

## Steel Cord Conveyor Belt X-ray Inspection System

See through your belt  
All problems at a glance



- Real time scan.
- Auto detection.
- Auto report.
- Auto identify cord breakage, splice.

Steel cord conveyor belt X-ray inspection system (coal mine explosion-proof grade) uses X-ray to scan entire conveyor belt in a timely and accurate manner (up to 0.8 mm resolution) and submit the images to a dedicated software which is able to conduct intelligent, holistic inspection on a up damages such as broken cords, rusted/corroded cords, kinked cords, missing cords, splices, etc. conveyor belt and provide diagnostic data.

It can automatically start and finish a whole cycle inspection of a steel cord conveyor belt. It will pick

The inspection data is completely stored in a dynamic database (as video or pictures) for customers to check all details of belt conditions.

This smart X-ray scanner is very easy to use and free of routine maintenance. It aims to eliminate safety risks and ensure a longer safe life of a steel cord conveyor belt system, it is designed as a standalone system or as an integral part of user's monitoring network.

**This system can simply and immediately tell users: Any problems with my steel cord belt? What are the problems? How serious are the problems? How can the problems be fixed?**

## Product Benefits

Significantly improve safety and increase life span of a conveyor belt

This product enables you to see through your belt where all steel cords and splices can be clearly viewed. You will be able to view the exact conditions of each cord and splice in real time, it will also alert you to other potential problems in your belt as soon as they arise.

Through timely detection of problems and timely repair, accidents due to breakage can be eliminated. This significantly increases the life span of the conveyor belt.

Accurate scan result ensures your belt is safe enough to continue running after all the damages are repaired, this will avoid premature replacement of a belt due to unknown risks and worries.

Some of customers have satisfactorily reported that our product can increase a belt's life span by up to 25%.

