

Distributed Acoustic Sensing Alarm Management Software (DAS AMS)

Harness the power of fiber sensing technology and Distributed Acoustic Sensing (DAS) to protect your critical infrastructure and assets



DAS AMS provides accurate and actionable alarms and displays them on a map to help you protect your assets.

In an interconnected world, safeguarding critical infrastructure is paramount. From pipelines to power grids, bridges to tunnels, our societies rely on these vital systems. Fiber sensing technology and Distributed Acoustic Sensing (DAS) offer a powerful solution to enhance security and protection across various critical assets.

DAS AMS provides a suite of compelling advantages, from continuously monitoring critical infrastructure to detecting threats in real time. Whether it is a pipeline leak or unauthorized access, operators receive immediate alerts for rapid response to minimize damage and prevent disruptions.

Benefits

- Accurate information on threats and integrity issues in real-time
- Advanced alarm management for minimal false alarms
- Multi-platform alarm support, for multiple users and third-party systems
- Actionable information for rapid and proportionate response
- Protection of critical infrastructure
- Manage multiple FTH-DAS units with a single AMS

Features

- Real-time monitoring and alarming
- Pipeline leak, theft and damage detection
- Threat detection and localization
- People and vehicle detection
- Intrusion detection
- Fence cutting and climbing detection
- Tunneling and excavation detection

Applications

- Border and perimeter security
- Critical infrastructure protection
- Oil, gas, water and chemical pipelines



DAS Alarm Management Software with Fiber Test Head for Distributed Acoustic Sensing (FTH-DAS)

DAS AMS combined with FTH-DAS (aka an 'interrogator') can distinguish between background noise and genuine threats, ensuring you receive the critical information needed to respond safely and effectively. When acoustic events occur along a fiber optic cable, they are detected by the FTH-DAS which processes all received acoustic data and applies sophisticated detection algorithms to identify and classify events such as digging, climbing, and pipeline leaks.



DAS AMS User Display

Event Assessment and Alarms

Each detected event is immediately transmitted to the DAS AMS, which evaluates the events by analyzing their persistence, cadence, movement and location. The DAS AMS determines whether an event poses a threat to the integrity of an asset and decides when to raise an alarm.

All Alarms	ID	Time	Type	Threat level	Highest threat level	Status	Acknowledged on	by	Commands
<input type="checkbox"/>	282	2023-09-18 18:22:34	Vehicle	Amber	Amber	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	296	2023-09-18 18:22:34	Vehicle	Amber	Amber	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	283	2023-09-18 18:22:34	Vehicle	Amber	Amber	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	289	2023-09-18 18:22:34	Vehicle	Amber	Amber	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	304	2023-09-18 18:22:34	Vehicle	Amber	Amber	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	295	2023-09-18 18:22:34	Vehicle	Amber	Amber	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	301	2023-09-18 18:22:34	Vehicle	Amber	Amber	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	286	2023-09-18 18:22:34	Vehicle	Amber	Amber	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	287	2023-09-18 18:22:56	Walking	Clear	Green	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	302	2023-09-18 18:22:56	Walking	Clear	Green	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	293	2023-09-18 18:22:56	Walking	Clear	Green	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	299	2023-09-18 18:22:56	Walking	Clear	Green	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	284	2023-09-18 18:22:56	Walking	Clear	Green	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	305	2023-09-18 18:22:56	Walking	Clear	Green	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	290	2023-09-18 18:22:56	Walking	Clear	Green	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	296	2023-09-18 18:22:56	Walking	Clear	Green	Resolved			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	288	2023-09-18 18:23:32	Digging	Red	Red	Resolved	2025-02-19 13:31:47	System Administrator	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	300	2023-09-18 18:23:32	Digging	Red	Red	Resolved	2025-02-19 13:56:39		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	294	2023-09-18 18:23:32	Digging	Red	Red	Resolved	2025-02-19 13:43:11		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	285	2023-09-18 18:23:32	Digging	Red	Red	Resolved	2025-02-19 13:27:22		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	306	2023-09-18 18:23:32	Digging	Amber	Amber	Resolved	2025-02-19 13:57:36		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	291	2023-09-18 18:23:32	Digging	Amber	Amber	Resolved	2025-02-19 13:37:52		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	297	2023-09-18 18:23:32	Digging	Amber	Amber	Resolved	2025-02-19 13:47:14		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	303	2023-09-18 18:23:32	Digging	Red	Red	Resolved	2025-02-19 13:54:48	System Administrator	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Delete selected Acknowledge selected Resolve selected
Download as CSV
(All times are given in GMT+0100.)

