

M-ION

EXPLOSIVE VAPOUR & TRACE DETECTOR



M-ION is a portable fast-acting high-sensitive explosive vapor and trace detector.

The detector is based on advance technology with the principle of non-linear dependence of ion mobility on electric field intensity. Crown discharge is used for ionization of alloy molecules.

The device ***doesn't contain radioactive sources.***

The device does not require any special gas bearers. Air from the surface of target is drawn directly through the sample hole of analytical detector head using the integral pump, generating vortex-type flow.

M-ION detector uses a unique gas system, that allows working in dusty conditions, high humidity, draughts, and providing the minimum level of false alarms.

The control of M-ION's parameters and measurement results data processing is implemented with the help of a core microcomputer.

Both wireless and wire-based connection of the detector to an external computer, tablet, smartphone, etc. is available

Field of application

M-Ion - a portable detector of explosive agents – is designed for inspection of suspicious objects, hand-carried items, luggage, clothing in airports, railway stations, subways, trains, offices, ministries, etc. for the presence of explosive agents and its traces.

M-ION detector allows detection of explosives both in vapor form, and in the form of particles (traces).

Detection of explosive agents' vapors is carried out by analyzing air samples near the subject surface or from its internal chamber (as well as through the sampling tube, which is included in the detector kit).

This mode is most effective when the external object surface is clean, but explosive agents' vapors can be found in the internal object chamber and there are places for its escape (zipper, pockets, various holes etc).

Using this mode most effective for high volatile explosive, such TNT, NG, EGDN, ANFO etc.

Detection the traces of explosive are carried out by the heating-up module and a sampling napkin.

Target surface is rubbed with a sampling napkin which is then placed in the heating-up module.

With this mode you can significantly enhance detector abilities:

- to detect explosives agents in gas and solid phases;
- to detect high volatile explosive, such TNT, NG, EGDN etc.
- to detect such semi-volatile explosive agents TNT, PETN*, RDX* (hexogen), DNT, nitroglycerin, ammonia nitrate*, urea nitrate*, ANFO, EGDN, HMX*, tetryl*, black powder*, picric acid* (* - detection is effective with heating module using)
- to reduce time of object survey.

On successful identification of vapors of explosive agents, the device notifies their presence with an audio alarm and displays agent type on the screen.

Temperature operation range for M-ION is from + 5 ° C to 55 ° C at a relative humidity (up to 95% at 25° C).



Note that detector M-ION has areas of detection, where may be detect more than one explosive.

So the name of material, which is displays on screen, is means that were detected group of materials that have the same physical-chemistry properties.

Safety Measures

- Air vents must be open.
- Air must circulate freely around the gauge body.
- Do not place the unit on an unstable or vibrating surface.
- Keep the device out of strong magnetic field interferences.
- Avoid ingress of condensed vapor, water spray or water inside the unit.
- If water penetrates inside the device, please contact the manufacturer.
- To disconnect cords, hold the connector body (not the cord).
- Do not disassemble the device.
- Do not block the detector outlet connection.

Storage and transportation precautions

- The detector must be stored in the transport package in heated and ventilated (or air-conditioned) rooms at temperatures from +5 to +40C and relative humidity of up to 80% at temperature +25C. No chemically active materials are allowed in those rooms.
- The detector which is temporarily out of order should avoid dust and direct sun rays.
- M-ION's transportation is organized in manufacturer's package using motor vehicles in closed cars by roads with asphalt (concrete) covering (at distances of up to 1000 km), by railway transport in covered trucks (at distances of up to 10000 km), by air transport in passenger cabins and hermetically-sealed baggage compartments (no distance restrictions).
- During transportation the package with the detector must be fastened properly in order to exclude any movement.

After the transportation at temperatures lower than +5C and higher than +40C the device must stay switched off for 2 hours at working temperatures.



01. M-Ion detector 1 pc
02. Power converter 1 pc
03. Battery adapter 1 pc
04. Accumulator battery 3 pcs
05. Battery charger 1 pc
06. Operational manual 1 pc
07. Heating-up module 1 pc
08. Explosives test sample 1 pc
09. Sample tube 1 pc
10. Power cable 1 pc
11. Aluminum based napkins 50 pc
12. Optional: Container with paper based napkins 100 pcs

General Specifications

Technology	Field Asymmetric Ion Mobility Spectrometry (FAIMS)
Type of ionization	Corona discharge
Threshold sensitivity in vapor mode (for TNT at 20°C and 80% humidity),	10 ⁻¹⁴ g/cm ³ (1 ppt) for vapors 100 pg for particles
Detected explosives:	TNT, PETN*, RDX* (hexogen), DNT, nitroglycerin, ammonia nitrate*, urea nitrate*, ANFO, EGDN, HMX*, tetryl*, black powder*, picric acid* and etc. * - detection is effective with heating module using
Detection time	Search mode - less than 2 seconds; Identification and Particles modes - less than 8 seconds
Warm-up Time	Less than 1 minute for Search and Identification modes; and less than 10 minutes for Particles mode
Calibration	Automatic (internal calibrant)
Operating time of a single battery established on the device (standard/extended)	120/240 minutes (without heating module) 60/120 minutes (with heating module)
Power supply	AC input: 100-240 VAC, 47-63Hz DC input: Li-Ion accumulator battery 7.2VDC (complete with 3 batteries)
Power consumption	Less than 15 watts (Search and Identification modes) Less than 22 watts (Particles mode)
Operation conditions	Temperature +5°C...+50°C Relative humidity 95% (at +25°C)
Keeps working capacity after influence of ultimate temperature and humidity	Temperature: -20°C...+50°C Relative humidity 98% (at +25°C)
Display	Color, touchscreen 4.3" (resistive)

Connection to external computer (PC, Mac)	Ethernet or Wi-Fi. Special software not required.
Alarm type	It sounds alarm and shows type of explosive on the display
Battery discharge indication	Available
Silent mode	Available
Analysis history maintenance in detector memory	Available: date, time, type of detected material. More than 50000 results can be recorded
Access control	Available
Gas carrier	Not required
False alarm rate	Less 1% (in Identification and Particles modes)
Hot swap battery	Available
Weight with the battery	2.5 kg
Detector hand-operated block sizes, millimeters (L x W x H)	400 x 110 x 160

