

AZABU TRADING

SECURITY PRODUCTS



SUSPICIOUS OBJECTS INSPECTION ■ CARGO
AND VEHICLE INSPECTION ■ RADIATION ALARM
SYSTEM ■ MAIL AND PARCELS INSPECTION ■

EXPLOSIVE VAPOR AND TRACE DETECTOR M-ION



M-ION can detect and identify a wide variety of explosives including pure explosive and composite explosives under different humidity and pressure conditions in vapour and trace (particles mode). The list of explosives includes TNT, RDX, C4, Semtex, PETN, ANFO, EGDN, Nitroglycerine (NG), Dynamite, DNT, Black Powder, Ammonia and Urea nitrates, HMTD, Tetryl and mixtures thereof.

The cost of **M-ION**'s ownership is very low, as special consumables are not required. Regular aluminum foil napkin are used for surface wiping.

M-ION operates on Field Asymmetric Ion Mobility Spectrometry principle. **M-ION** does not contain any radiation sources. Corona discharge functions as the source of ionization.

M-ION has function of user authorization with the different access rights, the internal memory allows to save more than 100K results of analysis.

M-ION does not require a special calibration. **M-ION** is equipped with a special electrostatic valve for filtering the ions by their polarity. This valve significantly reduces false alarm rate from non-explosive materials. **M-ION** warm up time is less than 1 minute. **M-ION** is easy to use. It doesn't require any special training. Presence of explosive in the sample is visualized on the device's LCD display or on any Wi-Fi device that can work as a remote control.

M-ION is efficient both indoors and outdoors at temperatures above zero.

PRODUCT SPECIFICATION

Threshold sensitivity in vapor mode (for TNT at 20 °C and 80% humidity), g/cm ³	Better than 10-14 (1ppt)	Warm up time, minutes	not more than 1
Threshold sensitivity in particle mode (for TNT), pg	100	Analysis and results time, seconds	2 - 8
Technology	Field Asymmetric Ion Mobility Spectrometry (FAIMS)	False alarm rate	Less than 1%
Radiation source	NO	Time of continuous work in standalone mode, hours	not less than 2
Calibration	Not required	Display	109mm (4.3in) color TFT display with touch screen
Type of ionization	corona discharge	Available accessories	Sampling tube, remote preconcentrator, shoulder strap for carrying M-ION
Explosives detected	TNT, RDX, PETN, ANFO, EGDN, Nitroglycerine (NG), Dynamite, DNT, Black Powder, Ammonia and Urea nitrates, HMTD, Tetryl and mixtures thereof	Operating temperature, °C (°F)	from minus 0(32) to +55(131)
Alarm type	Audio and visual, with substance identification	Operation humidity at 25°C (77°F)	95% non-condensing
		Operation altitude, m (ft)	up to 5000 (16 404)
		Dimensions (L x W x H), mm (in)	400x160x110 (15,75x6,30x4,33)
		Weight, kg (lb)	3,0 (6,61)

PORTABLE X-RAY INSPECTION SYSTEM NORKA



NORKA is a unique portable X-ray inspection system with a minifocus and microfocus constant potential X-ray sources. The voltage can be adjusted from 20 to 160kV. This allows to inspect objects made from different materials with different density and thickness (20-70kV is the optimal voltage for checking mail and thin objects, while 100-160kV works best for baggage and thick objects). One of the **NORKA's** advantages is its ability to inspect areas of an object in high detail using geometric magnification (up to 40 times if used with the RE-150MN X-ray unit).

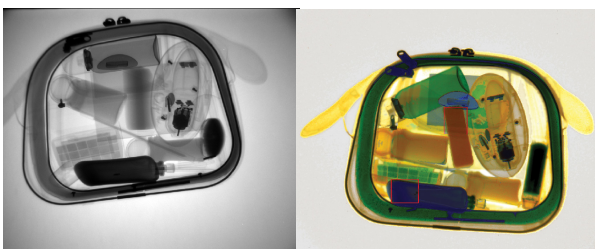
Unlike 1 mm spot used in conventional portable X-ray systems, this X-ray unit has a 30-micron focal spot. The resolution power attains an unprecedented value 25 microns of copper wire equivalent. Moreover, the distance between the object and the X-ray source can be minimal, down to a few centimeters or even a few millimeters when using geometric magnification.

IDENTIFICATION OF ORGANIC AND NON-ORGANIC OBJECTS

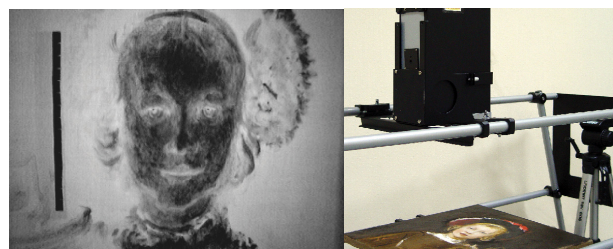
The images are shown on the display of the control unit in a positive/negative form, pseudo colours, with enhanced contrast or in dual energy mode. Zooming in on any of the nine areas of the screen allows better identification. Obtained images can be stored in the memory of the control unit for further investigation or reference (up to 30,000 images). Stored images can also be edited and provided with additional text, graphics and voice information.

If necessary, these images can be copied from the directory of a "BU-4" control unit to a USB flash drive. Universal power supply (85 - 240 VAC 50/60Hz) ensures easy operation anywhere in the world.