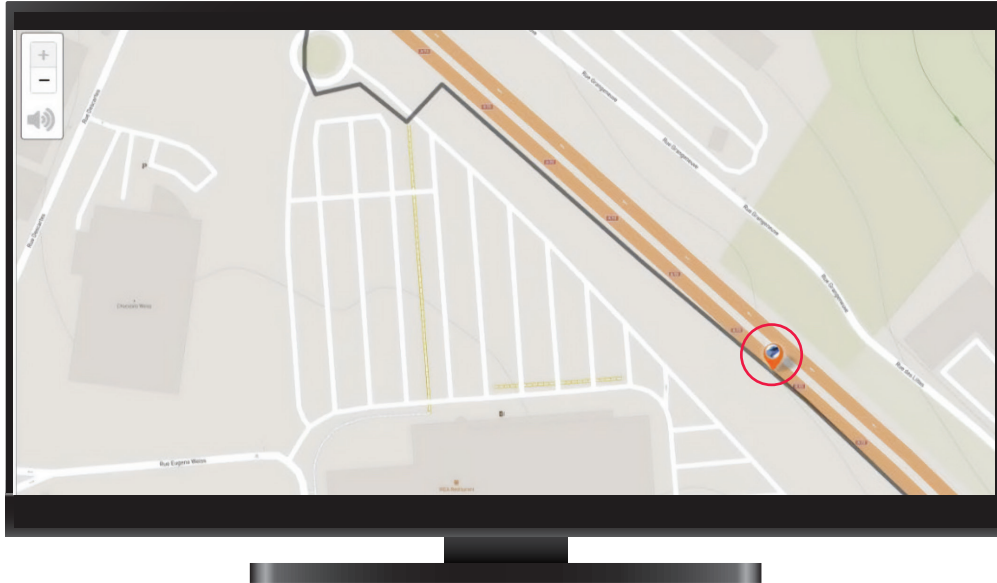
Events listing, historical and live



Event Detection, Assessment and Alarm Management

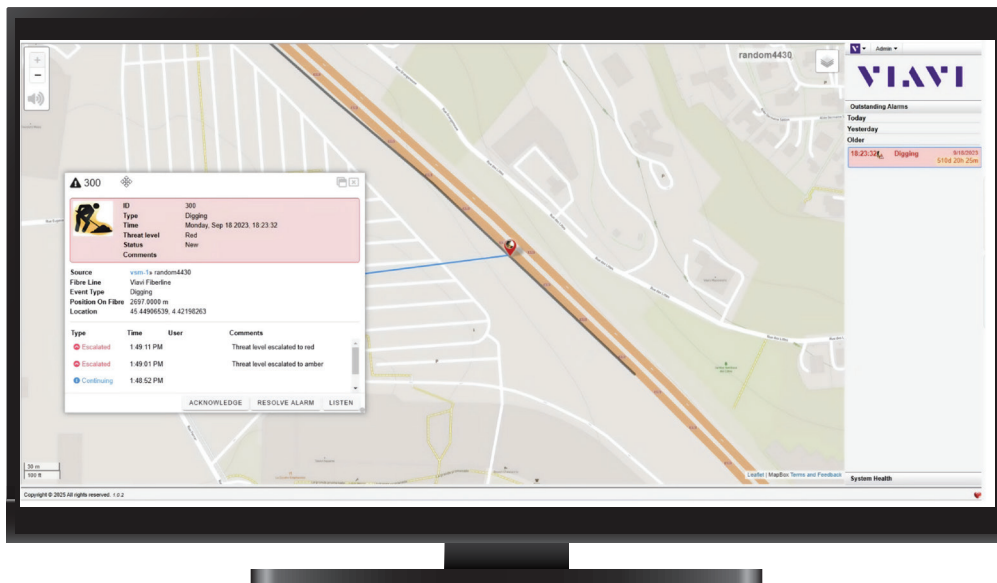
Events are assessed as they occur and develop, at each stage.

