

# CONVEYOR DIAGNOSTICS



**EAGLE EYE™ ADVANCED / RIP RANGER™ / RESCAN™ 24/7**

## PROBLEM

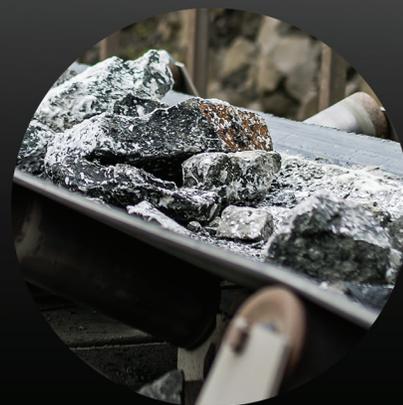
### Unplanned conveyor downtime

Conveyors don't break down all at once. Conveyors wear, fatigue, and degrade over time. While visual inspections are important, they do not always provide a true picture of the system and belting condition.

## SOLUTION

### Fenner Dunlop Conveyor Diagnostics

Fenner Dunlop offers a wide range of intelligent tools and advanced diagnostic services to assist in preventing poor productivity and costly unplanned shutdowns.



# Problem solving solution from Fenner Dunlop: Eagle Eye Advanced, Rip Ranger and Rescan 24/7.

Designed to extend the working life of your conveyor systems.

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## Be stable, be safe – get Fenner Dunlop Conveyor Diagnostics

Our goal is to extend the working life of your conveyor systems by providing safe, value-added and intelligent solutions through advanced monitoring systems, innovative inspection programs and superior service.

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# Fenner Dunlop Conveyor Diagnostics

**Is at the leading-edge of conveyor diagnostics with the latest breakthroughs in the industry. Say goodbye to premature belt wear and belt damage!**

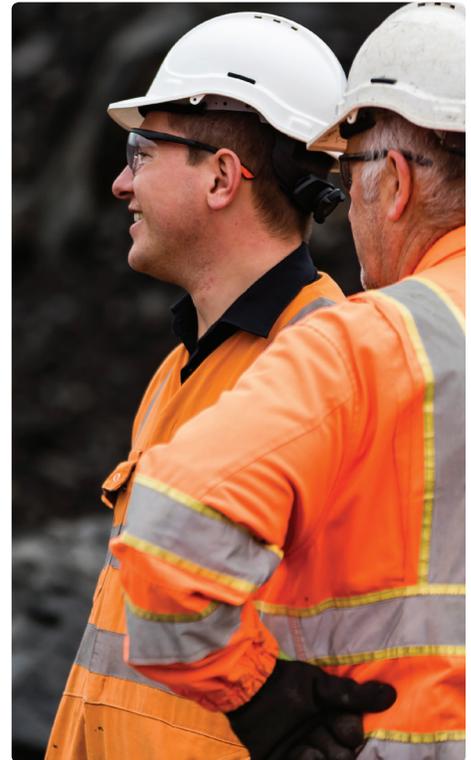
Manage your conveyor systems proactively with a powerful set of monitoring, diagnostics and troubleshooting tools from the Diagnostics experts at Fenner Dunlop.

If you are moving heavy loads, you also have a heavy capital investment in your conveying system. It's not just your money that is invested. Your whole operation is invested in that belt's continuous productivity. When it stops, you stop. Fenner Dunlop offers a set of belt monitoring and diagnostic tools to keep you fully aware of belt conditions, and alert

you to belt anomalies that could shorten belt life or result in work stoppages.

A world leader in providing Diagnostics solutions, Fenner Dunlop can provide the tools and services you need to monitor, manage, and maintain your conveyor systems. We have a wide range of advanced intelligent diagnostic tools and services that will flag trouble spots, predict replacement cycles, and prevent unplanned work stoppages in any operation.