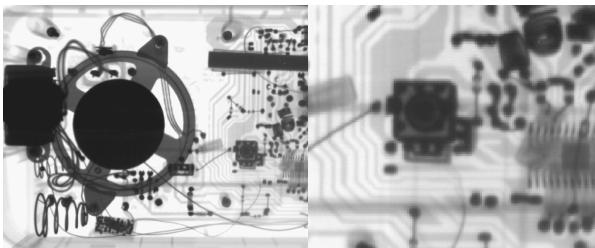
This is the only system on the market that works at the temperatures ranging from -20°C to +50°C with humidity level of up to 90%. The NORKA X-ray system is delivered in two handy carrying bags or in a single case.



Dual energy option: suspicious articles (in red)



Verification of art work authenticity



Geometric magnification with microfocus



Explosives detection in suspicious

PORTABLE X-RAY INSPECTION SYSTEM NORKA



Transport case with built-in control unit

NORKA has a wide range of applications in customs services, law enforcement divisions, airport security and other areas.

The NORKA X-ray system is easy to use, reliable and completely safe to operate. It provides excellent detecting capability with no harmful effects to its users or service personnel.

APPLICATIONS:

- Inspection of mail, parcels and small articles.
- Detection of Weapons, Bombs and Explosive devices and Narcotics
- Searching for concealed eavesdropping devices in furniture, of ce equipment, walls, door/window frames, etc.
- Non destructive testing and evaluation of machinery, aircraft, vehicles.
- "BU-4" control unit is a HP Stream X360 with a 11.6" LED with touch screen (can be equipped with any notebook computer)
- "SKB-3D" digital camera unit (1280x1024, 16-bit)
- Interchangeable X-ray converter viewing area: 300x400 mm (standard) with converter unit support. Interchangeable converters (190x250 and 410x550 mm) are available on request.
- Specially designed "RE-160" and "RE-120" minifocus X-ray digital generators, "RE-150MN" microfocus and any X-ray unit from the RAP series (constant potential with the voltage up to 300kV)
- Focusing device (optional for microfocus X-ray units) Set of connecting cables
- PC mouse & keyboard (optional)
- USB ash drive (optional)
- Rechargeable battery & charging device Set of transport bags or transport case.

PRODUCT SPECIFICATION

X -RAY UNIT	RE-160	RE-120	RE-150MN	RAP 220-5
Operation mode	5-25 second exposures in single energy mode			
Max. X-ray tube voltage, kV	160	120	150	220
Focal spot size, μm	800	600	80	2000
Resolution (copper wire), μm	80	60	40	80
Total penetration (Al equivalent), mm	120	65	80	200
Total penetration (Fe equivalent), mm	40	24	20	60
X-RAY IMAGE CONVERTER				
Camera unit	Digital - SKB-3D 1280x1024, 16 bit			
Interchangeable converter - screening area(H x W), mm	"PR-4" - 190x250			
	"PR-5" - 300x400 (standard)			
	"PR-6" - 410x550			
CONTROL UNIT				
Display	12" colour TFT touch screen display			
Memory size (image number)	30 000			
Battery life	2 hours, or 60 X-ray image acquisitions			
Through-put	60 pictures per hour			
Operating temperature	- 20°C to +50°C (-4°F to +122°F)			
Relative humidity	90% (35°C / 95°F)			
Weight, kg*	less than 29			

*Standard system con guration (NORKA with RE-160, set of transport bags, BU-4, SKB-3D, PR-5 and rechargeble battery & charging device)

PORTABLE X-RAY INSPECTION SYSTEM NORKA



FP-3543

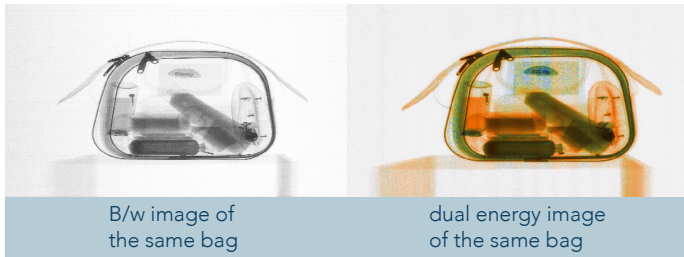


PPR-3246

PPR-3246 and **FP-3543** are portable X-ray converters designed for X-ray nondestructive inspection of baggage, mail, of ce environment, furniture, building constructions, etc. both indoors and outdoors. They can be integrated into the NORKA inspection system as well as into other X-ray systems. **PPR-3246** and **FP-3543** converters can successfully detect explosive devices and their components, hidden video/audio recording devices etc.

These converters can be used for inspection of large size objects which, due to their construction pro le, can not be scanned by stationary X-ray systems. All converters have built-in rechargeable battery and can work while being charged. The control command and data transmission are carried out via Wi-Fi or cable.

Newest thinnest (only 15,5mm) flat panel detector **FP-3543** allows to inspect objects with the highest resolution (2560x3070) and with the bigger (356 x 424mm) detection area. Built-in replaceable battery allows to make up to 80 images on one charge (two batteries included). Works in both, wired and wireless (Wi-Fi) modes. The main feature of the **PPR-3246** converters is their scanning linear detector with various type of scintillators and detector pitch sizes.