- **Event detected:** Potential threat detected and displayed as a map icon



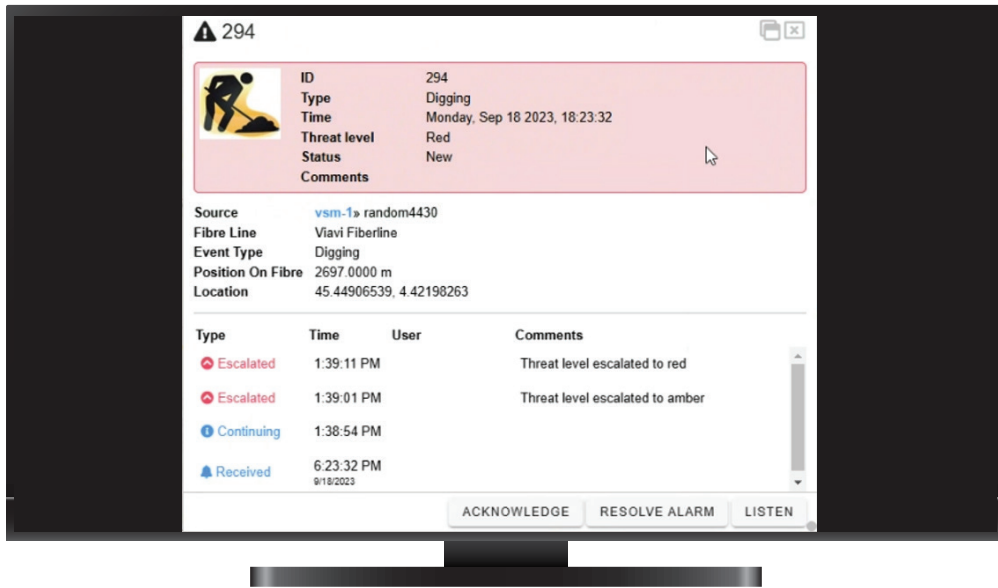
Event icons showing location, movement and threat level/severity

- **Pop-up warning:** Continues to monitor the potential threat and then notifies the operator of a developing situation via email and text sms



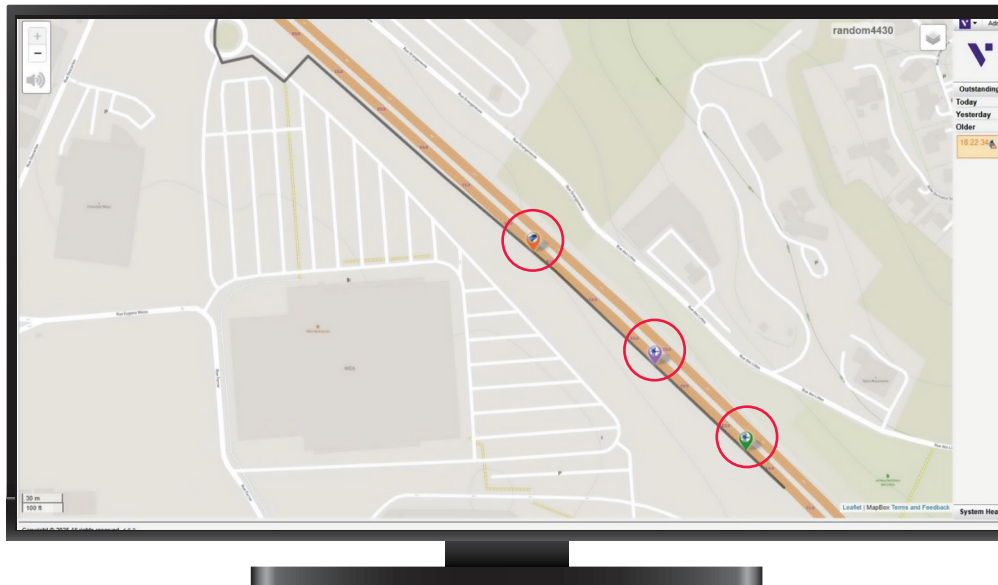
Event alarm pop up notification

- **Threat level alert:** Threat level escalated and alarm status set, with an audio warning and operator notified of the threat



Alarm escalation and response

Automatic assessment minimizes false and nuisance alarms, ensuring only accurate information about genuine threats is received. AMS manages alarms with user-defined thresholds (Green, Orange, or Red) allowing alerts to be tailored to what matters most in individual zones and at specific times of day.