**Fenner Dunlop World Class Conveyor Systems Diagnostics Products Eagle Eye Advanced, Rip Ranger and Rescan 24/7 are all designed to keep your conveyor system up and running.**



## DIAGNOSTICS FEATURES AND BENEFITS

- Extended belt life, reduced down time and improved productivity
- Around the clock protection
- Prevent hazardous belt failures before they occur
- Dedicated team of diagnostic engineers for support and service after the sale with a proven history of excellence.
- Periodic and 24/7 support contracts available to maintain your investment and protection
- Comprehensive system training for each product offering
- Extensive service offering including steel cord scanning with splice analysis, cover wear surveys, and X-rays to uncover hidden damage.
- All Diagnostic services are supported by our network of Fenner Dunlop Service centers.

## Fenner Dunlop

# EAGLE EYE™

# ADVANCED

### The leading-edge of conveyor diagnostics with the latest breakthrough in the industry.

Eagle Eye Advanced is the most state of the art combination steel cord condition monitoring and rip detection system available in the market. While the system provides proven 24/7 protection through seamless integration with the conveyor control, it also allows users on demand access to information about conveyor belt condition. Eagle Eye Advanced allows for the extraction of historical data to provide users insight on conveyor trends so predictive analytics can be a realization.

### Components:

Steel Cord Condition Monitoring Array with precise Encoder feedback, Magnetic Array, RF Sensors to analyze Inductive Loops embedded at set distances in the belting.

### Features & Benefits

- 24/7 protection with steel cord condition monitoring, splice analysis, and rip detection
- Advanced real time belt graphics to keep an eye on your investment with the ability to select multiple view points and zoom levels
- New multicore processing to couple technical belt data with an intuitive interface for simplified user interaction and experience
- Historical data collection for cradle-to-grave analysis
- Automatic reporting, extensive smart log messages and information filters
- Remote connectivity to other devices such as smart phones, tablets and control room computers
- User defined email and text message available

### Applications:

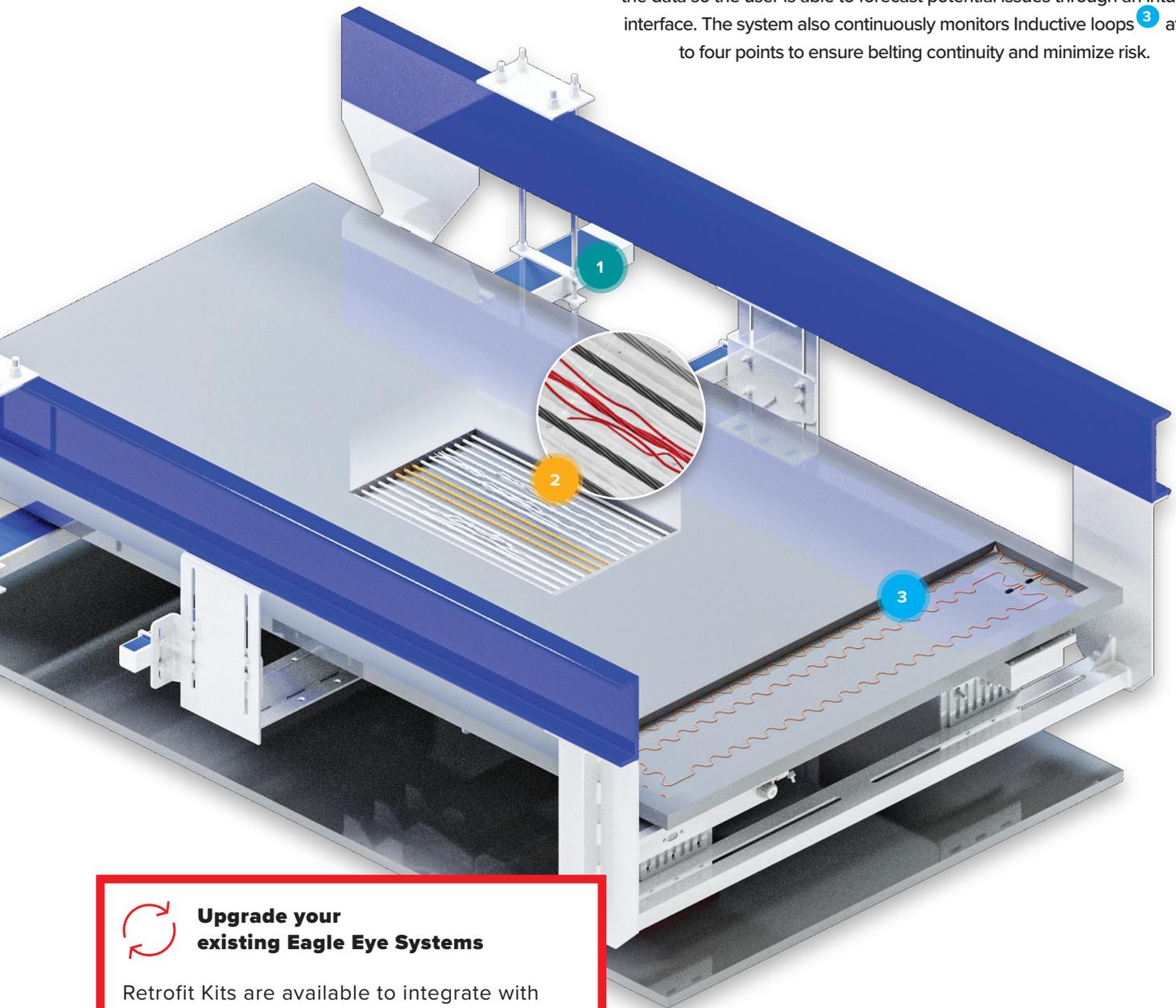
Any steel cord belting conveyor that requires minimal downtime and maximum productivity.

