

SensAbility Snapshot

Predictive Maintenance with Physical-Layer Signal Monitoring

How SensAbility helps detect hardware degradation before failure

Applications

Predictive maintenance
Industrial facility operations management
Optimizing controlled production
Cybersecurity
OT/ICS integrity monitoring

Partnership Opportunities

SensAbility is building a partner ecosystem with sensor OEMs, DAS/ICS/OT monitoring vendors, and system integrators with the resources to further develop SensAbility into a broad commercial Edge+ SaaS product line. Partners can integrate SensAbility into existing condition monitoring, OT security, and asset management offerings to deliver sensor-level integrity assurance, improve operational resilience, and reduce lifecycle maintenance costs across multiple industry sectors.

Contact Information

Kirk Byles, CEO | Kirk@rapiertechgroup.com | 303-886-6379

Overview

Traditional maintenance programs often depend on scheduled inspection, visible symptoms, or failure events. That approach leaves a gap. Many hardware problems begin earlier, as small changes in device signal behavior that are easy to miss with conventional monitoring.

SensAbility addresses that gap by monitoring devices at the physical layer. It compares live signal behavior against a trusted baseline to detect drift, degradation, or abnormal operating conditions before they become outages, safety problems, or costly disruptions.

The Problem

In large OT, ICS, and industrial environments, operators depend on sensors and embedded devices for critical decisions. Yet most monitoring systems assume those devices are functioning correctly. In practice, devices degrade over time. Signal drift, component wear, environmental stress, and hardware anomalies can reduce reliability long before a device fully fails. Manual validation does not scale well across large sensor deployments, and intrusive diagnostics are not always practical in production systems.

The SensAbility Approach

SensAbility uses passive physical-layer fingerprinting to establish a baseline for expected device behavior. It then compares new observations against that baseline to detect meaningful change. This allows teams to identify signs of degradation earlier and respond before performance loss becomes operational impact. The platform is designed to work without firmware access and without adding agents to the device.

What It Can Help Detect

- Hardware aging or degradation
- Abnormal operating states
- Deviation from known-good baseline
- Early maintenance indicators

Operational Value

By identifying degradation earlier, SensAbility can help organizations:

- Reduce unplanned downtime
- Improve maintenance timing
- Avoid unnecessary replacement cycles

Deployment Fit

SensAbility is suited for environments where device access is limited, uptime is critical, or fleets include a mix of legacy and modern equipment. The platform is positioned for wired or wireless deployments and can support SaaS, enterprise, OEM, and edge delivery models depending on the operating environment.