

TECHNICAL DATA SHEET - DH/2K - 085

HANDHELD EXPLOSIVES AND NARCOTICS DETECTOR Model : VAPOR TRACER²

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HANDHELD EXPLOSIVES AND NARCOTICS DETECTION, Model : VAPOR TRACER²



APPLICATIONS

- Airports
- Customs/Border interdiction
- Military facilities
- Embassies
- Government buildings
- Nuclear plants
- Fuel depots
- Public utilities
- Prisons
- High-security events

Lightweight, fast and extremely sensitive, Vapor Tracer² detects and identifies microscopic traces of both explosives and narcotics in seconds. A new front-end description unit allows the Vapor Tracer² to use the same high-efficiency sampling system originally developed for GE Ion Track's Itemiser³. The result is greatly enhanced performance in particle sampling.

Vapor Tracer² was developed with support from the Counter-Drug Technology Development Program established by the U.S. Department of Defense. The program serves agencies such as the U.S. Customs Service, the U.S. Coast Guard, the U.S. Federal Aviation Administration, and the President's Office of National Drug Control Policy.

PATENTED ITMS TECHNOLOGY ADVANTAGE

GE Ion Track's patented Ion Trap Mobility Spectrometer (ITMS[®]) technology detects a wider range of substances with greater accuracy and speed. ITMS detectors increase ionization efficiency, the main factor for determining detection sensitivity. Due to the trap and membrane design, ITMS technology operates in dusty, humid, and high-traffic areas, maintaining its precision performance even in harsh "real

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world" environments. Maintaining sensitivity in these conditions is crucial for operating on ships and at vehicle checkpoints, crime scenes, or first response sites. (for a detailed explanation of ITMS technology and its advantages, please request our technical supplement "ITMS: The Science Behind the Technology.")

VAPOR AND PARTICLE SAMPLING TECHNOLOGY

Vapor Tracer² lets you switch between particle and vapor sampling for optimal detection of a wider range of substances. Swipes are more effective for heroin, marijuana, and PETN; while vapors are more effective for dynamite, nitroglycerin, and methamphetamine. Vapor Tracer² closes loopholes by offering both options with minimal downtime to switch methods.



Particle swipe: Teflon-coated fiberglass sample traps are swiped across a surface and then inserted into the Vapor Tracer² for analysis. Traps are reusable and compatible with GE Ion Track's Itemiser³. Applications include skin, baggage, cargo, vehicles, containers, tickets, and ID cards.



Vapor sampling (direct): Vapors are drawn through a nozzle directly into the detector for analysis. Ideal for continuous sampling. Applications include cargo containers, car trunks, and luggage.



Vacuum sampling (remote): A detachable vacuum sample wand (optional) draws vapors into a sponge-like sample trap, which is then inserted into the Vapor Tracer² for analysis. Applications include cargo containers, car trunks, and luggage.

EASY-TO-USE OPERATOR INTERFACE

Results require no interpretation, so operators can concentrate on obtaining a good sample. Vapor Tracer²'s onboard computer handles all data logging automatically, including time, date, and sample analysis for each alarm. For court evidence, a complete history of sample data can be downloaded from a laptop, recalled and printed at any time.

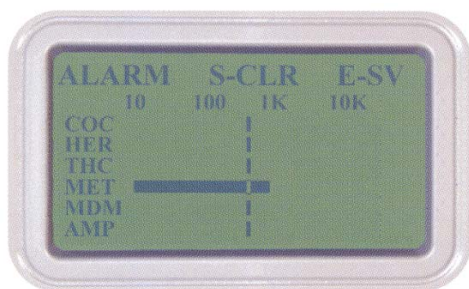


The pre-concentrator dramatically boosts sampling efficiency

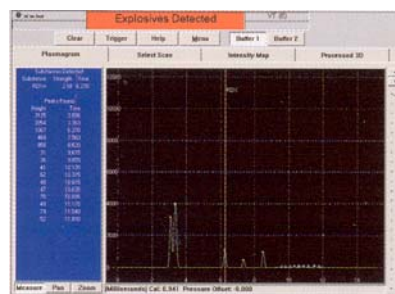
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By connecting a laptop computer, detailed information from "ion signature analysis" can be displayed as a plasmagram. An intensity map and 3-D view show even more detail.

Vapor Tracer² software takes only minutes to upgrade in the field should new threats appear. Self-diagnostics simplify upkeep and ensure peak performance.



Bar graphs indicate relative alarm strength.