- Superior internal diagnostics for ease of system maintenance
- Proven Allen Bradley PLC processing for reliable conveyor protection and ease of conveyor control integration
- Multiple rip detection locations can be added to create up to four monitoring stations
- Custom engineered product to conveyor specifications manufactured in the USA at a certified Rockwell/Fenner Dunlop Facility
- Park events such as splices or damage events in specific locations along the conveyor for inspection or maintenance on demand or by schedule.



## HOW IT WORKS

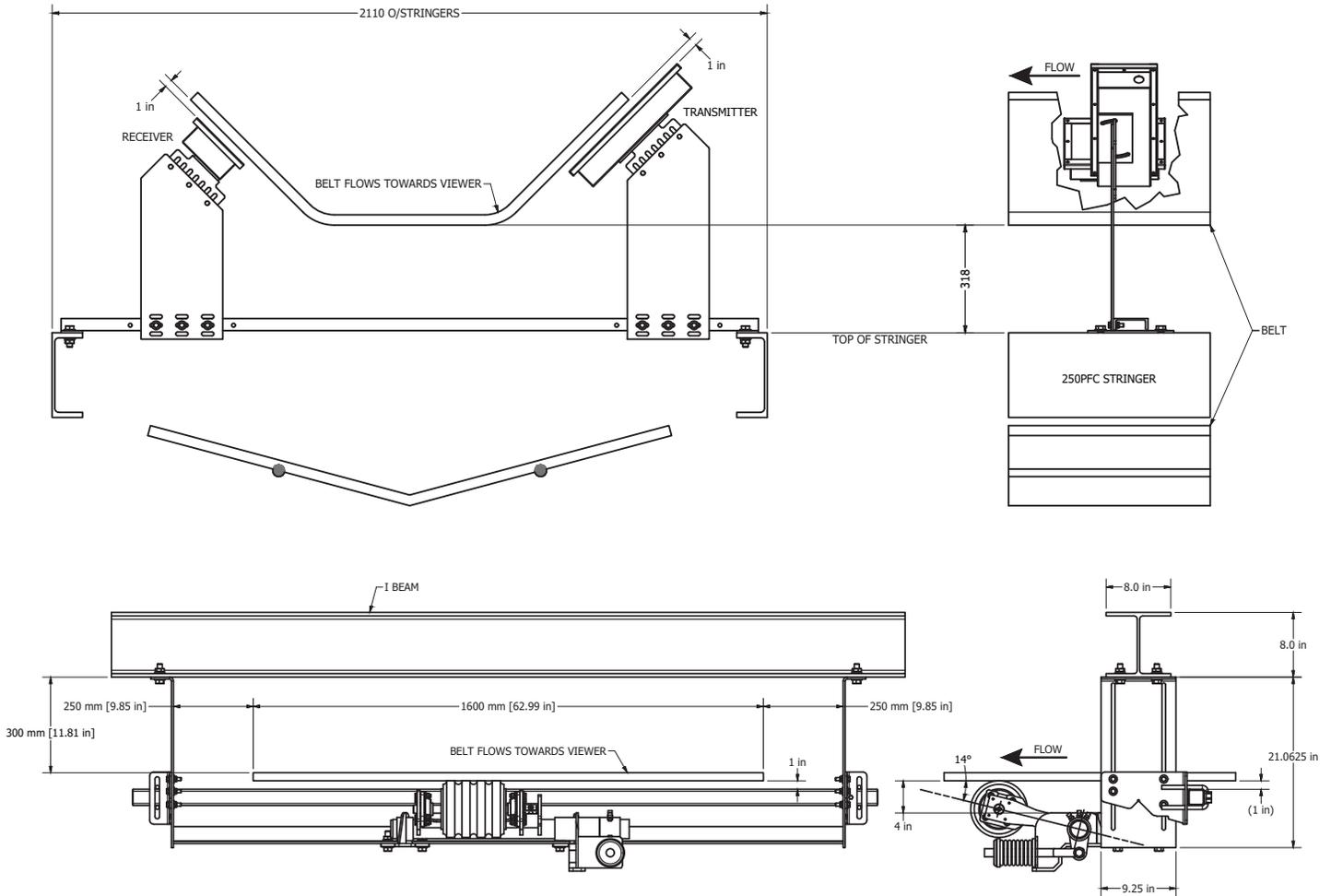
The system collects data from multiple sensors <sup>1</sup> to build a detailed map of events. Once the map of data is complete it continuously monitors each splice and steel cord damage <sup>2</sup> events for real time changes and trends the data so the user is able to forecast potential issues through an intuitive interface. The system also continuously monitors Inductive loops <sup>3</sup> at up to four points to ensure belting continuity and minimize risk.



