



AI Enable  
(Auto Detects the  
Object)



Energy Saving



One Key  
Turn off



High Resolution  
Color Display



Sound &  
Light Alarm



Baggage  
Counter



Compact  
Design



Scan  
Palletized Loads

## AI Based X-Ray Baggage Scanner

### TW6040B (AI)

The intelligent security screening machine is a new security inspection device that uses X-Ray to Quickly inspect baggage and goods without opening packages.

### System Overview

The machine has software with inbuilt Artificial intelligence to display the scanned images with AI overly on suspected objects which adopts an advanced X-Ray image detection system, which integrates semiconductor detectors, digital image processing technology and computer image display technology, to provide users with an efficient, reliable and high-quality image processing system that has service functions.

The device has a large HDD capacity that can store massive high definition image. It supports many functions. It recognizes prohibited objects, alarm when prohibited objects are detected an features person package linkage, image enhancement, network expansion and inter connection automatic detection and maintenance and more. In addition the operation design in simple and user friendly.



(+91)-11-41916615  
+91-95999-53923



D-162, Okhla Industrial Area  
Phase I, New Delhi, 110020



sales@timewatchindia.com  
www.timewatchindia.com

## Function

### X-ray Package Image Generation

Adopts the TimeWatch algorithm to render images of packages and their content, displaying their shape and the materials that they are made of. The rendered images reflect X-Ray absorption degrees and material composition. To netter identify dangerous items, scanned objects will be categorized into organic matter, mixture and inorganic matter, and marked in orange, green and blue respectively according to their composition.

### X-ray Package Image Enhancement

Adopts TimeWatch algorithm and enhances package images with different effects so that operators can better analyze the items. Enhancement functions include color/black and white, local enhancement, super enhancement, edge enhancement, image scanning, organic stripping, metal stripping, mixture stripping, inverse, high-energy enhancement low-energy enhancement, light, dark, density threat alert Z7/Z8/Z9, high density alert, AI overlay, vertical Flip, pseudo color and more.

- Uses X-ray to generator images of packaged items passing on the conveyor belt, and checks the shape and size of packaged items.
- Displays images of the packages with enhanced effects, such as high energy enhancement, super enhancement, high density alert and image scanning.
- Supports security screening mode and video surveillance mode.
- Recognizes dangerous items such as knives, bottled liquid, spray cans, guns and lighters from scanned images.
- Set danger levels for suspect items and link alarms such as voice prompt, sound and light alarm and conveyor belt stopping.
- Displays AI overlay on suspected objects. The AI overlay box moves with the package.
- All detection results can be stored and generated as reports, which can be searched and exported according to danger level and time.
- 2 built-in Fish eye cameras that respectively monitor the entry and exit of baggage and the package inspection process.
- Add IP camera and PoE camera for live video, storage and playback. The cameras monitors the entire security inspection.
- Alarms are triggered by system errors such as no HDD, storage error, IP conflict and MAC conflict.
- Supports HDD storage space management and advanced management such as RAID configuration (RAIDO/1/); ensures data security.



- Supports user group management and multiple authorities setting; supports custom function, permission and password configuration.
- Supports system operation and maintenance management, such as self diagnosis, log and online user search, and device updating.

## Dual-screen Display Video Output

Displays images in security mode (package images) and video of cameras simultaneously on a single screen.

## Dangerous Items Recognition

Adopts the TimeWatch algorithm to analyse X-ray images of packages and identify dangerous items such as knives, bottled liquid, spray cans, guns and lighters. It also tracks dangerous items by using AI overlay which can be marked in different color to indicate danger levels. Alarm linkage are supported such as voice prompt, sound and light alarm and conveyor belt stopping.

## Person-package Linkage

Included are the entrance camera and exit camera. The system supports real-time recording, and offers person-package linkage storage and search.

## Package Statistics

All detection results can be stored and generated as reports, which can be searched and exported according to danger level and time.

## Continuous Scanning

Continuously scans packages and displays their images even when the system restarts after being stopped.

## Safety Protection

X-ray protection is higher than the international standard. The leakage dose-rate is less than 0.9 uGy/h.

## Scene

The machine is applicable for use in airport, railway station, bus station, metro station, government buildings, exhibition center, large event venues and more.