Plasmagram analysis can be displayed using a laptop

FEATURES AND BENEFITS

Detection of Positive and Negative Targeted Ions

ITMS technology allows for changing from positive to negative ion mode, thereby allowing for detection and analysis of target positive or negative ions. Most narcotics have a positive ion affinity, while most explosives have a negative ion affinity. Detection limits for "real world" samples in ITMS are in the picogram range

Membrane Filter

A semi-permeable membrane excludes dust and dirt. This enhancement makes the system more sensitive to the materials of concern and allows continued operation and sensitivity in environments that have high traffic, humidity, or contamination. This feature is particularly environments than desktop devices.

Vapor and Particle Detection

The Vapor Tracer² has been designed for full flexibility in the field. Incorporated into the latest Vapor Tracer² sample input is the ability to input a sample trap (wiped sample) or use it as a vapor analyzer with minimal changes. The sample input flexibility allows the customer to moderate protocol for different monitoring requirements for people, vehicle, or package screening.

User-Friendly Software Upgrades

Minimized downtime for upgrading software and detection with new target compounds.

Flexible Consumables

Vapor Tracer utilizes the same efficient sample traps for particle detection as the Itemiser³. This allows for minimal storage of consumables and supply flexibility.

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Small Footprint Design

Reduced weight and setup time, faster, easier checkpoint relocation and modifications.

Power Flexibility

The Vapor Tracer² runs on 115/230VAC, 12VDC, or battery, allowing for flexible operations in different environments with different power needs.

U.S. Transportation Security Administration (TSA) Approved

Vapor Tracer² has successfully completed the TSA Trace Explosives Detection Laboratory's acceptance testing.

SPECIFICATIONS

Detector Type	: Ion Trap Mobility Spectrometer (ITMS [®])
Sensitivity	
Mass	: Cocaine < 30 picograms RDX < 50 picograms Heroin < 80 picograms
Concentration	: Sub-part per trillion, screened vapor
Selectivity	: <1% typical false positive rate
Analysis Time	: Variable from 2 seconds to infinity
Sample Acquisition	: Air collection for vapor, surface wipe for trace particles
Sample Flow	: 4 liters/minute
Warmup Time	: No power-down required (no warmup), allow 45 minutes cold start
Input Power (external power supply)	: 110 to 120 VAC or 200 to 240 VAC (auto ranging), 47 to 63 Hz, 3.2A (max)
Output (external power supply)	: Maximum 130W (15VDC @ 8.6A)
VT² Power Dissipation	: 37.5W (typical), 65W (During warmup period)
Input Power	: (VT ² DC power connector) 15 Volt DC @ 2.5A
Replacement Fuse	: 6.3A, 250V Type T
Signal Processing	: Variable integration time Plasmagram component peak deconvolution Recognition on multiple peaks, multiple controlled drugs and explosives Output to bar graph display or time-of-flight plasmagram display
Storage Temperature	: 0 C° to 50 C° (32 F° to 125 F°)

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Operating Temperature	: 0 C° to 50 C° (32 F° to 125 F°)
Optional Laptop Computer	: Full specification provided at time of sale
Power Supply	: 115/230 VAC, 50/60 Hz 12 VDC 1.5-hour battery 6-hour battery (option)
Calibration	: Internal calibration in 10 seconds External calibration in particle mode
Computer	: Pentium processor with flash disk
Data Display	: LCD, link to laptop computer for SelectScan, plasmagram, intensity map, and 3-D view display (IRDA or RS-232)
Detection Modes	: Explosives – negative ion mode Narcotics – positive ion mode
Substance Libraries	: <i>Controlled Drugs:</i> The most commonly abused drugs, including cocaine, heroin, THC, methamphetamine, MDMA, Amphetamine, MDA, morphine, and others. <i>Explosives:</i> High Explosive or Detonable Explosives Trinitrotoluene (TNT), nitro esters (PETN, nitroglycerine, ethylene glycol dinitrate) and ammonium nitrate (AM_N03) Plastic Explosives – RDX (C4), PETN, and HMX Administrators can add other substances to the libraries. (It is strongly recommended that this only be performed with GPX's assistance.)
Dimensions and Weight	
Height*	: 8 in (20.0 cm)
Width	: 5.5 in (14.0 cm)
Depth	: 16 in (40.0 cm)
Weight	: 7 lbs (3.2 Kg)

* Note: Dimension shown does not include 90-minute battery height of approximately ¾"