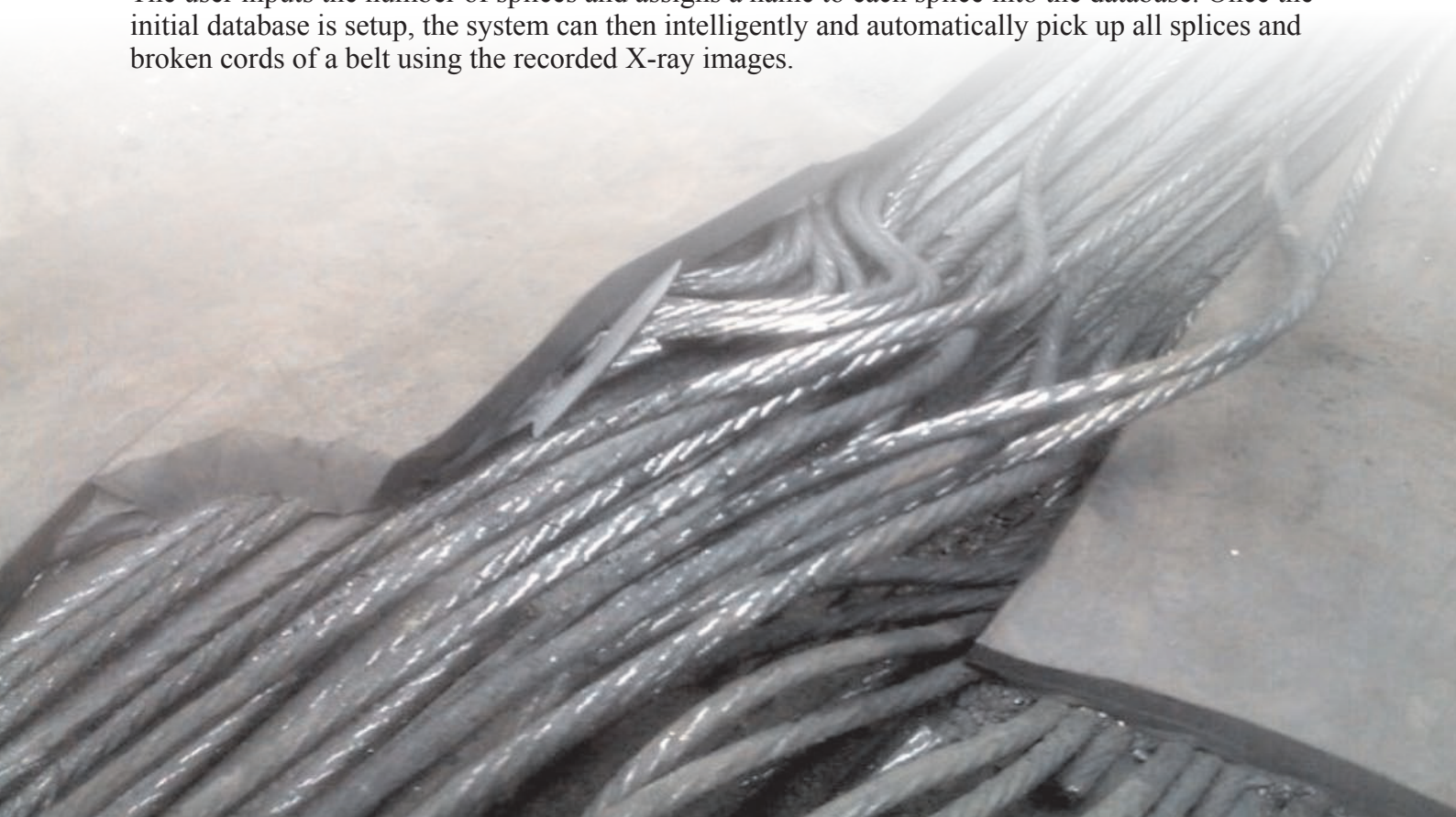
## Product Features

### Auto Detection

While the belt is operating normally, simply push the “Start Detection” button and the smart X-ray inspection system will initiate and complete a scan cycle on the entire belt. The system (installed on return belt) effectively scans entire belt and records all details of belt conditions as continuous X-ray images.

### Smart Analysis

The user inputs the number of splices and assigns a name to each splice into the database. Once the initial database is setup, the system can then intelligently and automatically pick up all splices and broken cords of a belt using the recorded X-ray images.



# Product Features

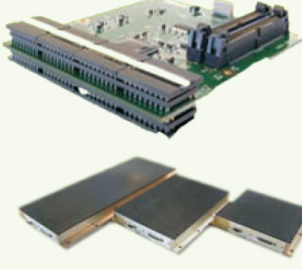
## Simple Operation

The user friendly interface is a simple 2-step process for detection and analysis, and no special training is required to use the system. The system intelligently runs a scan on the belt and automatically stops once the scan is completed and then automatically produces a scanning report listing all splices and cord breakages. Users spend several minutes reading the report before concluding whether their belt is safe to run.

### High-Speed X-ray Detector

**The World's Leading High-Speed X-ray Detector Array**

- Intrinsic Safe, High Reliability, Excellent Performance, Resolution Up To 0.8 X 0.8 mm
- High Speed, Takes Only 0.32 MS to Scan One Line(1.2 M Wide)

A photograph of a high-speed X-ray detector array, showing a long, narrow circuit board with multiple rows of components and connectors.

### World Leading X-ray Emitter

**X-ray Emitter Made By VJ Technology, USA**

- Long life, sustainable work more than 30,000 hours
- Highly Integrated, Compact, High Reliability, All Indicators Adjustable

A photograph of a compact, industrial-grade X-ray emitter unit with a control panel and a small display screen.

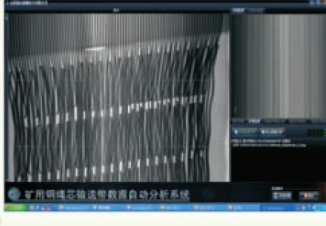
## Remote Control and Access

Users can remotely control and in real time, the power on the system; turn the X-ray emitter on/off; start or stop scanning or collecting images. All the functionalities can be completed without going to the site, making detection simple and easy to operate.

### Auto Identification Software

**Auto-Scan & Analysis Software For X-ray Imaging**

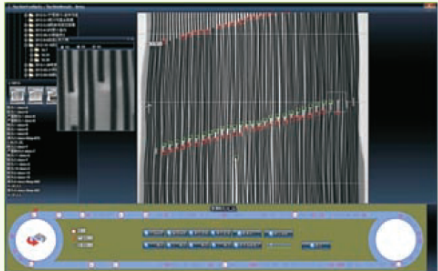
- Auto Scan, Auto Identify Faults, Auto Report
- Utilize Latest Face Recognition Technology To Identify Splices And Broken Cords

A screenshot of the Auto-Scan & Analysis software interface, showing a live X-ray image of a belt with various faults highlighted.

### Dynamic Data Management System

**Splices, Breakage, Surface Damage, And All Displayed On A Dynamic Moving Belt.**

**The Entire Belt Status At A Glance, Customers Can See All The Details.**

A screenshot of the Dynamic Data Management System interface, displaying a complex graph with multiple data series representing different belt conditions over time.

## Complete Belt Conditions At a Glance

Scan data is completely stored in the PC in images or video simulating the internal belt conditions. Via playback, users can see complete belt conditions and check for anything that may be of concern: splice integrity, cord problems, surface damages, ripping, protruding cords, carcass thickness variation, foreign objects, edge damages, etc. With magnification tools, users can clearly see the details and know exactly how to repair the damages.