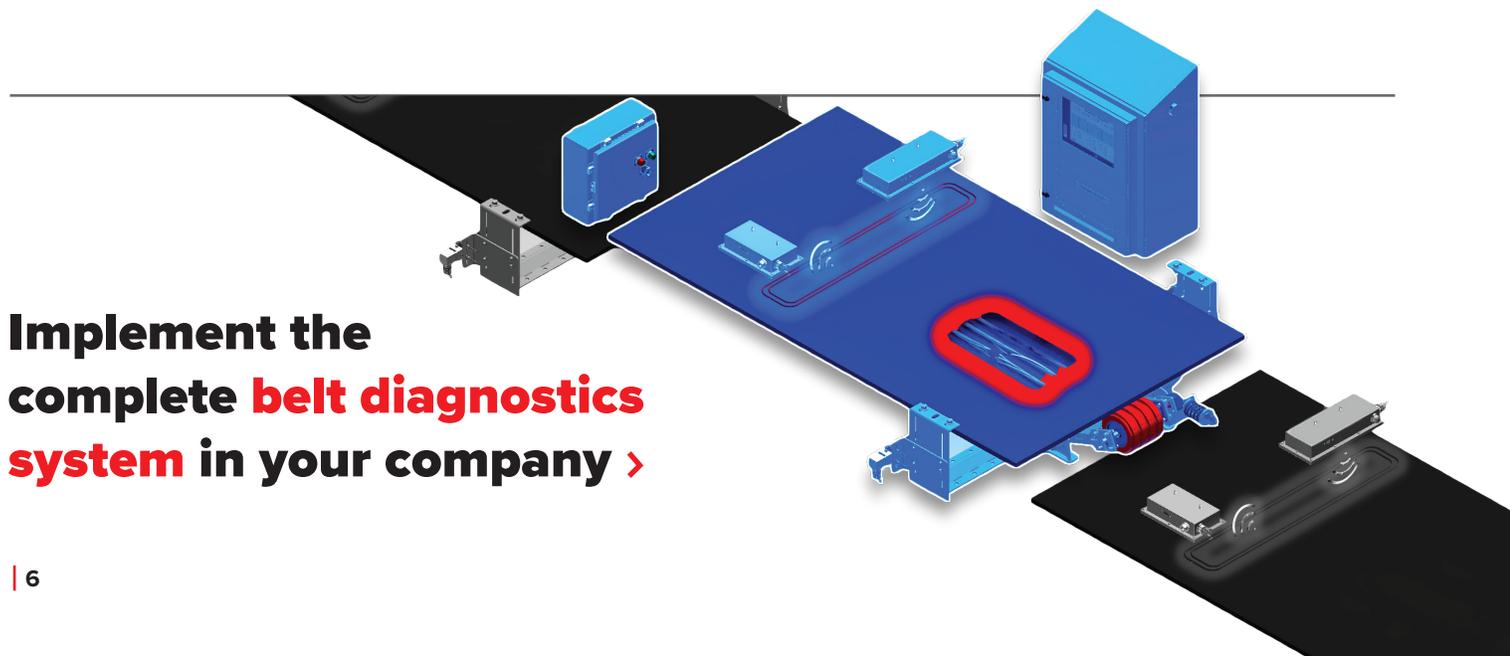
### Upgrade your existing Eagle Eye Systems

