ADVANCED TECHNOLOGY FOR A SAFER WORLD

# MINI Z 140®

## Handheld Z Backscatter® Screening System

## Overview
## March 2025

LAURUS SYSTEMS

Rapiscan®

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# MINI Z 140® Handheld Z Backscatter® Screening System

**Handheld Z Backscatter screening system that delivers real-time images to detect threats and contraband in hard-to-reach locations**

**MINI Z 140HR**

**MINI Z 140HP**

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# MINI Z System

## Handheld Z Backscatter Screening System

### Goes where other systems can’t

- Compact, single-sided imager that can be used to scan objects in hard-to-reach areas, such as the interiors of cars, aircraft, and boats

### Z Backscatter technology in the palm of your hands

- Provides effective detection of organic threats, contraband, and explosives for customs and border enforcement and security officials
- Z Backscatter X-ray images highlight low Z effective materials, which are primarily composed low atomic number elements (Hydrogen, Nitrogen, and Oxygen), such as explosives, currency, and drugs

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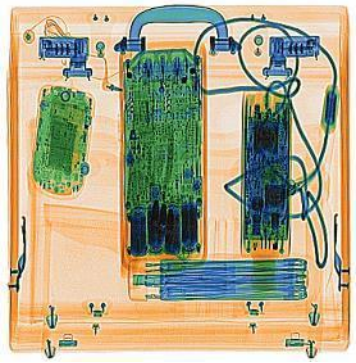
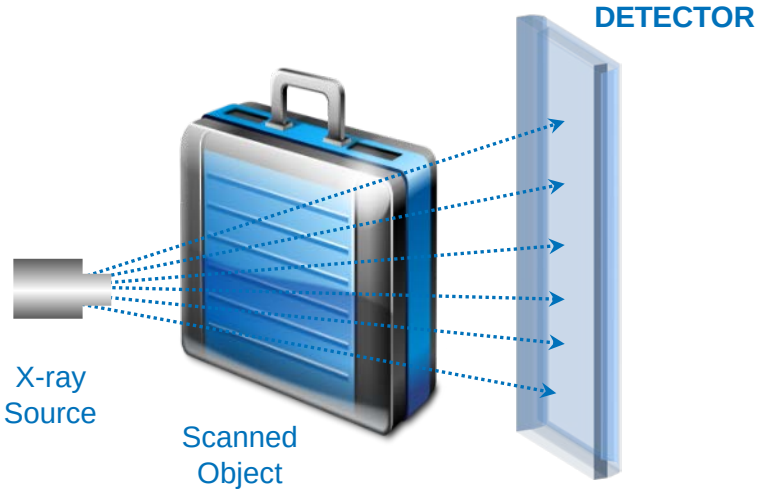
# Transmission X-rays and Z Backscatter X-rays

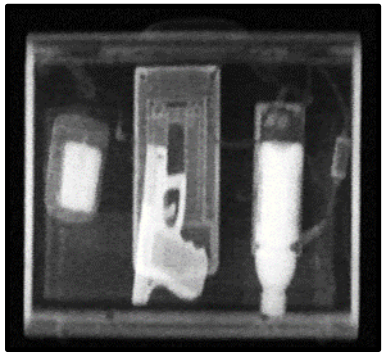


TRANSMISSION X-RAY

## TRANSMISSION

Systems detects by passing a fan beam of X-rays through an object to a detector on the far side.

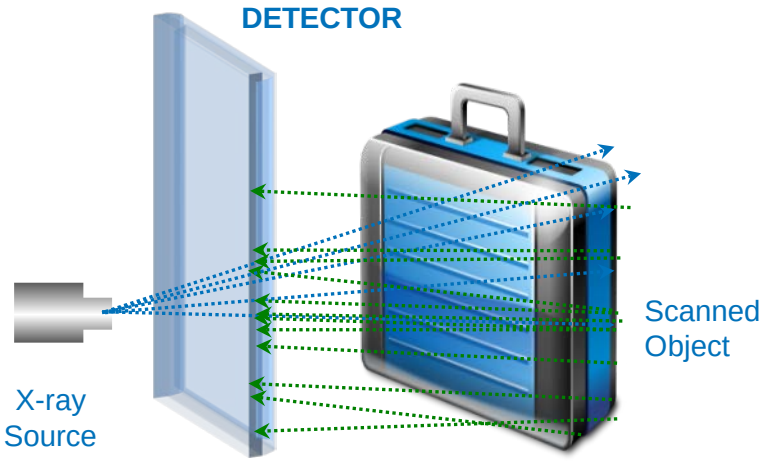


Z BACKSCATTER X-RAY OF SAME SUITCASE

## Z BACKSCATTER

System detects by passing a series of pencil beam X-rays over an object to collect reflected X-rays on a detector on the near side, creating an image that is easier to interpret and understand.