B/w image of the same bag

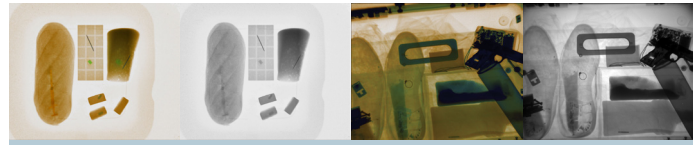
dual energy image of the same bag

PRODUCT SPECIFICATION

	PPR-4664	PPR-3246	PR-2432	FP-3543
Operating area (H x W), mm	460 x 640	320 x 460	240 x 320	356 x 424
Converter type	scanning	scanning	phosphor screen + CCD	flat panel
Detector pitch, mm	0,8 or 0,4 or 0,2*	0,8 or 0,4 or 0,2*	-	0,139
Digitizing depth, bit	16	16	12	14
Through-put, pictures per min	4	6	12	8
Wireless communication range, m	up to 50	up to 50	up to 50	up to 50
Wire detection (copper wire), mm	0,1	0,1	0,06	0,05
Spatial resolution, Lp/mm	up to 2,5	up to 2,5	2,7	2,8
Weight, kg	7,0	5,9	4,6	2,9
Dimensions (L x H x W), mm	780x580x36(59)	454x468x33(59)	340 x 340 x 160	383 x 460 x 15,5

* Standard size 0,8mm can be optimized according to the customer's needs (0,4mm and 0,2mm detector pitch)

OFFICE X-RAY INSPECTION SYSTEM KALAN-2M



B/w and dual energy image of the same objects

Adjustable voltage allows the inspection of objects with different thickness and density. The dual energy option enables differentiation between organic and inorganic objects.

PROCESSING UNIT

The KALAN-2M features a versatile image processing unit capable of saving up to 30,000 images accompanied by voice and text comments.

DESIGN

As an office X-ray inspection system it has small overall dimensions, modern design and fits perfectly into office interiors. It is supplied with a mobile base and can be moved around by one person.

All basic operation functions of the KALAN-2M are carried out via a remote control unit. A high contrast, high resolution display shows images with unparalleled accuracy. The chamber for object inspection, is supplied with an adjustable tray. By precisely positioning an object, using the KALAN-2M movable tray, high resolution magnifications up to 12 times can be achieved (only with a microfocus X-ray unit).

KALAN-2M is used in offices for the X-ray inspection of mail, baggage, office equipment, etc. to detect explosives, weapons, drugs or electronic bugs. Due to its solid construction and implemented safety features, KALAN-2M is totally safe to operate in any office environment and at any security checkpoint.

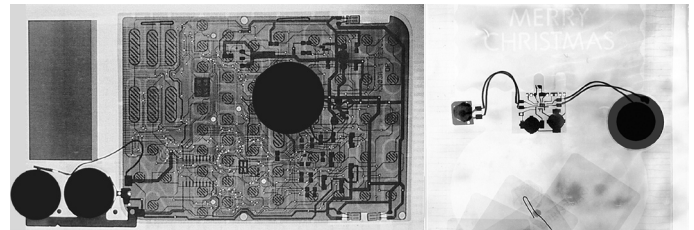
X-RAY GENERATOR

A minifocus or microfocus X-ray tube allows to detect extremely fine objects such as wires and detonation devices components. KALAN-2M custom designed X-ray generators contribute to their overall small dimensions.

PRODUCT SPECIFICATION

Max. object size (W x H x L), mm	440 x 520 x 550
Max. object weight, kg	30
Penetration Fe/Al equivalent, mm	16/70
Wire detection/with 8x geometric magnification (only for microfocus X-ray unit), mm	0,08/0,02
Through-put, images per hour	up to 120
Radiation leakage, $\mu\text{Sv/h}$	less than 1,0
X-RAY GENERATOR	
X-ray tube voltage settings for microfocus/minifocus X-ray units, kV	30-100/45-120
Tube current (typical) for microfocus/minifocus X-ray units, mA	0,1/0,5
Operating temperature (Relative humidity), °C	+5 to +40 (80% at 25°C)
Supply voltage, V	110/220
Power consumption, W	180
Dimensions (W x H), mm	610 x 1380
Total weight (including transport packaging), kg	275

MAIL DESKTOP X-RAY INSPECTION SYSTEM XR-PSCAN-2611



The number of terrorist and criminal attacks using letter bombs and toxic powders has substantially increased over the last few years. Only a comprehensive inspection of incoming mail by applying appropriate technology can ensure that such threats are detected at the earliest point.

The **XR-PSCAN-2611** X-ray inspection system is designed for daily inspection of incoming correspondence (mail and small packages). It can detect explosive devices and their components, narcotics, radioactive substances, toxic powders, such as anthrax, metal and plastic weapons.

On its monitor **XR-PSCAN-2611** displays b/w or color X-ray images of the inspected objects created by a U-shaped line-detector.

This type detector guarantees the absence of "dead zones" in inspected objects. Adjustable voltage allows detecting small quantities of substances of different densities. Additionally, the internal gamma-detector makes it possible to detect radioactive substances inside the inspected objects.

