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Low Cost of Ownership – Designed for Maximum Reliability

Unlike conventional Explosive Trace Detectors (ETDs) based on IMS, DMS, FAIMS or others, **the miniEXPLONIX® and EXPLONIX®** utilize the proprietary IRSSIL (Infrared Sampled Selective Luminescence) technology developed by RS DYNAMICS®. Because RS DYNAMICS's products are not spectrometers, they eliminate many of the costly consumables, maintenance procedures, and calibration requirements associated with traditional ETD technologies, resulting in an exceptionally low total cost of ownership.

Technology behind

The IRSSIL detection principle is both simple and highly robust. During analysis, vapors collected from the inspected object are drawn into the instrument and exposed to extremely high temperatures, where explosive molecules undergo thermal decomposition. The resulting combustion products pass through a proprietary luminescent detector cartridge. If explosive compounds are present, the cartridge emits light, producing a rapid and reliable positive indication.

Consumables used

Each detector cartridge typically provides **6,000–10,000 measurements** while maintaining a **sealed shelf life of one year**, making it an inexpensive and long-lasting consumable. Replacement cartridges are available at a very low cost, significantly reducing operating expenses throughout the instrument's lifetime.



Sampling consumables have also been designed with operating costs in mind. The instruments use specially manufactured, clean, individually packaged, and carefully balanced paper sampling strips that are inexpensive and easy to handle. If a strip remains visibly clean after inspection and the instrument reports a negative result, it can often be reused, further reducing consumable costs during routine screening.

Smart solutions save operators' money

The extremely high internal operating temperature offers another major advantage. Dust, moisture, dirt, and common interfering substances such as perfumes, cosmetics, fuels, and human perspiration are continuously burned away before they can contaminate the detection system. As a result, the **miniEXPLONIX®** and **EXPLONIX®** demonstrate outstanding resistance to contamination even in harsh field environments. This unique rapid self-cleaning principle dramatically minimizes servicing requirements, eliminates frequent cleaning procedures, and virtually removes the need for recalibration, providing substantial savings in maintenance costs and instrument downtime.

Do not wait for your old-fashioned spectrometer to be ready!

Because the IRSSIL technology is **not based on ion mobility spectrometry**, the instruments do not require a continuous circulation of clean, dry air, drying cartridges, dopants, or routine peak-position calibration. The absence of these components not only reduces maintenance costs but also improves long-term reliability while simplifying everyday operation.

Another important advantage is the exceptionally fast start-up time. Traditional IMS-based ETDs often require extended warm-up periods to establish sufficiently dry internal conditions before reliable measurements can begin. In contrast, the **miniEXPLONIX®** is ready for operation in approximately **15 seconds**, while the **EXPLONIX®** becomes fully operational in about **one minute**. This rapid deployment allows security personnel to begin inspections almost immediately, saving valuable operational time.

Use two batteries for 24/7 run without being stuck to the wall plug

For continuous operation, both instruments can be equipped with a **second rechargeable battery** and an **external battery charger**. While one battery powers the instrument, the second can be charged simultaneously, enabling uninterrupted **24/7 operation** without waiting for batteries to recharge. This configuration is particularly valuable for airports, border crossings, military installations, and other high-throughput security operations.



miniEXPLONIX Battery



*miniEXPLONIX external
charger*

The advanced verification kit

Daily performance verification is equally simple and economical. RS DYNAMICS® supplies a dedicated **Test Sampling Pen** containing a certified, safe micro-quantity of PETN explosive. The operator simply draws a small red cross onto the sampling strip, inserts it into the instrument, and immediately verifies proper instrument performance through a positive detection. This method is fast, safe, highly repeatable, and widely appreciated by users worldwide. Because a single Test Sampling Pen lasts for a very large number of functional tests, its operating cost is negligible.



Remote Diagnostic via Internet connection

Should service ever be required, RS DYNAMICS® provides rapid remote diagnostics using proprietary PC software that enables our engineers to quickly identify the source of a problem. In the rare event of a hardware failure, our European Union service center is notified immediately, allowing replacement parts and repair procedures to be prepared even before the instrument arrives. This minimizes repair time and ensures that customers return to full operation as quickly as possible.

Summary

The low cost of ownership is further enhanced by the exceptional durability of the instruments themselves. The **miniEXPLONIX®** and **EXPLONIX®** product family has been successfully deployed for many years by security organizations in numerous countries around the world, consistently proving outstanding reliability under demanding operational conditions. Their rugged construction, resistance to contamination, and stable detection principle translate directly into lower maintenance costs, reduced downtime, and a longer service life.

The combination of proprietary IRSSIL technology, minimal maintenance requirements, inexpensive consumables, fast start-up, exceptional contamination resistance, and proven long-term reliability makes the **miniEXPLONIX®** and **EXPLONIX®** among the most cost-effective Explosive Trace Detectors available today. With hundreds of satisfied users worldwide, they continue to demonstrate that superior detection performance and exceptionally low operating costs can successfully coexist in a single field-proven security solution.

RS DYNAMICS

Swiss Engineering. Global Trust. Field-Proven Excellence.