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# Key Components

**Scanner Module** (with integrated flashlight, camera, and guide lasers)

**Four scanner batteries** (two in use, two hot swappable replacements)

**Two Battery Chargers** (with power adapters and international power cords)

**Not shown:**

- Quick Start Guide
- USB-C Ethernet adapter
- Warmup Dock
- Scanner Shoulder Strap

**Rugged Transport Case**

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# MINI Z 140 System Specifications

**Dimensions:**

- Length: 7.9 in (20 cm)
- Width: 11 in (28 cm)
- Height: 7.1 in (18 cm)
- Weight: 11.7 lbs (5.3 kg)

**X-ray Source**: 140 keV

**Temperature**: -20 ºC to 50 ºC (-4° F to 122° F)

**Environment**: IP54

**Operating Time**:

- Batteries:
  - 3 hours per pair (hot swappable batteries)
  - 4 batteries included for 6 hours operation
- Shore Power (option): Unlimited Ops / In-Place Charging

**Integrated Accessories**:

- 7” Touch Screen: 1400 NITS Adjustable
- Positioning Lasers (3)
- Camera/Video
- Flashlight
- USB-C Port
- Active Cooling Fan
- Programmable Auxiliary Buttons (2): Camera, Video, Filters

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# MINI Z Image Quality

| | MINI Z 140HR | MINI Z 140HP |
|---|---|---|
| **Steel Penetration** | 6 mm | 8 mm |
| **Spatial Resolution** | 1.2 mm | 2.6 mm |

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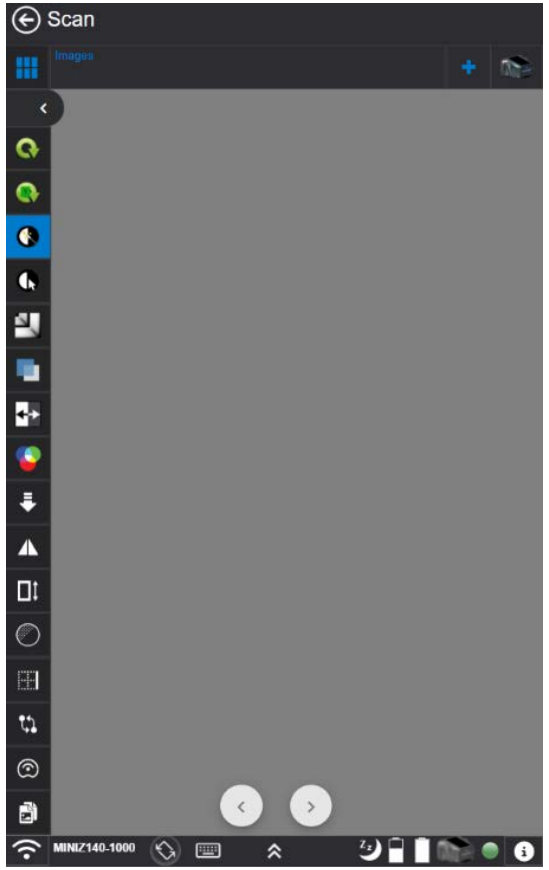
# FlexInspect Image Analysis Software

FlexInspect software for dedicated image viewing and analysis

- Provides simple operation and management of the scan data
- Contains suite of tools for enhancing and analyzing images
- Flexible - Runs on MINI Z or WIN 10 PC or Tablet
- Integrated scan record includes camera and video images
- Image Stitching (up to 8 scans)
- Compare Image Feature
- Automatic Aspect Ratio based on 3 speeds (3, 6, 9 inches/sec)
- UFF, JPEG, PNG Export

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# MINI Z Networking/Connectivity