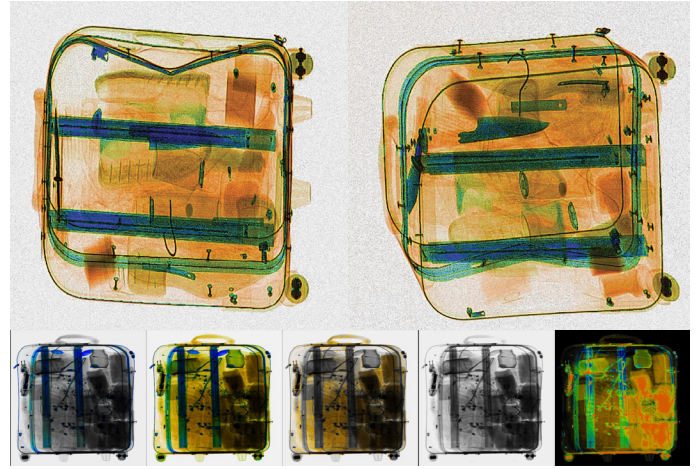
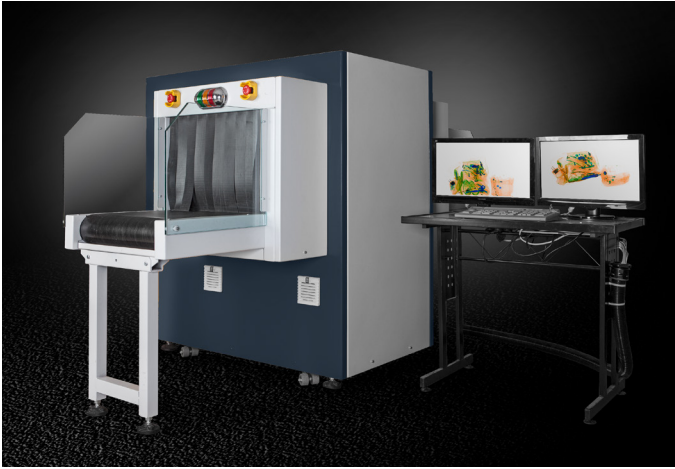
XR-PSCAN-2611 is the smallest and most compact X-ray scanner featuring high resolution color image processing, adjustable voltage and a U-shaped line-detector. With dimensions and weight comparable to a desktop photocopier, the XR-PSCAN-2611 X-ray inspection system can be easily integrated into any office environment.

The **XR-PSCAN-2611** X-ray inspection system is intended for government and law enforcement agencies, the military, private security companies, banks, at commercial premises, television/broadcasting studios, publishing houses, judicial and correctional facilities and other security sensitive areas.

PRODUCT SPECIFICATION

	Small Version	Big Version
Max. object size (L x W x H), mm	356 x 252 x 100	365 x 280 x 270
Max. object weight, kg	5	8
Wire detection, mm	Ø 0,08	
Radiation leakage (100 mm from the surface), µSv/h	0,5	
X -RAY GENERATOR		
Anode voltage, kV	30 - 70	40 - 100
Tube current (typical), mA	0,05	0,05
Levels of brightness	65 000	
Operating/storage temperature, °C	-10 to +45/-40 to +60	
Supply voltage, V	85 - 245	
Power consumption (without monitor), W	70	160
Dimensions, mm (L x W x H)	800 x 410 x 310	900 x 480 x 540
Weight, kg	35	95

BAGGAGE INSPECTION SYSTEM TS-SCAN 6040



TS-SCAN 6040 is a unique multi-view X-ray inspection system. The baggage views provides its complete perspective regardless of its positioning in the X-ray system. Multi-view technology eliminates the need for operators to reposition and re-scan the baggage. The multi-view system eliminates any possibility of deliberate concealment of prohibited articles in carry-on baggage.

A knife is visible at least in one of four views (projections), regardless of its position in the baggage (see second picture on the left). The dual energy technology provides automatic color coding of materials according to their effective atomic numbers. **TS-SCAN 6040** has a large industry.

standard tunnel opening of 600 mm wide and 400 mm high. Image processing features: material separation color display, pseudo color, black and white image, positive/negative, contrast manipulation, edge enhancement, organic/inorganic stripping, high/ low penetration, high density alert. Image display features: image review, variable zoom up to 16x, view change.

Additional features: baggage counter, data and time display, all views simultaneous preview.

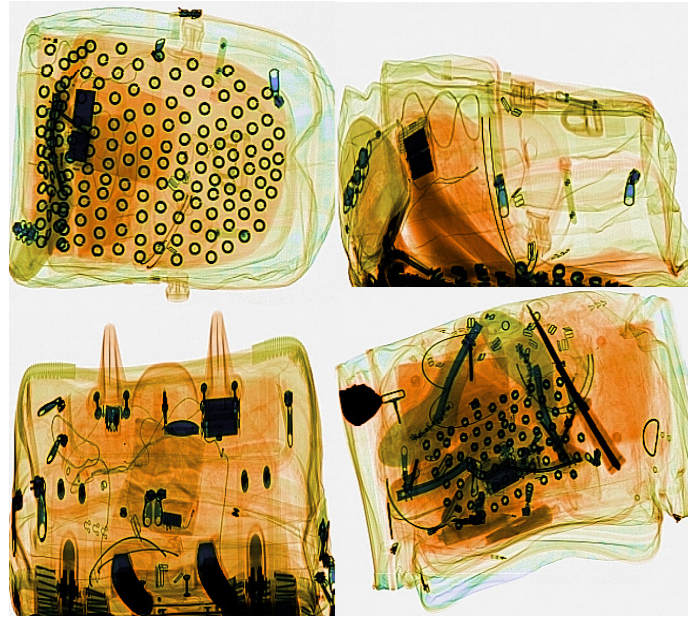
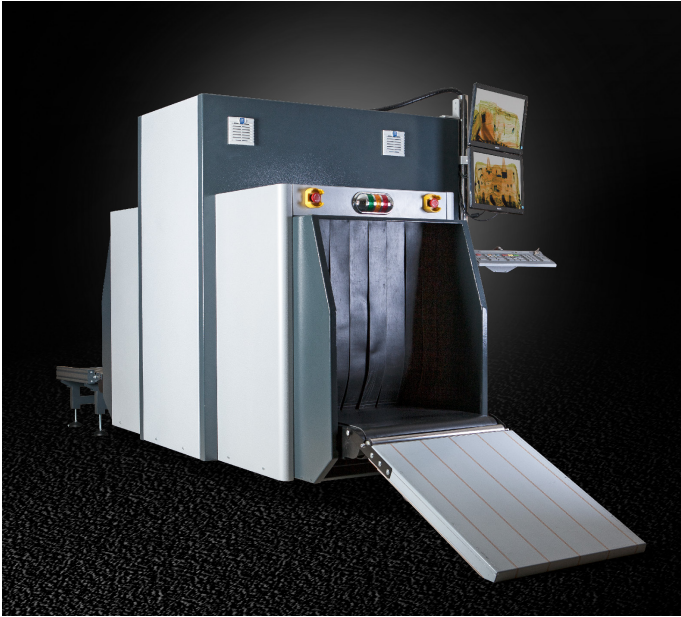
TS-SCAN 6040 meets all international health and safety requirements.

