THE BIG SCREEN

Tony Tielen *reports on how people screening demands are diversifying*

As increasing threats from terrorism and drug trafficking permeate society, the demand for people screening is growing and already covers not only transport hubs, but also any secure facility or areas where large numbers of people congregate – for example, government buildings, sports arenas, power stations, banking institutions, museums, amusement parks and prisons.

Many of these sectors have no regulatory guidance, so extra care is needed when selecting equipment. The prime role of regulation is to ensure that systems are effective in detecting the right substances and are also sufficiently sensitive to perform well in real-life situations – for example, incidental materials such as dust, fingerprint oil and grease picked up during sampling from hands and bags can affect the efficiency of the trace detection process. Regulation also ensures an appropriate layer of security around systems by controlling access, protecting data and requiring secure network connections.

A lack of regulation can lead to deployment of ineffective detectors and ultimately have tragic consequences. Some countries and markets choose to use equipment that already meets well-established, aviation regulatory requirements. This provides a great deal of assurance regarding fitness for purpose in terms of explosive detection, but there are not yet any industry standards covering narcotics detection.

PEOPLE SCREENING FOR EXPLOSIVES TYPICALLY TAKES PLACE AT THE POINT OF ENTRY

Around the world, tens of thousands of explosives and narcotics trace detection (ENTD) systems are the backbone of trace detection and identification for airports, first responders, military counter-IED personnel and the private sector. One of the key advantages of the ENTD is the simultaneous detection of explosives and narcotics. According to the Homeland Security Research Corp: "There is no competitive modality (eg X-ray, EDS) on the horizon that can compete with ETD's detection and identification of explosives, narcotics detection performance and cost performance."

The ENTD samples for trace amounts of explosives or drugs and positive detection triggers additional security protocols. Therefore, it is usually a key element in a multi-layered screening process, which typically entails both imaging and trace detection. The overall people screening process at security points might, for example, involve a standard metal detector as well as scanners. The latest millimetre wave (mmW) body scanners are extremely operator and subject friendly, offering a fast and effective, full (but not internal) body scan.

X-ray body scanners can reveal explosive devices or narcotics packages strapped to a person and some will even pinpoint substances concealed within the body – very significant in the search for narcotics smugglers who have swallowed contraband. Tiny particles (billionths of a gram) cling to anyone handling threat materials and trace detectors analyse swabs taken from areas where residue is likely to be found – usually hands, bag handles or mobile phones. They can be configured to recognise a wide range of chemicals including: commercial, military grade and homemade explosives; explosive precursors; individual explosive components; together with illegal narcotics and controlled substances such as morphine, buprenorphine, cocaine, methamphetamine and heroin.

DESKTOP SOLUTIONS

Desktop ENTDs can identify both trace explosives and narcotics simultaneously or can be programmed to focus on one or the other. They are usually more sensitive than the handheld option. Battery-powered desktops provide a degree of portability but it is important to check the weight, which can vary quite considerably. They offer the flexibility to move screening points as quickly as required, however, handheld models are particularly well suited to dynamic situations in dispersed crowds, producing fast and accurate results on trace explosives whenever and wherever needed.

For bulk amounts of threat substances, there are analytical devices available providing rapid, precise and cost effective identification of narcotics and/or explosives. Battery powered, light and transportable, they can handle a library of up to 2,500 different drugs or quickly recognise explosive solids, liquids, gels and powders.

The key is matching location and identification. ENTDs link a suspect to a recognised threat through traces about their person or belongings and hence prompt further investigation. X-ray scanners (baggage and body) locate suspect materials and the chemical ID devices establish what they are.

This layered approach completes the circle and provides the most effective screening process.

With such a wide range of locations looking to introduce or upgrade people screening facilities, the factors important in choosing the most appropriate system are sure to be equally varied. A key issue is establishing which specific substances equipment can detect. Generally, ENTDs operate either in single or dual mode – that is individually detecting narcotics or explosives, or detecting both at the same time. However, capability levels can vary and so equipment should be evaluated according to the particular screening requirements. Another consideration is balancing high levels of sensitivity with low levels of disruptive false alarms. Sensitivity is needed to reveal the minute trace levels normally encountered in real situations but it can come at the cost of excessive false alarms, which create operational difficulties – each false positive prompts further investigation with perhaps bag or body searches and even questioning.