USB-C Port: USB Export or Ethernet Connection

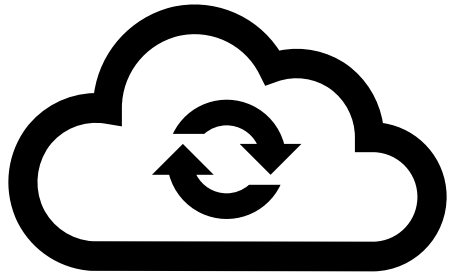
Wi-Fi:

- Central Server Connection for Backup/Restore/Export
- Secondary Screener (Win 10 PC or Tablet)
  - Software Option to install on customer-supplied hardware

Cellular 4G/LTE (Option) for Amazon AWS*

- Automatic Synchronization with Central Repositories

Note: Customer supplies Cellular and AWS subscriptions



Cloud or
Central Server

OR

Cellular
or Wi-Fi

Windows 10
Tablet or PC

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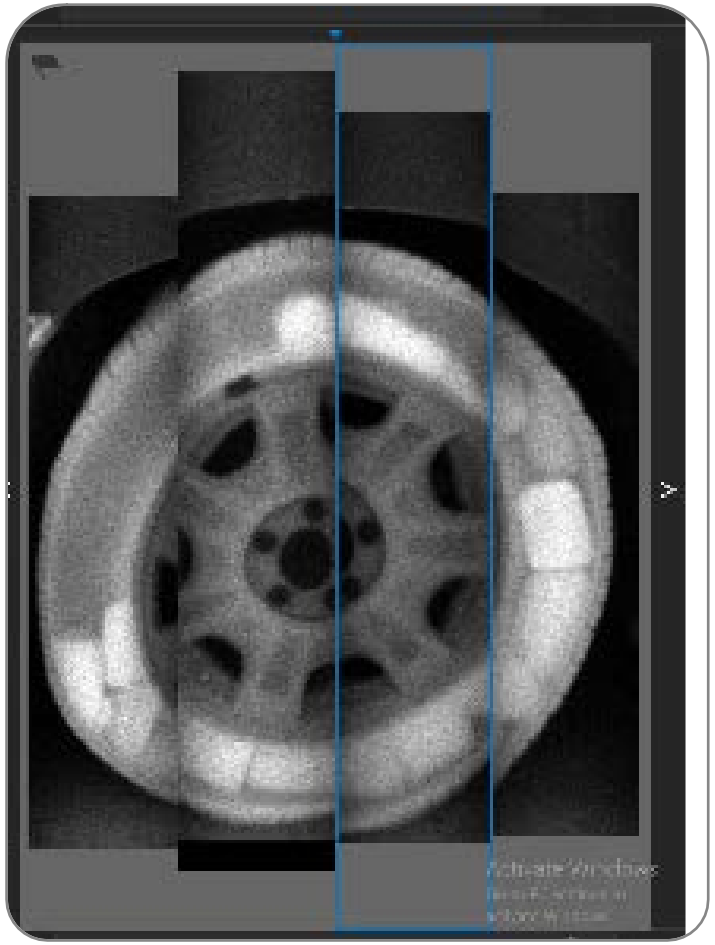
# Manual Image Stitching to Create Composite Image

## Operators can create a composite image that consists of up to 8 separate scans

- Operator configures a scan image group for multiple images before the scans are taken
- Operator can manually adjust magnification and aspect ratios to correct for alignment, different scanning speeds, etc.
- An individual scan can be replaced with a new scan if needed
- Composite image can be saved, recalled and exported



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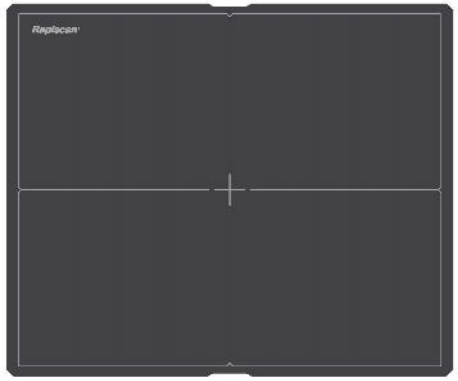
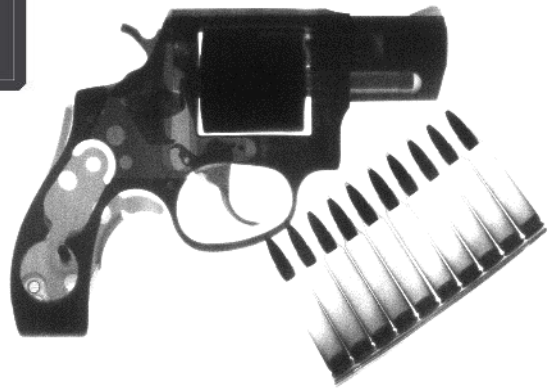
# Transmission Options for MINI Z