## Real Time Display & Faults Positioning

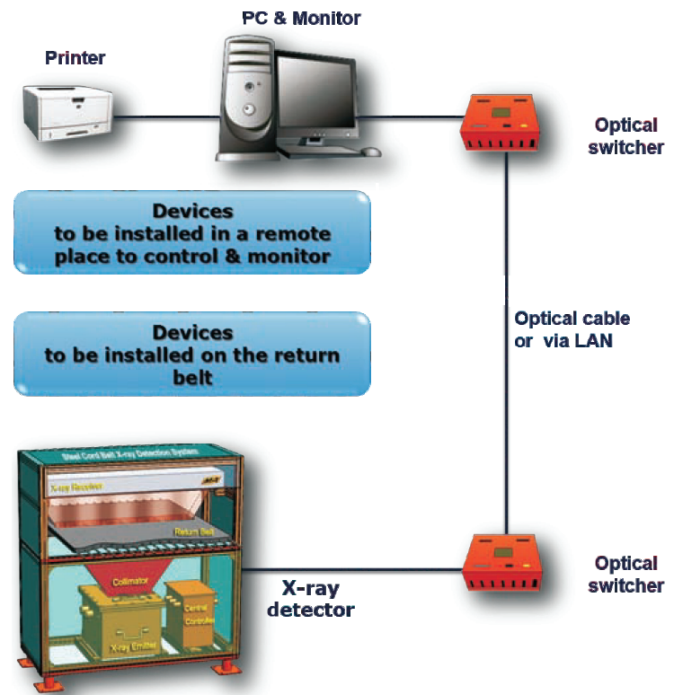
Moving belt is entirely motion captured and clearly displayed on the PC for high quality viewing. The software will automatically detect splices and cord damages and tell users where the problems exactly locate in the belt.



# Installation

The X-ray inspection system consists of:

1. X-ray emitter - explosive-proof grade:  
Emitting stable, high strength X-ray beams, ensuring the X-ray penetrates the belt and is absorbed by the receiver.
2. Intrinsically safe grade X-ray receiver:  
Collect, process, convert and output the X-ray signals passing through the belt.
3. Central control device - explosive-proof grade:  
Remotely control onsite detector devices, such as powering them on and off.
4. Computer System:  
Convert the X-ray signals into images, and analyze the images, diagnose problems, finally produce scanning report.

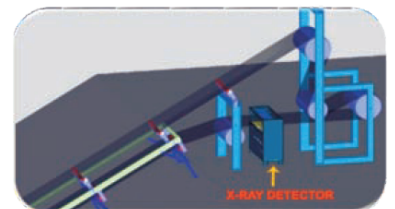


The above devices can be connected together via optical cable or via customer's LAN system. A typical connection is as shown in the figure above.

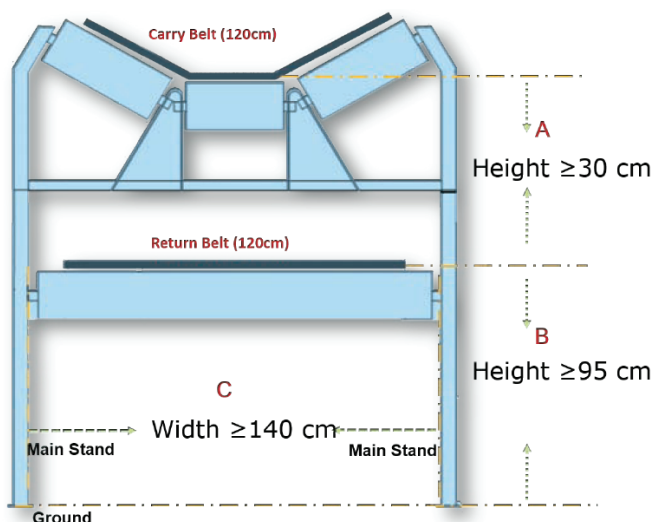
Installation is simple and quick. Requirements are minimal, which most belt systems can satisfy.

## 1. Space Requirements:

- A. Distance between return belt and carry belt;
- B. Distance between return belt and ground;
- C. Distance between main stands



Take a 120 cm wide conveyor belt as an example, our product can fit into the place as long as the three sizes are equal to or more than the minimal figures.



## 2. Site Conditions:

The place should be relatively flat on ground, and belting vibration, mistracking are minimal. A typical installation place is shown as above, close to the belt system head.

## 3. Communication & Power:

The installation site is accessible to power supply line (127V – 240 V); and fiber socket, or LAN socket for communication.



## Key Technical Index

Belt speed:  $\leq 8\text{m/s}$ ;

Belt width range : 800mm – 3200mm;

Belt thickness :  $\leq 60\text{mm}$ ;

Working temperature range :  $-30\text{ }^{\circ}\text{C} \sim 55\text{ }^{\circ}\text{C}$  ;

Working humidity :  $25\text{ }^{\circ}\text{C}$  95% non-condensing;

System power supply voltage: 110V/240V;

Working current:  $<3.0\text{A}$ ;

Minimum recognizable cord breakage: 0.8mm ;

Cord breakage detection accuracy rate:  $\geq 99\%^{*}$  ;

Splice detection accuracy rate:  $\geq 99\%$  ;

Real-time interval:  $<20\text{ms}$

Resolution:  $0.8\text{mm} \times 0.8\text{mm}$ ;

Signal transmission: via optical fiber cable or LAN;

Data transport protocol: The TCP / IP protocol;

Communication distance:  $\leq 120\text{KM}$

Computer operating system: Windows 7/XP

## Typical Installation Layout

