PLC and the IOC implemented with s7plc EPICS driver
- Extensive control user interfaces for touch panels.
- Automation: PLC variables etc. are parsed by appropriate Python scripts to create the EPICS database and configuration files for alarm handler and archiving services

ITER EPICS-CODAC integration standardisation - France

The purpose of ITER is to demonstrate nuclear fusion as an energy source. Since 2008, Cosylab is delivering various demanding software services to ITER, for the EPICS-based CODAC Core System environment, remote handling and plasma control.

- Linux Device Drivers
- EPICS Device Support
- Build Automation (Maven)

Automated Software Distribution

- Package Management (RPM)
- packaging and distribution Tailored Training Design & Expert Training

· Software Platform documention,

Software Development Platform Building

Expert Technical Support

Gyrotron Integration for Japan Atomic Energy Agency (JAEA)

Cosylab did a control system integration on top of the EPICS-based CODAC Core System for a gyrotron, an RF source for the ITER tokamak. Key features:

- Automated, millisecond level control of the gyrotron operation.
- · Includes integration of high voltage power supplies, RF sensors, arc sensor, ion pumps and superconducting magnets power supplies.
- High continuous sampling rates (40 ksps x 16 analog inputs for 3600 secs.) with NI PXI-6259 DAQ card.
- · Control of superconducting magnets power supplies (Oxford Instruments)

S10 AIP Injector Integration for FACET-II at SLAC - Stanford - USA

After a redesign of the LCLS-II project, the injector at Sector 10 became available for repurposing to the FACET-II test facility. SLAC contracted Cosylab for this multi-faceted **EPICS** integration

- Laser gun controls
- · Wire Scanners, Collimators, ...

Machine Protection System

Vacuum

- Dipole power convertors
- Engineering support (PLCs)
- Temperature monitoring
- SAT and commissioning support



The Extreme Light Infrastructure (ELI-NP), Romania

The Extreme Light Infrastructure (ELI-NP) is built in Măgurele, Romania, to become the most advanced laser and gamma beam facility in the world. It consists of a very intense gamma source combined with a very high intensity laser. Cosylab assumed responsibility for the delivery of the EPICS based control system for the gamma beam system (GBS) as part of the EuroGammaS consortium. Cosylab's involvement includes all stages from control system design and development to system installation and commissioning, making it a complete turnkey solution.