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## Technical Specification

System	
CPU	Intel quad-core processor
RAM	8 GB
Operating System	Windows System
User Interface	Local GUI (full functions); Web interface
Basic	
Tunnel size	620 mm × 420 mm
X-ray Tube Anode Voltage	160kv
X-ray Tube Cooling	Sealed oil bath with forced air
Wire Resolution	Typical : 40 AWG (0.08mm) ; Standard : 38 AWG (0.1mm)
Penetration(steel)	Typical : 37mm; Standard : 36mm
Leakage Dose-rate	≤ 0.9 μSv/h(μGy/h)
Noise Level	≤ 65 dB
Conveyor Speed	0.18 - 0.3 m/s
Maximum Belt Load	170 kg
Conveyor Hight	Approx. 665 mm
Current Leakage	≤ 0.25 mA
Film Safety	ISO 1600 (33 DIN)
Intelligent Analysis	
Preview	Real-time display of X-ray package image and camera image; real-time item intelligent analysis
Item Recognition	Recognizes items and displays AI overlay; the AI overlay box moves with packages
Recognition Types	Recognizes 22 types of objects: Guns, fireworks, spray cans, knives, axes, scissors, nail polish, bottled liquids, glass bottles, thermos bottles, plastic bottles, handcuffs, nightsticks, brass knuckles, lighters, tools, electronic products, mobile phones, power banks, laptops and umbrellas
Danger Levels	High risk, warning, and safe (supports custom configuration according to types of objects)

Event Linkage	I/O alarm, voice prompt, platform alarm can be triggered according to danger levels
Image Storage	Stores as much as 1 million images with information on their danger levels and the types of objects detected. Original and analyzed images can both be viewed. Search, play back, and
Baggage Search	export baggage images and linked videos according to time, objects type and more
Report Search	Generate and export reports according to time and object types
Backup	USB/Network
<b>Performance</b>	
Self-inspection	Automatically detects system failures and prompts error codes
Image Processing	Enhancement functions include color/black and white, local enhancement, super enhancement, edge enhancement, registration enhancement, light, dark, high density alert, AI overlay, vertical flip, pseudo color and more
Image playback	Supports playback of 30 images
Image Zooming	Zoom in X-ray images up to 64x. Drag the focus position using a mouse or direction- keys
Device Diagnosis	Supports diagnosis of key components such as the detector, motor, IR sensor
Detection Configuration	Key function configuration; image display configuration (vertical flip and max zoom times), scan mode configuration (double direction, forward scan), baggage counter configuration and person-package linkage configuration
<b>Basic</b>	
Graphics Output	2-channel HDMI video output: Up to 1920 (H) × 1080 (V) @60 Hz
Monitor	1 × 21.5" monitor
Video Input (Network)	12-channel input (max 4K); 8-channel IPC
Recording Mode	Offers manual recording and recognition plan. Recording plan features continuous recording, alarm event linked and recording and no recording



Audio output	1-channel MIC Out (3.5 mm)
Built-in Disks	Supports up to 6 T SATA disks and configures 1T disk by default
Ethernet Ports	1 RJ-45 10 M/100 M/1000 M self-adaptive Ethernet ports; 4 RJ-45 10 M/100 M Ethernet ports
Internet Protocols	HTTP, HTTPS, TCP/IP, UDP, RTSP, IPv4, NTP, DHCP, DNS, IP Filter, IP Search (Supports IP camera, DVR and more)
Interoperability	ONVIF, SDK and more

#### Ports

RS 232 Port	1-channel RS-232 port for controlling the operating keyboard
Power Port	1-channel port for monitor power supply
USB Port	2-channel USB3.0
Display Port	2-channel DVI outputs
Emergency Stop Button	3 (2 buttons on the machine body and 1 button on the operating keyboard)
Power Button	1 (on the operating keyboard)
Key Switch	1 (on the operating keyboard)
Indicator light	<p>On the machine:</p> <p>Power indicator: Turns solid green when the machine is working and flashes during updates and when an error occurs</p> <p>X-Ray indicators: Turn solid red when X-Ray is triggered and turns off when X-Ray is Turned off</p> <p>On the operating keyboard:</p> <p>Key Switch indicator: Turns solid green when the switch is turned on and turns off when the switch is turned off</p> <p>power button indicator: Turns solid green when the power button on the operating keyboard is pressed on.</p> <p>Light turns off when the machine is powered off</p> <p>press button indicators: Flashes green when on button I pressed on</p>

