Cynalytica

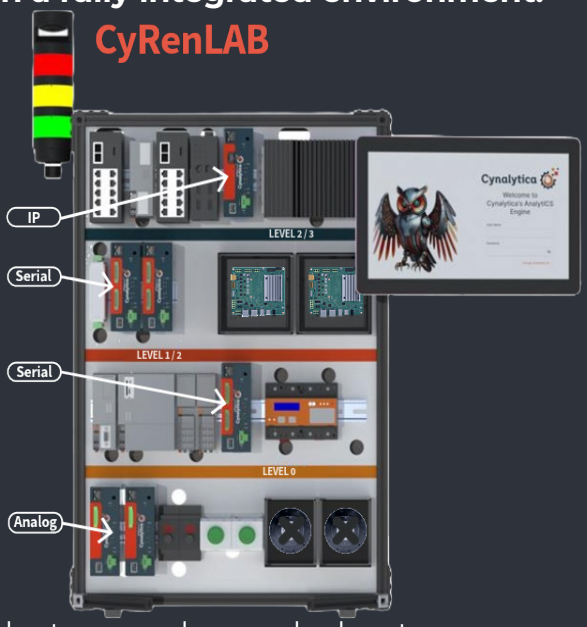
CyRenLAB

Practical Lab Environment Purpose-Built to Span the Full Range of ICS/OT Communications

Hands-on ICS/OT Research, Training and Validation Laboratory for Analog, Serial and IP

CyRenLAB is the only hands-on ICS/OT lab environment that combines analog, serial, and IP communications in a single modular platform. Unlike simulated-only IP labs, CyRenLAB provides real signal and protocol coverage from Level 0 to Level 3, enabling realistic training, validation, and research in a fully integrated environment.

- **Simulate cyber-physical attack scenarios**
- **Monitor and detect anomalies**
- **Build behavioral baselines and detection models**
- **Execute and refine incident response plans**
- **Perform forensics and root cause investigations**
- **Research industrial protocol across levels 0-3**



Built for NOC/SOC operators, researchers, forensic and incident responders, and educators.

Why It Matters

OT Teams Lack Safe, Realistic Environments

Most ICS/OT teams still operate without access to realistic lab environments that reflect actual industrial conditions. This limits their ability to simulate threats, train effectively, or test tools without risking disruption to production systems.

Critical Gaps in Visibility and Contextualized Data

There's still limited visibility into analog, serial, and IP layers, especially below Level 3. Without curated, contextualized data from Level 0 through Level 5, teams struggle to baseline behavior, detect anomalies, or develop effective AI/ML-driven detection strategies.

Key Capabilities:

Full Stack ICS Protocol Support
Supports analog (4–20mA), serial, and IP protocols including Modbus, DNP3, IEC 101/104.

Multi-Level Support
Simulates full ICS stack from Level 0 to Level 3 using Purdue model.

Real Devices
Hardware-in-the-loop with SCADA controllers, drives, meters, and sensors.

Secure Testing
Train, validate, and test without risking live production environments.

Advanced Functional Capabilities

- Conduct adversarial and exploit testing in a controlled lab setting
- Reproduce anomalies for forensic-grade signal analysis
- Generate curated, high-fidelity data for detection modeling and AI/ML integration
- Normalize, curate, and contextualize OT data for effective AI/ML use
- Visualize protocol flows and timing for advanced anomaly investigation