Retrofit Kits are available to integrate with your existing Eagle Eye technology. Any existing Eagle Eye can be upgraded to our next generation system.

## Blueprints and diagrams of Eagle Eye Advanced



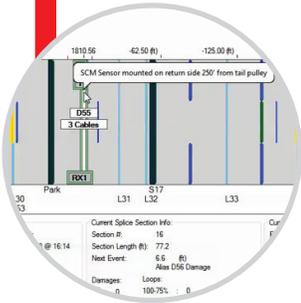
Roller required to maintain 300 mm belt spacing and to prevent belt movement in this area.



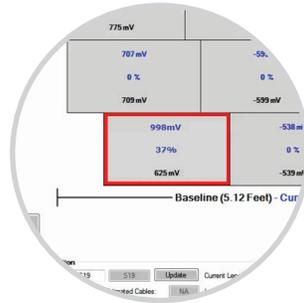
Implement the  
complete **belt diagnostics**  
system in your company >

## INTELLIGENCE AT YOUR FINGERTIPS

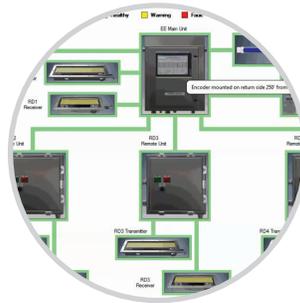
Eagle Eye Advanced makes it extremely easy to identify unexpected or developing belting problems quickly and pinpoint the failure area with precision. Also next generation internal diagnostics continuously monitors system hardware health and generates interactive troubleshooting steps to diagnose and resolve if a problem should occur.



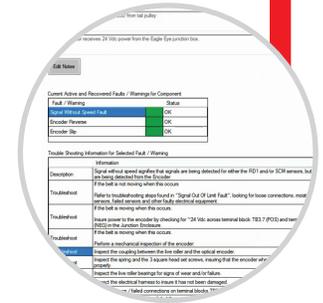
Splice, damage and rip detection events are actively tracked as the conveyor stops.



Splice anomalies are easily quantified and located within the splice grid display.



System Overview allows a quick look at the health status of the system and each sensor.



List of troubleshooting steps for each fault.



### New Interface

The new interface allows for additional processing power which enables Eagle Eye Advanced to collect, store and analyze historical data, and then provide improved performance trends as to how something might fail, helping you to have a more comprehensive understanding of the belt life. In addition, our new system offers increased connectivity, which can be accessed from any smart device including emails and a new texting feature.



Supporting access from mobile devices

## Join Satisfied Users

More than 100 companies use Fenner Dunlop's Belt Monitoring Systems. **Join them!**

“ One of the biggest wins for us purchasing the Eagle Eye system is the technical support we have received. The Fenner Dunlop group have been excellent to deal with.