PRODUCT SPECIFICATION

Max. object size (W x H), mm	600 x 400
Conveyor height, mm	800
Conveyor speed, m/s	0,2
Max. object weight, kg	160
Resolution (wire detection measured by Cu wire)	38 AWG (0.1 mm)
Penetration (steel), mm	27*
Film safety	guaranteed up to ISO 1600 (33 DIN)
Number of X-ray generators*	2 or 1
Anode voltage, kV cp	140
Number of views and generators*	2
Detectors	L-shaped
Power consumption, kVA	1,0
Dimensions (L x W x H), mm	2400 x 1500 x 1350
Weight, kg	800

* Can be optimized according to the customer's needs

BAGGAGE INSPECTION SYSTEM TS-SCAN 6575



TS-SCAN 6575 is a unique dual-view and dual-generator X-ray inspection system. The baggage views provide its complete perspective regardless of its positioning in the X-ray system. Dual-view technology eliminates the need for operators to reposition and re-scan the baggage.

The dual energy technology provides automatic color coding of materials according to their effective atomic numbers. **TS-SCAN 6575** has a large industry standard tunnel opening of 650 mm wide and 750 mm high.

Image processing features: material separation color display, pseudo color, black and white image, positive/ negative, contrast manipulation, edge enhancement, organic/inorganic stripping, high/low penetration, high density alert.

Image display features: image review, variable zoom up to 16x, view change.

Additional features: baggage counter, data and time display, all views simultaneous preview. **TS-SCAN 6575** meets all international health and safety requirements.

PRODUCT SPECIFICATION

Max. object size (W x H), mm	610 x 730
Conveyor height, mm	360
Conveyor speed, m/s	0,20
Max. object weight, kg	200
Resolution (wire detection measured by Cu wire)	38 AWG (0.1 mm)
Penetration (steel), mm	32
Film safety	guaranteed up to ISO 1600 (33 DIN)
Number of X-ray generators	2
Number of views	2
Detectors	L-shaped
Power consumption, kVA	1,0
Dimensions (L x W x H), mm	2750 x 1550 x 1300
Weight, kg	750

LUGGAGE INSPECTION SYSTEM TS-SCAN 100100-2P



TS-SCAN 100100-2P is a unique dual-view and dual-generator X-ray inspection system. The luggage views provides its complete perspectives regardless of its positioning in the X-ray system.

Dual-view technology eliminates the need for operators to reposition and re-scan the baggage. The dual energy technology provides automatic color coding of materials according to their effective atomic numbers. TS-SCAN 100100-2P has a large industry standard tunnel opening of 1000 mm wide and 1000 mm high.

Image processing features: material separation color display, pseudo color, black and white image, positive/negative, contrast manipulation, edge enhancement, organic/inorganic stripping, high/low penetration, high density alert.

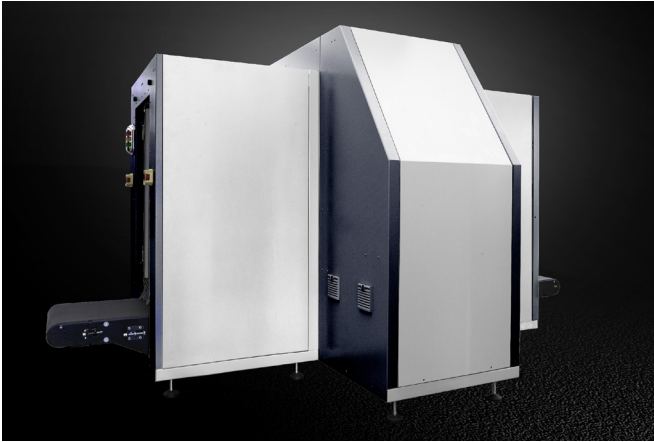
Image display features: image review, variable zoom up to 32x, view change.

TS-SCAN 100100-2P meets all international health and safety requirements.