Allow the operator to acquire a transmission image simultaneously with the Z Backscatter image, for enhanced detection of metallic threats such as guns and knives

## Wireless Transmission Detector (TxD-Wireless)





## Enhanced Detection Panel (EDP)

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# TxD – Wireless (option)

## Specifications

**Image Quality**
Steel penetration: >26 mm (HR), >29 mm (HP)
Spatial resolution: 0.4 mm

**Panel Dimensions**
Length: 18.1 in (46 cm)
Width: 15.1 in (38.5 cm)
Thickness: 0.6 in (1.5 cm)
Weight: 11 lbs (5 kg)

**Accessories**
Attachable stand

**Operating Time**
8 hours

**Operating Environment**
IP 54 Rated

**Operating Temperature**
-20° C to 50° C (-4° F to 122° F)

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# EDP (option)
## Specifications

**Image Quality**
- Steel penetration:  >28 mm (HR), >32 mm (HP)
- Spatial resolution:  1.2 mm (HR), 2.6 mm (HP)

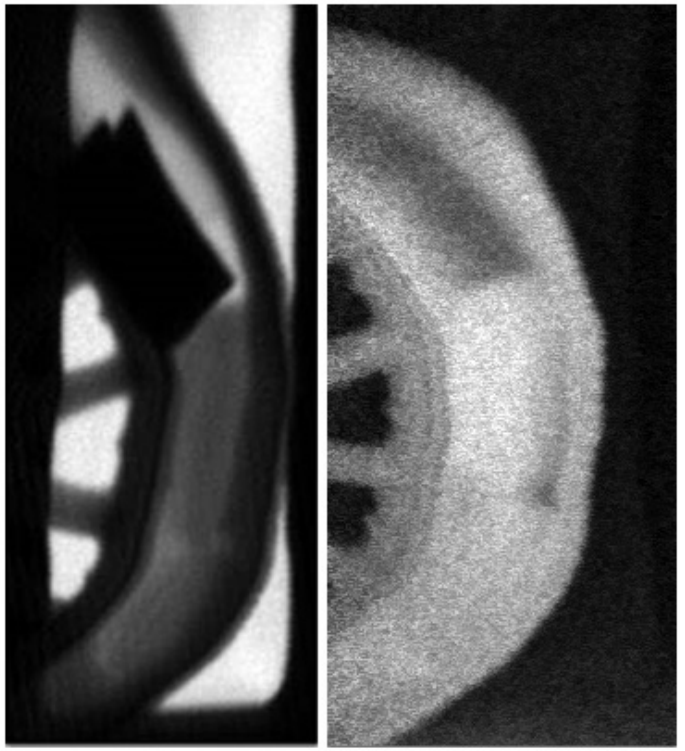
**Panel Dimensions**
- Length: 27.6 in (70.2 cm)
- Width: 19.2 in (48.9 cm)
- Thickness: 1.5 in (3.8 cm)
- Weight: 10 lbs (4.5 kg)

**Accessories**
- Attachable stand
- 20 ft (6 m) cable + 10 ft (3 m ) cable

**Operating Time**
- Runs with MINI Z (no additional power required)

**Operating Environment**
- IP 54 Rated

**Operating Temperature**
- -20 °C to 50 °C (-4 °F to 122 °F)



Transmission image reveals a lead box welded to a tire rim, which was used to conceal narcotics

