CARGO AND VEHICLE
MULTI-VIEW X-RAY SCREENING SYSTEM

Z® PORTAL™

APPLICATIONS

- Seaports
- Land border crossings
- Airports
- Security checkpoints
- High-security facilities

Z Portal for cargo vehicles.

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 cargo for concealed threats and contraband.

The relocatable screening system is available in two sizes — one for large trucks, buses, and cargo vehicles; and a smaller size for passenger vehicles. Z Portal can be configured with up to three Z® Backscatter™ imaging modules, 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 approximately 80 trucks or 120 passenger vehicles per hour. Driven at a speed of 5 kph, vehicles and their cargo are scanned for threats and illegal goods such as stowaways, explosives, drugs, and alcohol. With its compact design and profile, the Z Portal system is ideal for high-traffic locations with space constraints and a high-throughput requirement. The Z Portal system is safe for drivers, operators, cargo, and the environment.

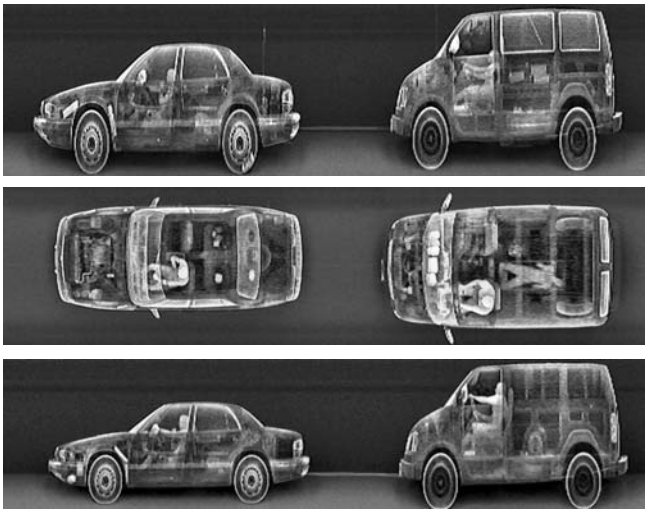
TECHNOLOGY

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 explosives, illegal drugs, agricultural products, currency, and other contraband.

Optional Forwardscatter imaging creates up to two additional side-view images of the scanned vehicles and cargo. This option offers a second 'scatter' perspective to display dense regions of scanned vehicles and cargo to identify potential anomalies.

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.



Left, top, and right sided-views of scanned vehicles.

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 FS TECHNICAL SPECIFICATIONS

Z® PORTAL™

OPERATING FEATURES

X-Ray Sources: 225 keV rated, electrically powered
Throughput: 80 trucks or 120 passenger vehicles per hour. Vehicles pass through system at 5 kph.
Spatial correction software compensates for variations in vehicle speed.
Power: 240 VAC, 60/50 Hz, 3 phase, 45 kva
Crew requirements: Scan coordinator and X-ray system operator/inspector. One-person operation is possible under certain circumstances.

Maximum Vehicle Dimensions

Length of scanned vehicle: Up to 250 ft (76.2 m). System can also be used to image a continuous flow of traffic, allowing the image data to scroll with the flow.

	Truck Configuration	Passenger Vehicle Configuration
Width:	9.8 ft (3.0 m)	8.9 ft (2.7 m)
Height:	15.4 ft (4.7 m)	8.5 ft (2.6 m)

Overall System Dimensions

Depth of structure (front-to-back): 9.7 ft (2.9 m)

	Truck Configuration	Passenger Vehicle Configuration
Width:	27.9 ft (8.5 m)	23.6 ft (7.2 m)
Height:	21.3 ft (6.5 m)	14.8 ft (4.5 m)

SYSTEM FEATURES

Operating System: Windows XP
Operator's Console: System is configured with three high resolution 21" TFT-LCD monitors
Printer: Color laser printer
Hard Disk (250 GB minimum)
Network-Ready
CD/DVD-RW Drive
Data Storage: The inspection system is capable of storing images from up to 24,000 trucks or 85,000 passenger vehicles in a standard format. Images can be transferred via a CD or DVD.
Safety System: "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 system is operating.
Traffic Control Signals: For directing vehicles through the inspection tunnel

SYSTEM OPTIONS

Integrated License Plate Reader
Forwardscatter Imaging: From left and/or right side
Operator Building
Enclosed Structure: Shelters scanning system from severe weather conditions
Camera system: Pan/Tilt/Zoom camera for observing the area in and around the X-ray system

HEALTH AND SAFETY

Radiation Standards: System conforms to ANSI N43.17; Radiation Safety For Personnel Security Screening Systems Using X-Rays.
Radiation Dose: The total dose to the inspected object is less than 0.05 µSv (5 µR) per scan at 5 kph.

SYSTEM SOFTWARE AND IMAGING TOOLS

Z Backscatter Imaging

Z Backscatter detects low-Z organic materials even when hidden in complex high-density X-ray backgrounds. Z Backscatter reveals items such as explosives, drugs, and stowaways.
Field of View: Complete coverage of objects to ground

ASEInspection Software

ASEInspection is the Windows-based application software used for system control and image analysis. ASEInspection contains a suite of tools for analyzing images, and it is used for image storage and retrieval.

ASEInspection Features

System Diagnostics Screen: Real-time system status monitoring
Database Function: Provides ability to create and store records with vehicle data and X-ray images
Auto Save: Automatically saves an image and a record of the image as vehicles pass through the screening system, eliminating manual saving.
Archive: Manually saves stored image files on a CD/DVD disk, and creates a reference to the disk in the database
Export Image: Provides capability to export full images into TIF/JPG files
RAID Drive (Optional)
Manifest Display (Optional): For manifest verification
Networking Capability (Optional): To a central server

Image Analysis Tools

Mark and Annotate: Attaches pointers and comment fields to images
Density Expand: Continuous adjustment of contrast and brightness to emphasize specific object densities
Edge Enhancement: Accentuates the edges of objects, making them appear sharper
Sharpen: Accentuates the edges of the object discriminately without accentuating background noise
Reverse Video: Displays the normal, "positive" image or the reverse black-and-white "negative" image, thereby enhancing subtle density differences
High Contrast: Automatically adjusts the contrast to optimal settings for the current region of interest
Adaptive Contrast: Automatically adjusts the contrast of the image so all densities can be seen without requiring manual density adjustments.
Histogram Equalization: Adjusts the contrast of an image by utilizing all density values equally
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: ½x, 2x, 3x, 4x, 8x, 16x magnification with the ability to roam continuously through full field of view
Region of Interest: Allows filters and analysis tools to be applied to selected region of image
Ruler: Ruler axis along sides of image to allow object measurement

ENVIRONMENT

Operating Temperature: 0°F to 122°F (-18°C to 50°C); kits available for more extreme temperature conditions
Operable in rain, snow, wind, and blowing sand
Storage Temperature: 0°F to 140°F (-18°C to 60°C)

All specifications subject to change without notification.

Contact in Germany: D-TeC System Consulting GmbH • Jostweg 9 • D-22339 Hamburg • Tel. +49(0)40 – 648 85 955
Fax +49(0)40 – 648 85 956 • info@d-tec-system.com • www.d-tec-system.com
AMERICAN SCIENCE AND ENGINEERING, INC. | 829 MIDDLESEX TURNPIKE | BILLERICA, MA 01821 USA
TEL: 978.262.8700 | FAX: 978.262.8804 | WWW.AS-E.COM