PRODUCT SPECIFICATION

Dual-view Imaging	Both vertical and horizontal projecting images	ROI & Zoom	Stepwise/stepless zoom up to 32 times enlargement without stopping the conveyor. Can immediately enlarge scan images 4 times by special keyboard
Tunnel size (W x H), mm	1040 x 1018	Image Recall	Unlimited preceding images are recallable, when the conveyor is stopped anytime during operating
Max. object size (W x H), mm	1000 x 1000	Image Management	Images automatic storage. General image format conversion, I, USB storage devices and remote image storage by TCP/IP network.
Conveyor speed, m/s	0,20 (Adjustable)	System Functions	Time/date display, baggage counters, user management. built-in diagnostic facilities and dual-direction scanning, etc.
Conveyor belt width, mm	870	X-ray Leakage	Less than 0.5µGy/hour at 5cm away from housing, with no external radiation protection area. Overlapped lead curtains are installed on the entrance and exit or tunnel
Conveyor height, mm	386 (Adjustable)	System Safety	System is designed to be in conformity with all the relevant CE directives
Max. object weight (Maximum Load Capacity), kg	200	Operating Temperature I Humidity	0°C - +45°C / 5%- 95% (non-condensing)
X-ray Generator, kV	160 (Rated)	Power consumption, kVA	approx. 1,2
Resolution (wire detection measured by Cu wire)	38 AWG (0,1 mm)	Dimensions (L x W x H), mm	3102 x 1350(1648) x 1806
Steel penetration, mm	26	Weight, kg	approx. 1200
Spatial Resolution, mm	1,6	UPS	Ensure safety shutdown
Number of X-ray generators	2		
Monitor(s)	Two 27 inch color LCD display monitors, with resolution 2560x1440		
Image display	Based on effective atomic number. inspection objects are displayed in different colors: Blue for inorganic as steel; Orange for organic; Green for mixture; Black for objects that X-ray can not penetrate		
Image Enhancement	Color/SW, negative, high/low penetration. organic/inorganic stripping and general enhancement. etc. All image enhancement functions can be made by one-key or two-key operation		

BAGGAGE INSPECTION SYSTEM TS-SCAN 60110



X-ray inspection system **TS-SCAN 60110** –is a special designed for inspection of airline service trolley. Special designed U-shaped line detector allows to achieve 100% inspection of trolley together with food, beverages and drinks.

Special automatic doors used instead of usual protective rubber that allow reducing size of inspection system and increasing throughput.

The dual energy technology provides automatic color coding of materials according to their effective atomic numbers. Image processing features: material separation color.

display, pseudo color, black and white image, positive/negative, contrast manipulation, edge enhancement, organic/inorganic stripping, high/ low penetration, high density alert. Image display features: image review, variable zoom up to 16x, view change.



Example of X-ray image

Additional features: baggage counter, data and time display, all views simultaneous preview. **TS-SCAN 60110** meets all international health and safety requirements.

PRODUCT SPECIFICATION

Tunnel size (W x H), mm	450 x 1130
Max. object size (W x H), mm	420 x 1100
Conveyor height, mm	275
Conveyor speed, m/s	0,20
Max. object weight, kg	200
Resolution (wire detection measured by Cu wire)	38 AWG (0,1mm) typical 50 AWG (0,08mm)
Penetration (steel), mm	28 typical 30
Radiation dosage, μ Sv	less than 0,8
Maximal/working voltage, kV	200/180
Maximal/working current, mA	2,0/1,5
Number of views	1,0
Detectors	U-shaped
Power consumption, kVA	3,0
Dimensions (L x W x H), mm	3450 x 1880 x 1800

TRANSMISSION X-RAY BODY SCREENING SYSTEM FB-SCAN



The main advantages of this design are non-destructivity, low dose load, high penetration and high productivity due to high sensitivity of the detector.

Additional internal protection against scattered X-ray is used, practically, with no exclusion zone.

The system can be installed at any place where power supply is provided and is intended for 24/7 operation all-year-round. The inspection is carried out automatically with images being transmitted to the control computer.

- Steel scanning module that includes dual energy collimated X-ray unit, full body-sized line detector, local X-ray protection for reducing scattered radiation zone. Integrated color lights indicate the system's status: green - ready, yellow - X-ray On, red - error;
- Movable belt with steps;
- Remote control keyboard with the Power On/ Emergency Off buttons;
- Remote control unit based on personal computer with Windows operating system and 21" TFT screen;
- integrated special software for storing and enhancing images including all known filtering.

The Full Body(FB) X-ray screening system is designed for effective detection of items hidden under clothes, on and inside the human body. This system can be used in anti-terrorism applications, to protect state facilities, at border crossings and prisons.

The system can be used to provide access control required for special security zones. It yields high resolution of detected images due to a minimum dose of irradiation.

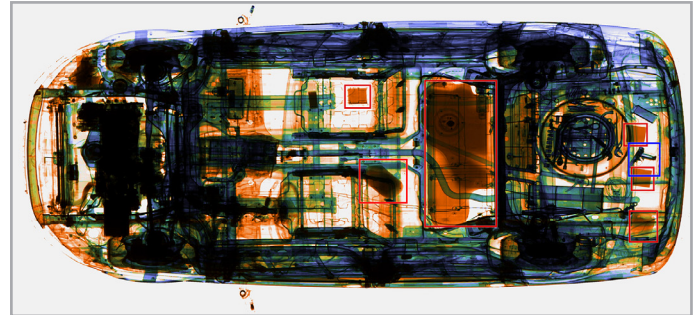
The pre-programmed functions of the system can help operator to quickly perform the image processing to identify hidden objects.

PRODUCT SPECIFICATION

Material detectability	Metal, ceramic, plastics, powders, explosives, narcotics etc
Detection area capability	Objects hidden on and inside the body
Scan time, seconds	less than 5
Worming time, seconds	120
Through-put, persons per hour	120
Penetration (steel), mm	22
Wire detectability	36 AWG (0,12mm)
Technology	Low dose transmission X-ray
Dose per inspection	< 0,25 μ Sv (<0,025 mRem)*
Dimensions (L x W x H), mm	2450 x 1842 x 2470
Width of the tunnel, mm	720

* Can be optimized according to the customer's needs

SUV AND VEHICLE X-RAY INSPECTION SYSTEM PORTAL-AUTO



PORTAL-AUTO is a unique stationary or drive-through vehicle screening system designed for the inspection of illegal objects inside vehicles, large size pallets, etc. It can detect smuggled goods, including plastic weapons and explosives, drugs, or radioactive materials. The main components of the system are, the X-ray generator, which emits a high energy X-ray beam, and a highly sensitive U-shaped detector. The dual energy technology (optional) provides automatic colour coding of materials according to their effective atomic numbers.