Z Backscatter image highlights drugs placed in the tire itself

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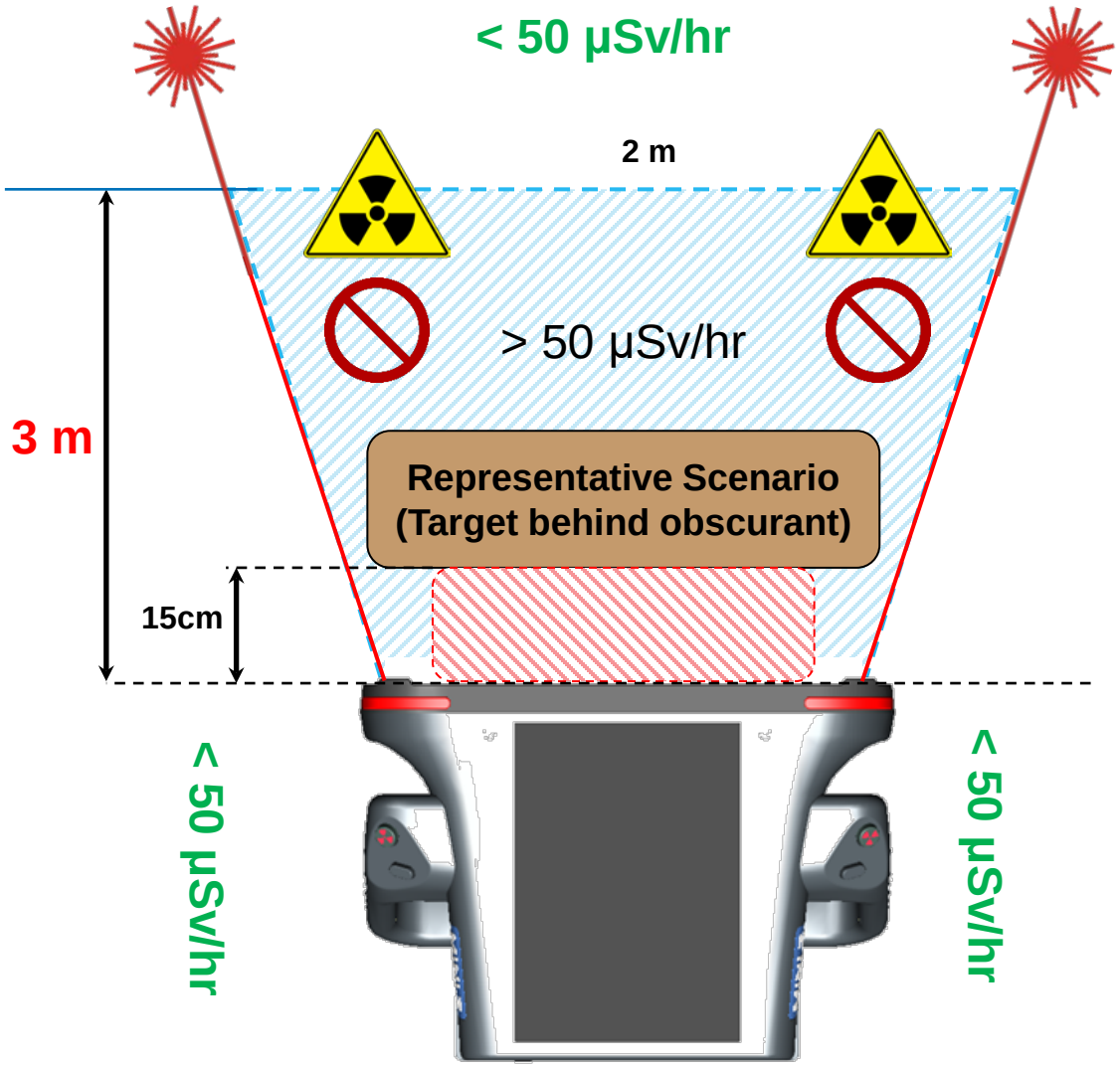
# MINI Z Safety

MINI Z system is safe for operators, bystanders, and the environment

- Operator Exposure
  - Conforms with ICRP, NCRP, and EURATOM radiation dose limits for the general public
  - Complies with the manufacturer's requirements of ANSI N43.3-2008 *General Radiation Safety Standard*
    - Less than 50 µSv in any 1 hour to operator at 20% duty cycle
    - Less than 50 mSv annually at 20% duty cycle

- Bystander Scan Dose
  - MINI Z is not designed to scan people, even though it is a low-energy and low-dose Z Backscatter system
  - General public should be at least 3m distance from scanner detector face
  - MINI Z must be used in accordance with the manufacturer's instructions and under the jurisdiction of local laws and regulations

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# MINI Z Safety Design Elements

MINI Z is equipped with a series of interlocks that must be activated to enable X-ray generation

## On Button

Scanner must be turned on with button press.

## Operator Login

Operator must log in with user ID and password

## Enable the Scanner

Scanner must be enabled via the display.

