The Thermo Scientific EGIS Defender Explosives/Narcotics Trace Detection system combines cutting edge technology and performance with rugged packaging, portability, reliability and ease of use. The highly flexible dual technology platform provides extremely low false positives for high inspection throughput to assure the success of security missions around the world.

The Thermo Scientific next generation chemical detection system is based on our high-speed gas chromatography (HSGC) technology combined with micro differential ion mobility spectrometry (DMS), setting a new benchmark for performance in the high-end chemical trace detection system market.

The combination of the HSGC-DMS technologies, the Thermo Scientific EGIS Defender offers the highest performance available to simultaneously detect explosives and illicit drugs in a portable package.

Among the most significant features of the EGIS™ Defender is its ability to detect new and emerging threats through its built-in scientific viewing windows and easily expandable threat library, eliminating the risk of technology obsolescence.

Features and Benefits
- Low cost of ownership
- Reduced obsolescence
- High performance & fast results
- Accurate analysis with highest sensitivity and lowest false alarm rate
- Ease of use and operation
- Ease of maintenance
- Remote diagnostics
- Large color touch screen display
- Expandable library for explosives & narcotics
- Selectable modes of operation
- Storage for 75,000 analyses

Technology
- High-speed gas chromatography with micro differential ion mobility spectrometry (HSGC-DMS).

Applications
- Aviation screening at security checkpoints, carry-on and checked baggage and air cargo
- Control of military access points and border crossings
- Critical infrastructure, including nuclear power facilities and chemical plants
- Commercial and federal buildings, including embassies, corporate mail rooms and high-risk facilities
- High-security events, such as conventions and major sporting venues
- Mobile field investigations

Thermo Scientific
EGIS Defender
Portable desktop explosives/narcotics trace detection system
Benefits / Features

- **Low Cost of Ownership:** By providing low cost consumables, simple field maintenance, and eliminating the need for carrier gas bottles, the overall cost of ownership remains very low.
- **Reduced Obsolescence:** Using HSGC combined with DMS technology, the Defender detects both new and emerging threats, such as TATP, HMTD, EVE, and Ecstasy, ensuring the device will not be rendered obsolete due to new threats.
- **Performance:** Provides consistent and fast results ensuring a high level of passenger, baggage and cargo throughput, while experiencing very few false alarms.
- **Accurate Analysis:** Provides the highest sensitivity with the lowest false alarm rate while detecting trace levels of explosives and illicit drugs.
- **Ease of Use and Operation:** Simple to set up and is ready for operation within 30 minutes. Also uses a large, intuitive color touch screen for ease of operation and multiple native language options.
- **Ease of Maintenance:** Routine calibration not required and utilizes automated cleaning which allows for a lower skill level user for operation and maintenance. Programmable reminders are available to inform operator of tasks to be performed.
- **Remote Diagnostics:** Used for maintenance, software updates, and trouble-shooting, allowing for shorter down times and less field visits. (Internet connection required)
- **Scientific Investigation Mode:** Enhanced analysis viewing options available to analyze and determine new threats and review previous data collected.

EGIS Defender Technology vs. IMS/ITMS

The ideal laboratory method for separating compounds of interest out of a complex mixture is by a technology known as gas chromatography. The EGIS Defender uses high-speed gas chromatography (HSGC) to separate explosives and narcotics out of any sample matrix, allowing for extreme accuracy. Once the compounds are separated, the EGIS Defender employs a second technology known as Micro Differential Ion Mobility Spectrometry (DMS) to provide detection of explosive/narcotic compounds down to the sub-nanogram level.

Micro Differential Ion Mobility Spectrometry (DMS) technology allows for detection of the new and emerging threats, such as TATP and Ketamine, facing security professionals today. With the powerful combination of HSGC, DMS, and the flexibility of the overall system architecture, the EGIS Defender will meet the emerging threats of tomorrow, eliminating the risk of technology obsolescence.

Unlike existing analytical methods, our DMS has the ability to detect both negative and positive ions. Competing systems either alternate between detecting positive/negative ions or may even be limited to tracking only positive or negative ions, or split the sample into two different tubes, greatly reducing sensitivity and overall effectiveness in detecting the full range of threats.

With advances in HSGC technology, the need for helium or hydrogen carrier gas for operation is no longer required. If the user chooses, a helium option is available.
Interferences/False Positives
As for interferences and masking agents, EGIS Defender has the ability to successfully confirm the absence of explosives/narcotics despite the presence of interferences and can successfully determine the presence of explosives and/or narcotics despite the presence of agents known to disguise these compounds. The combination of these two technologies results in very low false positive identification and false negative misses, without sacrificing sensitivity.

IMS/ITMS Technology Deficiencies
IMS/ITMS systems rely on only one technology for identification; so accuracy, sensitivity, and compounds detected must be traded off against each other to achieve only marginal results.
- As more unknown compounds are added to the IMS/ITMS compound reference library, or additional explosive/narcotics compound identification is required, accuracy and/or sensitivity must be sacrificed. IMS/ITMS field units typically produce greater than 2-3% false positives when operating at marginal sensitivities. False positives add significant costs and time, especially for vehicle and cargo screening operations.
- When a system routinely alarms falsely, the operators may potentially become lax. Once they lose confidence in the system, the opportunity exists for careless operation, resulting in undesirable consequences. In addition to slowing down throughput and causing other logistical issues, false positives also create a dangerous situation.

Sensitivity
The sensitivity advantage of the EGIS Defender allows for detection of low vapor pressure explosive compounds, such as plastics (RDX, PETN, C4, Demex, and SEMTEX) as well as detecting various illicit drugs (Cocaine, Heroin, Cannabis, Ecstasy, EVE, and others)—providing an even greater probability of detection.

Reliability
Although high-speed gas chromatography (HSGC) is well known for its usefulness as a forensic laboratory technology, the EGIS Defender system has been designed to withstand the demands of real-world deployment; global airports, embassies and large venues depend on Thermo Scientific HSGC technology to provide maximum security. The EGIS Defender system, with its small footprint and portable package, is designed to be either repaired in the field, or returned to the manufacturer for repair. Field repairability is a key advantage when supporting systems in countries around the world.

Training and Support
Thermo Fisher Scientific provides a comprehensive training programs for operators, engineers, and maintenance personnel. Once properly trained, they have access to technical support via telephone. On-site technical support packages are also available. Thermo Fisher Scientific is capable of supporting installations around the globe, with major service centers in Germany, U.K., China, Singapore, U.S., and Saudi Arabia—along with several other satellite locations.

Ease of Use
The EGIS Defender is designed to be easy to use for all operator skill levels. The system automatically starts, interprets results, and monitors itself for optimum performance.
Specifications

The EGIS Defender is a highly sensitive device developed to detect various types of explosives and various well-known illicit drugs. You can be confident that our versatile solutions and worldwide customer support will ensure you maximum productivity.

Thermo Scientific EGIS Defender Explosives/Narcotics Trace Detection System

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About Thermo Fisher Scientific

Thermo Fisher Scientific Inc. (NYSE: TMO) is the world leader in serving science. Our mission is to enable our customers to make the world healthier, cleaner and safer. With revenues of more than $10 billion, we have approximately 35,000 employees and serve customers within pharmaceutical and biotech companies, hospitals and clinical diagnostic labs, universities, research institutions and government agencies, as well as in environmental and process control industries. We create value for our key stakeholders through two premier brands, Thermo Scientific and Fisher Scientific, which offer a unique combination of continuous technology development and the most convenient purchasing options. Our products and services help accelerate the pace of scientific discovery, and solve analytical challenges ranging from complex research to routine testing to field applications.

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