#### Regular

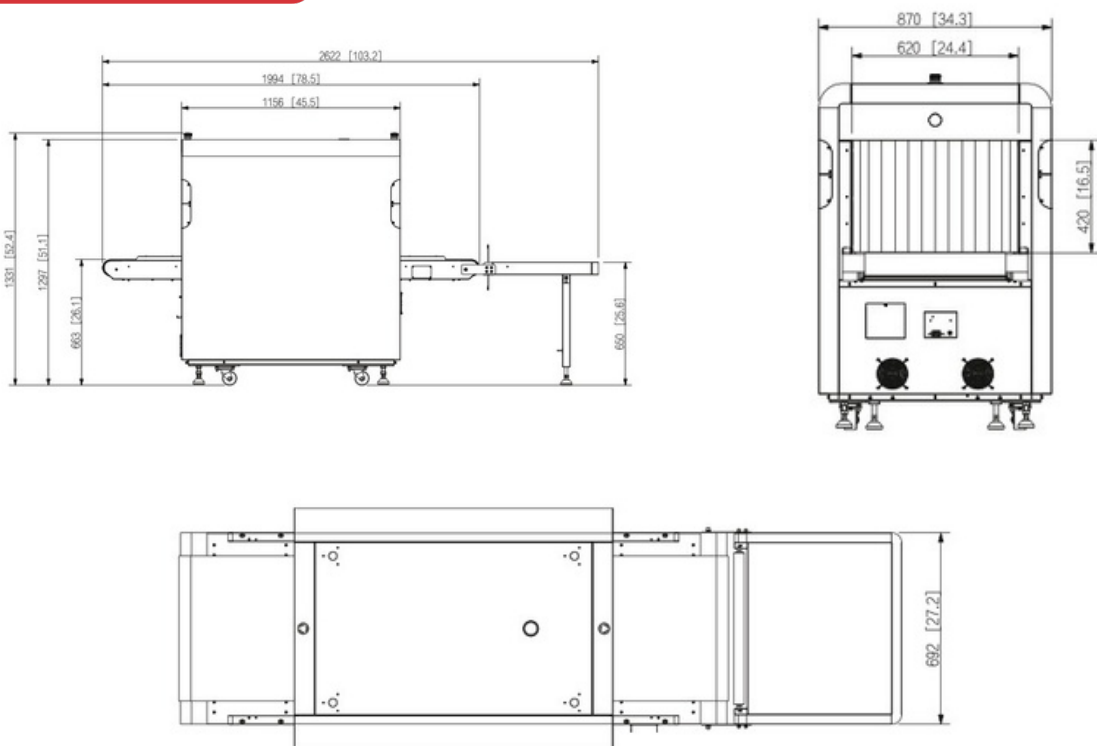
Power Supply	AC 220–240 V, 50/60 Hz; AC 100–130 V, 50/60 Hz (optional)
Typical Power Consumption	450 W
Maximum Power Consumption	1 KW
Intelligent Temperature Control	Detects the temperature of main board and HDD and automatically adjusts fan speed to make it work stably and quietly





Operating Temperature	0 °C to +45 °C (32 °F to +113 °F)
Operating Humidity	0%–95% (RH), non-condensing
Storage Temperature	–20 °C to +70 °C (–4 °F to +158 °F)
Storage Humidity	0%–95% (RH), non-condensing
Dimensions	1993mm x 870mm x 1294mm
Package Size	2142mm x 1132mm x 1542mm
Net Weight	420 Kg (925.94 lb)
Gross Weight	590 kg (1300.73 lb)
Installation Mode	Ground Mount

## Dimension Drawing



Head Office : D-162, Okhla Industrial Area Phase I,  
New Delhi, 110020.

Regional Office : Mumbai, Bengaluru, Ahmedabad,  
Chennai, Kolkata.

International Office : Dubai

Phone : +91-95999-53923

Sales : sales@timewatchindia.com

Support : helpdesk@timewatchindia.com

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