## Handle mounted trigger switches

Scanner will only emit X-rays when one or both trigger switches are pressed.

## Timer

Scanner emits X-rays for a maximum of 30 seconds and automatically stops, regardless of if the triggers are still activated. If the scanner remains idle for 30 seconds, the system will disable.

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# Tactical Backpack (option)

For easy carrying of the MINI Z and essential components while on site to perform scans

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# MINI Z Option for CVI Systems

- MINI Z is available as an option for ZBV and other cargo inspection systems
- Once scanning is complete using a cargo inspection system, operators can use the MINI Z to clear a potential anomaly or to pinpoint its location within a vehicle, potentially avoiding more intrusive actions
- Alternately, operators can use the MINI Z to do supplemental scanning such as:
    - Scanning far side tires or vehicle cabs on trucks scanned with high-energy systems
    - Scanning vehicle dashboards or center consoles on cars scanned with ZBV

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# MINI Z Applications

- **Passenger Vehicles**
  Screening vehicle bumpers, tires, and interiors for contraband
- **Drug Enforcement**
  Searching suspected drug labs/houses for hidden drugs and currency
- **VIP Security**
  Screening rooms, walls, and furniture for threats
- **Maritime**
  Screening boat walls/hulls/bulkheads for drugs or currency
- **General Aviation**
  Screening small planes for contraband
- **Commercial Airliners**
  Screening the interior of commercial aircraft for drugs
- **Prisons**
  Screening walls and furniture for voids and threats

CITIES

BORDERS

AIRFIELDS

MARITIME

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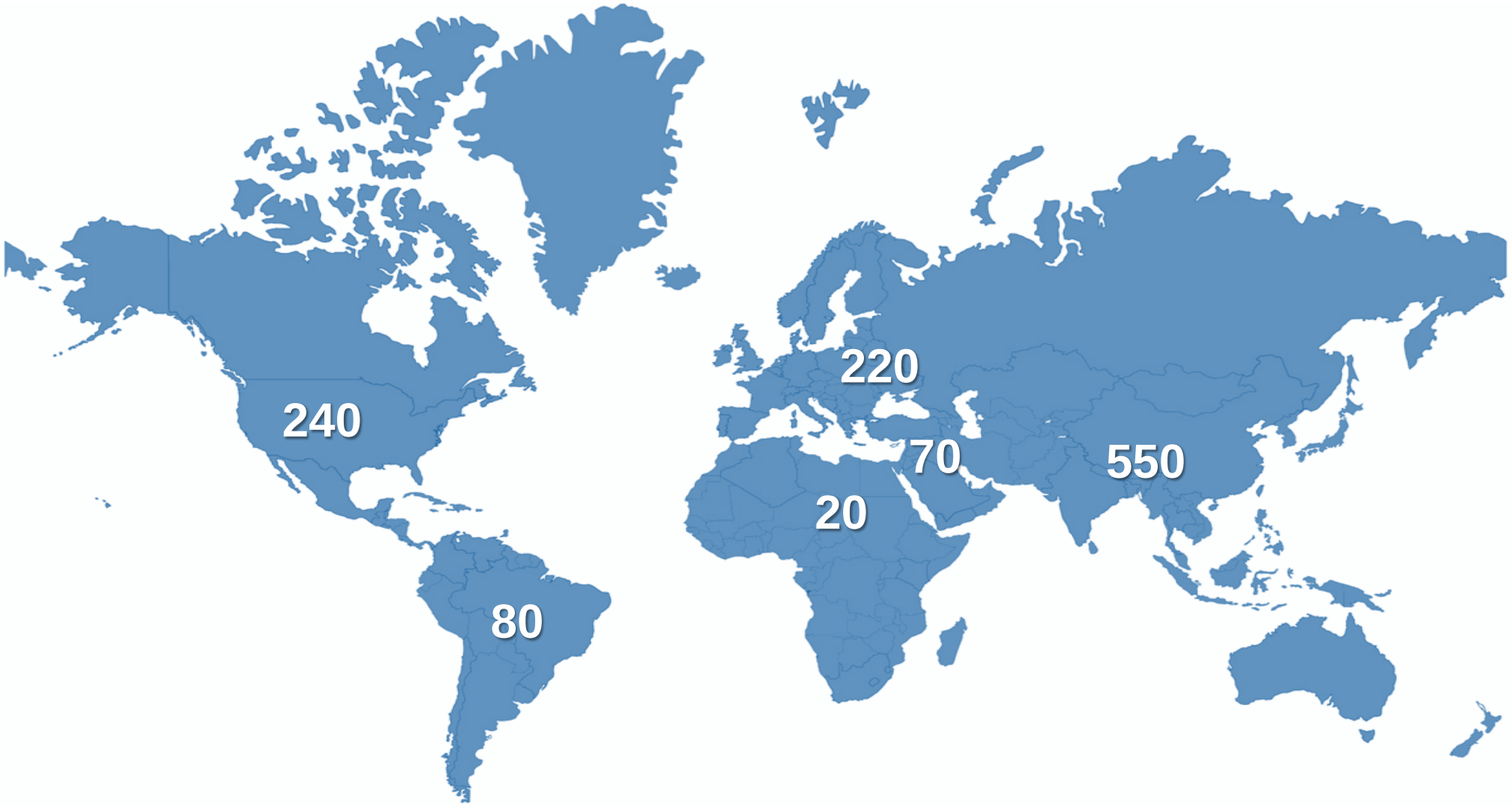
# MINI Z Systems Sold Worldwide




