

# PORTABLE EXPLOSIVE VAPOR DETECTOR

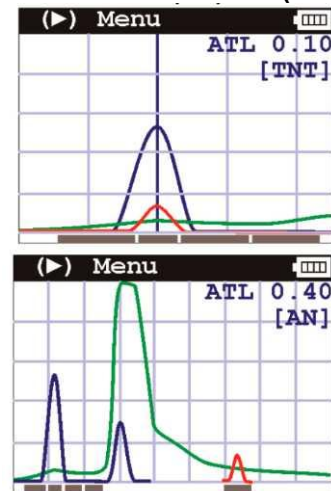
## "MO-8 - TVIN"

The Latest in the series of advanced NLDM technology Explosive Vapor Detectors developed by the engineers and scientist of SIBEL Ltd, Russia.

**Completely automatic rapid-response, real-time portable hand-held explosive detector for detection of explosives residues in gaseous (vapours), solid (particles) and liquid (solutions) phases.**

### APPLICATION

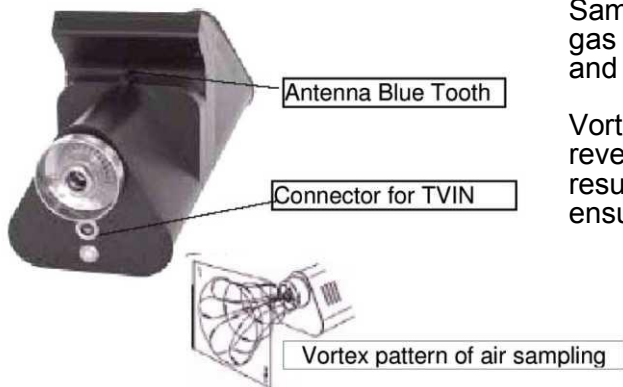
The MO-8 - TVIN is a portable explosive detector designed for inspection of persons, baggage, vehicles, trains, aircraft and large areas as offices, apartments, Airport Terminals, Railway stations etc., by sampling and analyzing of ambient air and residual particulates from suspect surface. The MO-8 - TVIN is capable of detecting organic and inorganic military and industrial explosives such as TNT, NG, PETN, RDX, C4, TATP, HMTD, Dynamite, SEMTEX, HMX, PEK, LTPE, Taggants, etc. and their mixtures regardless of the colour, viscosity or container. **The only detector that clearly detects and identifies the presence of Ammonium Nitrate as Ammonium Nitrate (AN).**



Ionogram : Display & Recording

### SPECIFIC FEATURES

- **Inbuilt Lithium ion rechargeable battery**
- **In addition to the visual indication of the type of explosive and its concentration, the ionogram (Plasma gram) is also displayed on the LCD.**
- **Storage of ionograms(Plasma gram) in memory**
- **Bluetooth Capability**
- Remote operation with Wrist Mounted Touch Screen Display
- Specially designed "Io Scan 2.7" software with programmable windows.
- The program can be updated to include detection of new explosives as they become known.
- High sensitivity and selectivity, false alarm rate less than 1%.
- Completely automatic, real-time portable hand-held detector
- Ready to operate in less than 10 seconds after automatic calibration
- Constant operational adjustment to changes in environmental conditions.
- PC compatible, laptab as per customer requirement, U.S.B Connectivity.
- No gas-carrier, no calibration accessories, no consumables are required
- Safe, simple to use controls, no operator interpretation required.
- Impact-resistant plastic case.
- Identification parameters adjustment
- Microprocessor based, no electromagnetic interference to / of other electronic / electrical devices.



Sampling system (front part) includes a sampling nose, gas tract consisting of analytical and reference channels and a built-in vortex generator.

Vortex generator produces the spinning airflow to the reverse air inlet and creates a low pressure air space resulting in actual air sampling in sniffing motion and ensuring almost nil false alarm rate.

### **Advantages of the Portable Automatic Thermal Vapours Intensifier TVIN:**

- ◆ Detect explosive residues in gaseous (vapours), solid (particles) and liquid (solutions) phases.
- ◆ Increase significantly the sensitivity of the detector to substances having low vapours pressure (poor volatility), such as PETN, RDX, plastic explosives, etc. It becomes possible due to the heating in TVIN and pre-concentration by particulate,
- ◆ Perform several sampling procedures simultaneously.