WHEN SPEED MATTERS

In some situations fast throughput is fundamental – making analysis and subsequent recovery times and also the number of false alarms, critical issues. For high-profile public venues – such as museums, festivals and sports arenas – speed and volume often equate directly to revenue, so large queues of people waiting to be screened can have a detrimental impact. Others, such as customs organisations, may be less sensitive to throughput and will put more emphasis on creating the most meticulous screening process possible including additional tests and interrogations as necessary.

Many screening points are fixed, but others require flexibility – for example, checking visitors and vehicles arriving at large government or corporate sites may mean moving ENTDs between different entrances. There are varying degrees of mobility starting from small, lightweight, handheld detectors easily walked through crowds for random screening; to desktop equipment, which is simple to carry from location to location. The latest generation of desktop detectors are battery powered and can operate fully in situations without mains power and do not need to be powered down and restarted when moved to a new location. Despite offering the very latest detection technology, is the equipment easy to use? More intuitive systems quickly allow operators to become proficient – reducing training commitments and ensuring the full potential of the ENTDs is realised.

On-going operational costs and availability of service support may also affect the decision. The price of consumables and parts replacement can vary enormously, so total cost of ownership is the figure to compare rather than just the initial investment. Check if the supplier can offer local service support from technicians with full manufacturer training. Scheduled maintenance routines will be necessary to maintain performance throughout the customary lifespan of the detector and the availability of local service teams will significantly reduce costs.

With differing objectives (but all with detection and identification of explosives and narcotics at their core), there is a cross section of people screening scenarios to consider. Prisons and correctional facilities screen new inmates and visitors to prevent weapons and illegal drugs from entering the facility – the presence of drugs can inflame an already volatile situation. Screening

The eqo people screening system provides automated detection of contraband and full privacy of persons being screened

Picture credit: Smiths Detection

usually takes place at points of entry and may involve both trace screening and through-body scanning. It is often necessary to secure screening equipment when not in use, so portable devices can offer significant advantages.

Nuclear plants and other critical organisations must ensure their staff in vital roles are uncompromised by narcotics. Integral to the national infrastructure, such facilities are potential terrorist targets and so also screen incoming staff and visitors for explosives with a combination of ENTDs and X-ray scanners.

DUST, FINGERPRINT OIL AND GREASE CAN AFFECT THE EFFICIENCY OF THE DETECTION PROCESS

Airlines and airport infrastructure businesses have a growing need to screen employees including plane crews, technicians and facilities maintenance teams or those working in airport public spaces. This often incorporates the well-established, regulated passenger screening processes, but more dynamic screening using handheld detectors may also be required for airport perimeters.

High-profile public venues such as museums, hotels, festivals, sports arenas and other crowded spaces need to protect both people and property from attack. A combination of trace detectors, X-ray scanners and/or baggage hand search help prevent explosive devices entering the venue.

Prominent corporations and government buildings may routinely check employees for drug use by screening people directly or relevant locations such as bathroom door handles. Taking illegal narcotics not only impairs performance, but also leaves the person open to blackmail and security breaches. To protect against terrorist attack, people screening for explosives typically takes place at the point of entry, however incoming mail is also a potential medium for biological hazards or letter bombs. To cater for more complex requirements, trace detection would be complemented by X-ray scanners, body scanners and chemical detectors.

MOVING TARGET

In summary, anywhere that large numbers of people congregate can now potentially be considered a terrorist target. Add to this the huge growth in drugs trafficking, and it is no wonder that such a diverse range of industry sectors are looking to add or improve people screening resources. Amusement parks, shopping centres, arenas, public and government buildings and public sector facilities are all expressing interest in screening for explosives and/or narcotics.

Most equipment is modular in design and can be combined to meet the differing requirements of such a broad customer base. Building on the fundamental element of trace detection, layers can be added to provide the right level and type of security while at the same time, respecting budget constraints.

In this unregulated arena, it is vital to choose suppliers carefully – reputable specialists will assess individual locations, ascertain the most appropriate and effective measures and provide effective and reliable equipment ●

Tony Tielen was appointed regional VP for Europe, Middle East and Africa at Smiths Detection in May 2015. He was previously with Honeywell where he held various general management and senior sales roles.

Picture credit: Smiths Detection

Designed to screen bags and parcels, Smiths Detection's HI-SCAN is perfectly suited for screening at building entrances