The **PORTAL-AUTO** system combines high penetration and low radiation dosage.

The system can be integrated not only in a temperature controlled permanent or solid built infrastructure but, uniquely, in a 20ft. container or a tent, and is intended to operate 24/7.

The system automatically inspects vehicles without driver placed on a vehicle moving system. Images are transmitted to the remote control room for further examination. Due to its mobility, if set up in a 20ft. container, **PORTAL-AUTO** is ideally suited to work at border crossings, security checkpoints, as well as at seaports and airports, security sensitive areas such as government/ commercial sites, military and law enforcement HQs/ structures.

THE SYSTEM LAYOUT

- Temperature controlled environment*
- X-ray generator
- U-shaped detector unit

- Data collection and processing systems
- Vehicle moving system*

* not applicable to Portal-Auto 250

PRODUCT SPECIFICATION

Inspected object dimensions (W x H), m	2,51 x 2,9**
Through-put, vehicles/objects per hour	up to 10 and up to 250 for Portal- Auto 250
X-ray generator, kV/mA	uniquely designed X-ray generator 300/5**
Detector	U-shaped one dimensional
Image details	black and white (65 000 levels of grey) or pseudo color
Inspection sensitivity	2% up to 35 mm of steel**
Visual means	2 computers with several high resolution LCD displays, special image and data storage system with capacity to store 20 000 images
Digital image processing	Image storage, magnification up to 16 times, sharp and contrast enhancement, filtering, segmentation, X-ray image comparison
Power	built-in generator or 85 - 240VAC 50/60Hz
Power consumption, kW	5 (maximal with additional cooling system)
Operating temperature/Humidity	- 10°C to + 45°C/up to 90%

** Can be optimized according to the customer's needs

HIGH THROUGHPUT CARGO X-RAY INSPECTION SYSTEM PORTAL-BETA P02-2W



PORTAL-BETA P02-2W is a unique dual-way multi-energy portal designed for high throughput X-ray inspection of vehicles/trucks with cargo. It can detect smuggled goods, including plastic weapons and explosives, drugs, radioactive materials. The main system components are the X-ray generators that produce high energy X-ray beams, and highly sensitive L-shaped detectors (each inspection channel has several detectors that allow to increase throughput). Due to the use of dual way (channel) design, the system has the highest throughput on the market, also it is possible to produce single and multi-way systems should less or higher throughput be required.

The **PORTAL-BETA P02-2W** combines powerful penetration and low radiation dosage. Due to use of unique cyclic accelerator with ability of fast change of output energy, the system can penetrate the cabin with the truck's driver using the lowest

dosage, and after that switch to high dosage mode within microseconds. After the cabin passes through the portal, the system penetrates all truck with maximum dosage. Also the system can work in Cabin-cut mode, the system starts irradiation after the cabin with the truck's driver. The choice of the scanning mode can be made due to the local radiation safety regulations that are used in the end-user country. The system does not require any temperature-controlled permanent or solid built infrastructure and can operate 24/7. The system automatically inspects trucks that are going on various speed. Images are transmitted to the remote control room for further examination. **PORTAL-BETA P02-2W** is ideally suited for using at customs facilities, seaports and airports, border crossings. The system configuration allows fast and thorough inspection of 20/40/45ft sea containers and other freight up to 300 vehicles/trucks per hour in dual way (channel) design.

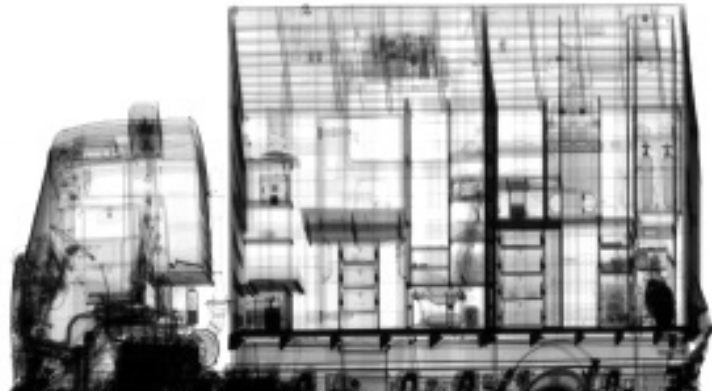
PRODUCT SPECIFICATION

Inspected object dimensions (L x W x H), m	30 x 3 x 4,7*
Building dimensions (L x W x H), m	36 x 12 x 6*
Maximal weight of inspected object, kg	55 000*
Maximal radiation dosage, μ Sv per scan	less than 100
Throughput, vehicles/trucks per hour	up to 300**
Scan speed, km/h	5-20
X-ray generators energy, MeV	Switched between 6 and 9
Image	black and white (65 000 levels of grey) or pseudo color, dual energy mode
Penetration	270 - 330 mm of steel
Visual and processing means	computers with several high resolution TFT displays and a special image and data storage system
Digital image processing	Image storage, magnification up to 16 times, sharp and contrast enhancement, filtering, segmentation
Power	built-in generator or three-phase AC power circuit 380V/50Hz
Power consumption, kW	from 30
Operating temperature/Humidity	-35°C to +55°C/up to 90%*

* Can be optimized according to the customer's needs

** In dual way (channel) design in single way (channel) design throughput is up to 150 vehicles/trucks per hour

CARGO AND VEHICLES X-RAY INSPECTION SYSTEM PORTAL-BETA



PORTAL-BETA is a unique multi-view multi-energy rail-mounted gantry designed for the inspection of sealed sea freight containers such as 20/40/45ft, consignments inside trucks and other vehicles. It can detect smuggled goods, including plastic weapons and explosives, drugs, radioactive materials.