### **Batteries:**

The built-in Li-Ion battery is used for autonomic powering of the detector.

The set includes 3 batteries. Each battery life:

- at least 5 hours in vapor detection mode;
- at least 3 hours in particles detection mode with the use of the TVIN evaporating chamber.

The charging time is 2.5 hours per each battery.



### **Complete Set:**

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|--|---|
| 1. Hand-held unit ( MO-8 detector)           | 16. «IoScan 2.7» software on CD               |
| 2. Wrist Mounted Touch Screen Display        | 17. Collet                                    |
| 3. AC power adapter (100-240V/50-60Hz/1.0 A) | 18. Container with 2 TNT reference cartridges |
| 4. Li-Ion storage battery (14.4V, 3.4Ah)     | 19. Rubber syringe                            |
| 5. Battery charger                           | 20. Special key                               |
| 6. Thermal Vapor Intensifier(TVIN)           | 21. USB-Bluetooth module for PC               |
| 7. Sample card package                       | 22. Laptab                                    |
| 8. Conical air inlet extender                | 23. Case for transportation and storage       |
| 9. TNT vapor generator                       |   |
| 10. Key                                      |   |
| 11. Cleaning ramrod                          |   |
| 12. Air filter                               |   |
| 13. Operating manual                         |   |
| 14. Battery charger power cable              |   |
| 15. Interface USB cable                      |   |



The complete set may be changed according to the current modification of the detector

## **TECHNICAL SPECIFICATIONS of MO-8 TVIN**

<b>Detection principle</b>	Non Linear Dependence of ion Mobility on an electric field - NLDM
<b>Sampling and response time</b>	air sampling with the simultaneous (real time) analysis: normally 2 seconds (up to 10 seconds is allowed in case of humidity higher than 80% at temperature higher than 35°C)
<b>Detectable substances</b>	Organic and inorganic explosives: TNT, NG, PETN, RDX, C4, Ammonium Nitrate, TATP, HMTD, Dynamite, SEMTEX, HMX, PEK, LTPE, Taggants, etc. and their mixtures unmarked, and their mixtures unmarked, and others based on their markings - EGDN, DMNB
<b>Signal processing</b>	i) Variable integration time. ii) Ionogram. iii) Recognition of multiple explosives in particulate / vapour mode.
<b>Sensitivity</b>	higher than $1 \times 10^{-14}$ g/cm <sup>3</sup> (0.01 part per trillion)
<b>Warm-up time</b>	Not required. Ready to operate in less than 10 seconds after automatic calibration
<b>Calibration time after switching on</b>	Automatic Calibration in less than 10 seconds after switching on and after sampling operation.
<b>Alarm indicators</b>	Audible, visible (earphones are available optionally), Ionogram is also displayed on the LCD. High Selectivity, no response to non explosive substances false alarm rate less than 1 %.
<b>Power supply</b>	AC adapter: input: 100-240 V/50-60 Hz /1.0 A output: 40W Auto-Sensing, 18 V DC  Rechargeable battery (14.4 V, 3.4 Ah): type: Li-Ion, battery life: - at least 5 hours in vapor detection mode; - at least 3 hours in particles detection mode with the use of the TVIN evaporating chamber. The charging time is 2.5 hours per each battery.
<b>Carrier gas</b>	not required
<b>Power consumption</b>	not more than 12 VA
<b>Weight</b>	hand-held unit -1.4 kg Detector packed - 7.0 kg (depends on the weight of casing)
<b>Dimensions</b>	hand-held unit: 305 x 86 x 116 mm detector packed in a ruggedised Hard, light weight and water proof carrying case: 470 x 410 x 150 mm
<b>Operating temperature</b>	-20° C to +55° C
<b>Storage temperature</b>	-30° C to +70° C
<b>Humidity</b>	Up to 95% non condensing
<b>Low battery alarm</b>	Audio, Visual
<b>Maintenance and Safety</b>	Simple to maintain with complete decontamination kit, no special skills required. Rugged for military and all weather operations. No radiation hazards to operator. No protective equipment required. Meets International Atomic Energy Agency (IAEA) Standards and certified by AERB. CE-EMC Certification.

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**Due to our policy of continuous product improvement, specifications are subject to change without prior notice.**

**Manufactured by:**

**SIBEL LTD.**

Russia