CARGO AND VEHICLE
MULTI-VIEW X-RAY SCREENING SYSTEM

Z® PORTAL™

APPLICATIONS

- Ports and border crossings
- Airports
- Security checkpoints
- Customs checkpoints
- High-security facilities

Z PORTAL

MULTI-VIEW CARGO AND VEHICLE SCREENING SYSTEM (RELOCATABLE)

AS&E's Z® Portal™ is a multi-view, drive-through inspection system capable of scanning cars, vans, trucks, and their cargos for threats and contraband.

The relocatable screening system can be configured with one, two, or three Z® Backscatter™ X-ray detectors, allowing a left, right, and top view of the vehicle under examination. The multi-views provide maximum screening capability and facilitate image interpretation. The Z Portal system provides high-quality, photo-like images that offer outstanding material discrimination capability.

The Z Portal is a high-throughput screening gateway, allowing up to 80 trucks per hour. Driven at a speed of 5 kph, vehicles and their cargo are scanned for threats and illegal goods, ranging from stowaways to explosives, drugs, or alcohol. With its compact design and profile, the Z Portal system is ideal for high-traffic locations with severe space constraints and a high-throughput requirement. The Z Portal system is safe for operators, cargo, and the environment.

TECHNOLOGY

The Z Portal employs AS&E's patented Z Backscatter technology, which produces photo-like images of the contents of a container or vehicle, highlighting organic materials, such as composite weapons, explosives, illegal drugs, agricultural products, currency, and other contraband.

Optional Radioactive Threat Detection (RTD) can inspect for neutrons and gamma rays typically associated with fissile (nuclear bomb) or dirty bomb (e.g. Cesium-137) materials.

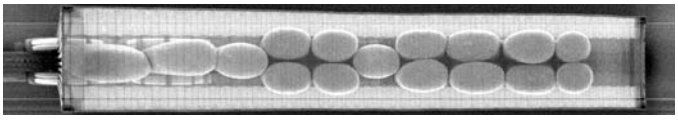
MULTI-VIEW Z BACKSCATTER

Multiple views of the cargo improve detection, while facilitating interpretation of the X-ray image. Three-sided Z Backscatter X-Rays (below) provide organic discrimination and photo-realistic imaging.

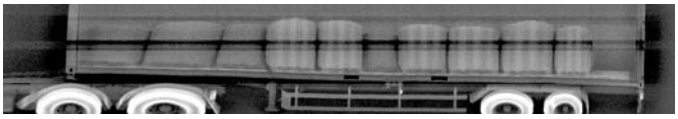
Radioactive Threat Detection (RTD) capability is also available for the detection of nuclear WMD.

Left-side view of uniform cargo

Top-side view of uniform cargo



Right-side view of uniform cargo



THE AS&E ADVANTAGE

SINGAPORE'S JTC CORPORATION KNOWS THE AS&E ADVANTAGE. THE Z PORTAL IS DEPLOYED AT JURONG ISLAND, A MAJOR CHEMICAL AND INDUSTRIAL COMPLEX, TO INSPECT INCOMING VEHICLES AND CONTAINERS FOR THREATS TO ISLAND SECURITY.

ZB RTD

TECHNICAL SPECIFICATIONS

Z® PORTAL™

OPERATING FEATURES

X-Ray Source: 225 keV rated, electrically powered
Throughput: Vehicle passes through system at 5 kph.
System compensates for variations in target speed.

Operational Crew

The inspection system requires a crew of two persons: a scan coordinator to ensure vehicles are properly positioned to enter the system, and an X-ray system operator/inspector. One-person operation is possible under certain circumstances.

Tunnel Opening

Length: Unlimited. System can scan and display a truck/trailer combination over 59 ft (18 m) long per scan. System can also be used to image a continuous flow of traffic, allowing the image data to scroll with the flow.
Vehicle Width: 9.8 ft (3.0 m)
Vehicle Height: 15.4 ft (4.7 m)

Overall System Dimensions

Length: 131 ft (40 m); includes examination path and vehicle control gates
Length of structure (front-to-back): 10.2 ft (3.1 m)
Width of structure: 27.9 ft (8.5 m)
Height of structure: 21.3 ft (6.5 m)
Customer-provided: Operator control/display sub-system building, and enclosing structure for system to protect from severe weather conditions (optional).

SYSTEM FEATURES

Operating System: Windows XP
System Diagnostics Screen
Printer: Color laser printer
Hard Disk (100 GB minimum)
Network-Ready
CD-RW Drive
Data Storage: The inspection system is capable of storing up to 14,000 truck images in a standard format. Images can be transferred via a CD-RW.
Emergency Stops: "Emergency Stop" and "System Stop" switches are strategically located within the scanning zone to permit rapid cessation of system operation if required.
Operating Signals: The inspection system incorporates warning lights and audible alarm signals, indicating that X-rays are present and the system is operating.

HEALTH AND SAFETY

Radiation Standards: System conforms to ANSI N43.17.

Radiation Dose: The total dose to the inspected object is less than 0.1 μSv (10 μR) per scan at 5 kph.

All specifications subject to change without notification.

SYSTEM SOFTWARE AND IMAGING TOOLS

Operator's Console

High-resolution displays present Z Backscatter images.
System is configured with three high-resolution TFT-LCD color monitors

System Performance: Complete coverage of objects in Z Backscatter mode

Z Backscatter Imaging

Z Backscatter detects low-Z organic materials even when hidden in complex high-density X-ray backgrounds, and displays them more brightly as a result of their preferential scattering characteristics. Z Backscatter reveals items such as explosives, plastic weapons, drugs, and stowaways.

ASEInspection Software

ASEInspection is the Windows-based application software used to convert X-ray data into images. ASEInspection contains a suite of tools for manipulating and enhancing images, and it is used for image storage and retrieval.

ASEInspection Features

Mark and Annotate: Attaches pointers and comment fields to images
Database Function: Provides ability to create records relating to specific scans
Full Save: Automatically saves the current image to hard disk when its accompanying database record is saved
Archive: Manually saves stored image files on a CD-RW disk, and creates a reference to the disk in the database
Export Image: Provides capability to export "what-you-see-is-what-you-get" (WYSIWYG) images into TIF/JPEG formatted files
AS&E Image Simulator (AIS) Software (Optional): Allows user to view and manipulate images on a stand-alone PC
RAID Drive (Optional)
Manifest Display (Optional): For manifest verification
Networking Capability (Optional): To a central server

Image Analysis Tools

Density Expand: Controls and continuously adjusts the contrast of the displayed image, thus enhancing the differences in objects
Edge Enhancement: Accentuates the edges of objects in the image, enabling the operator to recognize objects faster and more readily
Reverse Video: Displays the normal, "positive" image or the reverse black-and-white "negative" image, thereby enhancing subtle density differences
High Contrast: Intensifies subtle differences in contrast
Color Palettes: Adds the ability to evaluate images and regions of interests in greater depth using color
Historical Compare: Side-by-side comparison of a current image to a saved image
Zoom: 2x, 3x, 4x magnification with the ability to roam continuously through full field of view
Pan and Scroll: Ability to examine any part of the image at preset display magnifications

ENVIRONMENT

Temperature

Operating: 0°F to 122°F (-18°C to 50°C)
Storage: 0°F to 140°F (-18°C to 60°C)
Operable in rain, snow, and blowing sand

AMERICAN SCIENCE AND ENGINEERING, INC. | 829 MIDDLESEX TURNPIKE | BILLERICA, MA 01821 USA
TEL: 978.262.8700 | FAX: 978.262.8804 | WWW.AS-E.COM