The main system components are the X-ray generator, which produces high energy X-ray beam, and the highly sensitive L-shaped detector. **PORTAL-BETA** is designed in such a way that it is practically impossible to hide illegal items inside the inspected objects owing to the multiple imaging obtained from various perspectives. These perspectives are chosen in such a way that the hidden item will be surely seen from one of the multi-views regardless of its location inside the inspected object.

The **PORTAL-BETA** combines powerful penetration and low radiation dosage. The system is normally located in a temperature controlled permanent or solid build infrastructure and can operate 24/7.

The system automatically inspects vehicles without driver, placed between the rails (the gantry moves Images are transmitted to the remote control room over them).

For further examination. **PORTAL-BETA** is ideally suited for applications at customs facilities, sea and airports, border crossings.

The system con guration allows fast and thorough inspection of 20/40/45ft sea containers and other freight up to 25 - 40 vehicles/trucks per hour.

THE SYSTEM LAYOUT

- Temperature controlled infrastructure
- Single or multy X-ray generator (betatron)
- L-shaped detector unit(s)
- Control unit
- Transportation unit

PRODUCT SPECIFICATION

Inspected object dimensions (L x W x H), m	30 x 3 x 4,7*
Building dimensions (L x W x H), m	36 x 14 x 7*
Maximal weight of inspected object, kg	55 000*
Maximal radiation dosage, µSv per scan	less than 100
Through-put, vehicles/trucks per hour	up to 25 - 40
Scan speed, m/min	12, 24, 36
X-ray generators energy, MeV	Switched between 6 and 9
Penetration	300 - 330 mm of steel
Visual and processing means	computers with several high resolution TFT displays and a special image and data storage system
Digital image processing	Image storage, magnification up to 16 times, sharp and contrast enhancement, filtering, segmentation
Power	built-in generator or three-phase AC power circuit 380V/50Hz
Power consumption. kW	from 16
Operating temperature/Humidity	-35°C to +45°C/up to 90%*

* Can be optimized according to the customer's needs

MOBILE X-RAY VEHICLE SCREENING SYSTEM MXVSS



MXVSS (Mobile X-ray Vehicle Screening System) is designed for screening bulky cargo and vehicles and detection of radioactive materials and explosives, as well as other restricted articles using radiometric and dosimetric surveillance equipment. **MXVSS's** 4,5/9MV X-ray imaging system is the most powerful and advanced X-ray inspection system available on a mobile vehicle screening system. Due to the usage of a cyclic accelerator with variable radiation energy, the system can operate in dual-energy mode that allows to discriminate organic and inorganic material. Mobility of **MXVSS** improves detection of contra-

band goods as it can be deployed in non-typical and unexpected locations. System works in two scanning modes: system remains immobile, where as the vehicles move through the portal ('dynamic object' mode), moves parallel to the inspected object ('static object' mode).

In dynamic object mode it is possible to scan the cabin with the driver due to ability of changing high energy during inspection. As an additional option system can be enhanced with backscattered mode that allow to inspect vehicles and cargo from one side in case if there is no both side access. System with this additional option allows to detect radioactive and/or nuclear materials in active mode.

PRODUCT SPECIFICATION

Inspected object dimensions (L x W x H), m	30 x 3 x 4,5*
Deployment time, min	less than 30
Through-put, vehicles/trucks per hour	up to 25
Scan speed, m/min	12, 24, 36
X-ray generators energy, MeV	Switched between 4,5 and 9
Penetration	300 mm of steel
Visual and processing means	computers with several high resolution TFT displays and a special image and data storage system
Digital image processing	Image storage, magnification up to 16 times, sharp and contrast enhancement, filtering, segmentation
Power	built-in generator or three-phase AC power circuit 380V/50Hz
Power consumption. kW	less than 25
Operating temperature/Humidity	-35°C to +45°C/up to 90%*

* Can be optimized according to the customer's needs

RATE METERS

The 2-channel alarm radiometer **NPS-32** can continually measure X-ray and g-ray radiation. It has a light and sound alarm, which alerts operator, if the radiation dose exceeds the automatically preset threshold. Once the device is on, it takes about one minute to calculate the threshold, which is equal to the average radiation dosage, plus ve standard deviations.

It consists of the indicator unit and one or two external detector units.

This radiometer can be positioned around doors or gates in order to detect any trace of radioactive material.

NPS-32 can be supplied with a fast scintillation detector for inside use or by a detector with H-M counters and is perfect for adverse weather conditions (high humidity and extreme temperatures).

PSD-16 is an 16-channel alarm radiometer with the

same features as **NPS-32**. By connecting it to a PC, it can serve as a valuable addition to any integrated safety system.

Searching radiometer **SR-5M** is intended for measuring g-ray radiation dosage. It can be used to find the radiation source and determine the radiation leakage.

The detector (scintillation crystal in combination with PM) provides very short exposure time and, consequently, very fast and effective detection of radioactive sources.

SR-5M provides numeric values of radiation dosage, linear and logarithmic scales and produces audio alarm using different frequencies. **SR-5M** is powered by a rechargeable battery. The device can calculate and display not only the radiation dose in a given area but also the dose received by an operator.



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