~1,500 Systems Deployed

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# MINI Z Drug Busts and Seizures

## $150K in marijuana

At a customer demo, the first MINI Z system drug bust helped find marijuana worth over US$150,000 street value.

## Drugs in baggage

In July 2015, the Yunnan MOPS Drug Enforcement Agency in China used the MINI Z system to scan baggage at checkpoints along bus routes and successfully seized drugs hidden in the luggage of a passenger bus.

## $275K in currency

Using the MINI Z, U.S. Public Safety officials discovered US$275,000 concealed in the liner of a cooler in the cab of a truck.

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# MINI Z
## Scan More Threats in More Places

- Superior detection of explosives, currency, drugs and other organic threats and contraband
- Easy-to-use interface with flexibility and maneuverability for scanning objects that couldn’t be scanned before
- Fully networked and Cloud enabled for centralized image storage and review
- Supports single or dual operator Conops with customer-supplied hardware
- Wired and Wireless Transmission options

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# Supported Languages

1. Arabic
2. English
3. Spanish
4. Polish
5. French (One and Two-Button Press Variations)
6. Croatian
7. Italian
8. Chinese
9. Russian

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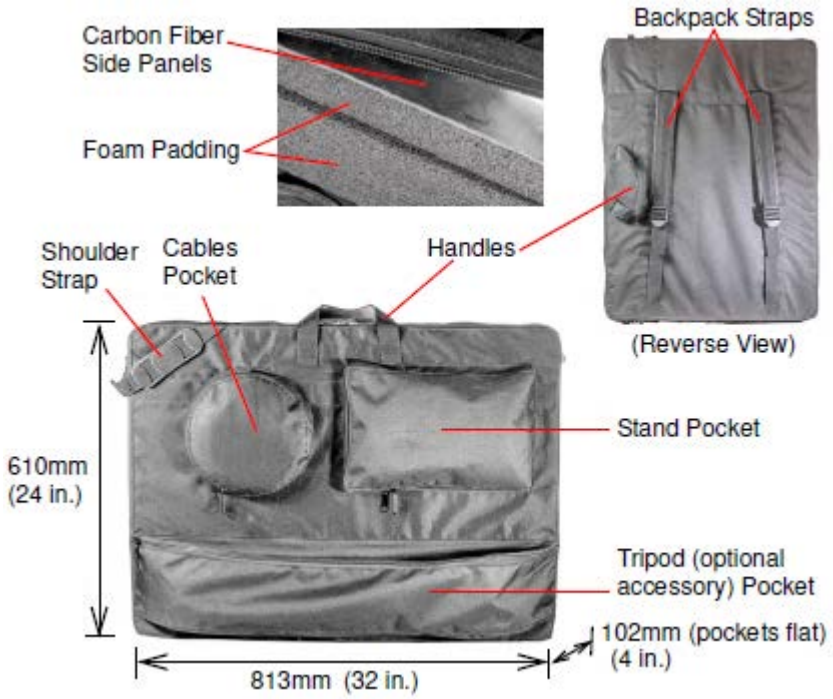
# EDP Transport Case and Accessories

## Panel Carrying Case (Included)




## Panel Stand (Included)

## Panel Tripod (Optional)

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