Event specific icons, e.g., car, person walking, manual digging

With bespoke commissioning, which takes into account the type of asset, the threats and integrity issues faced, and the anticipated response time, AMS ensures you have the right information to make swift and proportionate responses.

Features

- Multi-platform alarm delivery, including XML over HTTP, Binary, Email or SMS
- Acknowledge alarms and access supporting information using a remote web-interface
- Integrate into control rooms with SCADA over Modbus
- User calibration supported via the map interface
- Set and manage time/zone-based alarms
- Maintain system and alarm logs
- Alarm report management with enhanced user configuration options for alarm notifications
- Offline Maps, with multi-layer functionality for user annotations and markers
- User-defined event types and icons
- Support for multiple languages
- Remote operation on touch-screen mobile devices
- Enhanced redundancy features

Fully Customizable

With DAS AMS software, users are in control. Manage your alarm thresholds/levels to tailor alarms to the ‘what, where, and when’ that is important to your asset.

Gain actionable insights into your unique activities and integrity issues, whether you are protecting pipes, monitoring borders, or maintaining roads. DAS AMS gives you the right information to make a quick and proportionate response based on your own security or maintenance arrangements.

Event Type	Electrical Power	Pipelines	Security/Protection
Third Party Interference (TPI)*	•	•	•
Cable Tampering	•		•
Cable Faults/Failure	•		•
Joint Fault/Failure	•		
Cable Bend/Stretching	•		•
Arching/Flashover	•		
Leak Detection		•	
Ground Deformation		•	

*Detection of Third Party Interference (TPI) events includes:

Walking, manual digging, mechanized digging, fence climbing, fence cutting, vehicle movement, excavation, vessel detection, man-hole interaction.

Perimeter Defense Reinforced

Installed along perimeters such as fences or underground DAS AMS and FTH-DAS provide unmatched sensitivity to vibrations and disturbances, offering precise detection and localization of unauthorized entries. Ideal for safeguarding expansive areas like airports and military bases, eliminating blind spots and enhancing perimeter security.

Robust Pipeline Monitoring

Pipelines for gas, water, fuel, and oil serve as the lifelines of modern economies. Detecting leaks, intrusions, physical tampering or attacks is vital. Early detection capability is crucial for preventing environmental hazards and ensuring uninterrupted operations, especially in remote and hard-to-access locations.

Threat Detection Increased

Detect threats from nearby construction activities and malicious actions to safeguard sensitive areas and infrastructure with precision and reliability. By embedding optical fibers in the vicinity of vulnerable sites you can capture any physical disturbances, such as vibrations and acoustic signals caused by nearby construction or unauthorized intrusions. With the ability to distinguish between ordinary environmental noise and potential threats, enabling real-time alerts that facilitate prompt response.

Cable Infrastructure Protection

Telecommunication and data transmission cables are equally critical. Using existing fiber optic communication links to detect and localize acoustic events, such as cable interruptions or unauthorized access, operators can swiftly respond to incidents, ensuring uninterrupted service.





Railway and Transportation Safety

Deploying along railway tracks, to detect track deformations or excessive vibrations, increases safety by ensuring the integrity of railway infrastructure and reducing the risk of derailments. Also allowing for better maintenance scheduling and operational efficiency.

Border Surveillance Enhanced

Utilized to monitor extensive and remote border areas efficiently, FTH-DAS with AMS reduces the reliance on extensive human patrols, lowering costs and improving border security against unauthorized crossings.

Data Center Interconnect (DCI) Secured

Implemented with DCI to monitor physical access and surrounding environmental conditions to protect sensitive fibers and data from unauthorized access and physical threats.

Overall, DAS AMS (with FTH-DAS) is revolutionizing critical infrastructure security, enhancing your ability to protect borders, perimeters, pipelines, cables, and other vital assets. As threats evolve, so does our defense.

VIAVI System Care

VIAVI offer services to enable you to plan, install, activate, and maintain your systems over the lifetime of your project. Our system software and maintenance hotline is available globally with a standard 8x5 service level agreement. Our services team includes experts in project management, logistics, training, support, and process implementation.



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