GOLDCORP

“ I attended a two day training on the system that gave me a very good understanding of the system and how to use it. The Eagle Eye System is a great system that does what it advertises.

CONSOL ENERGY  
AMERICA'S ENERGY STARTS HERE.

# Fenner Dunlop RIP RANGER™

## Protect your operation with rip detection technology

A conveyor breakdown can often involve huge costs, both in terms of repairs as well as lost productivity. When belts have to be replaced because of accidental damage then the financial implications can be disastrous. Although incorporating rip stop breaker plies will reduce the risk, Fenner Dunlop's Rip Ranger 'incident alert' technology will significantly reduce the extent (and cost) of the damage by switching off the conveyor as soon as a rip is detected.

### Components:

Transmitter, Receiver, Proximity wheel and Inductive Loops embedded at set distances in the belting.

### Applications:

Any steel cord or fabric belting conveyor with risk of longitudinal rips.

### Features and Benefits

- Reads up to 1,000 loops per belt with real time loop diagnostics
- Helps keep belt repair and replacement costs to a minimum
- Can be interfaced with the Rescan belt monitoring system
- Detailed information viewable in real time
- Minimizes lost production with Automatic belt shut downs limiting the extent of potential damage
- Additional remote units are available to create up to four monitoring stations.





## HOW IT WORKS

When a signal is not received by the receiver because it has been interrupted (caused by a damaged detection loop for example) then the conveyor is immediately shut down in order to keep damage to a minimum. Having multiple detection locations is especially advisable on particularly long individual conveyor belts in order to provide the earliest possible warning. The simple equation is that the faster the conveyor belt is stopped then the shorter the length of longitudinal rip damage will be.

-  **ALERT**
-  **WARNING**
-  **OK**

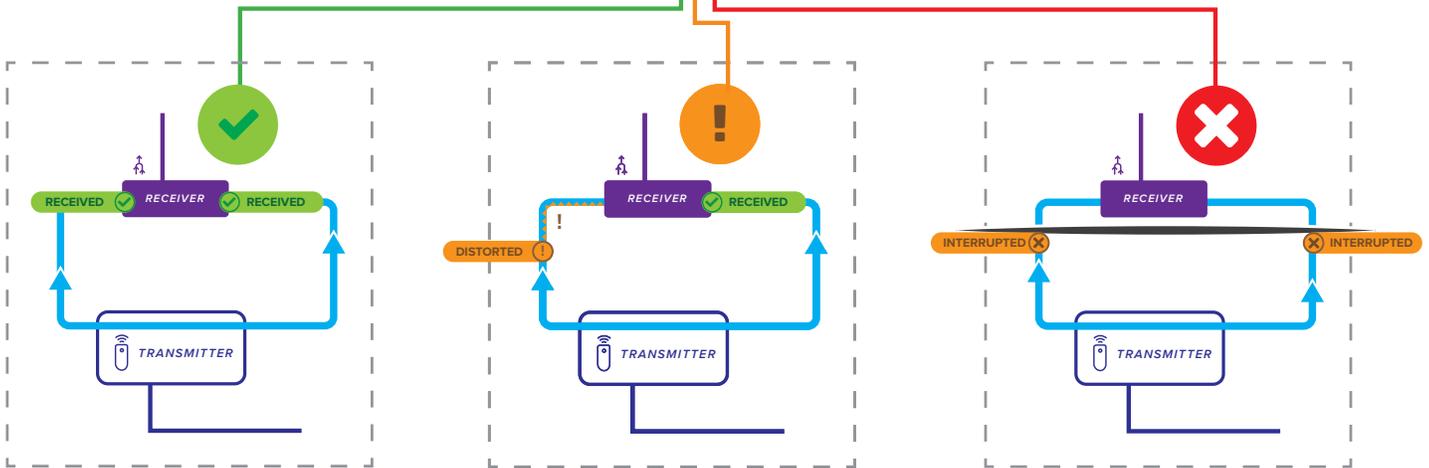
### KEY TECHNICAL DATA

The Rip Ranger System specifications are designed for conveyors operating above ground. Systems for use with underground conveyors can be individually built to meet specific local requirements.

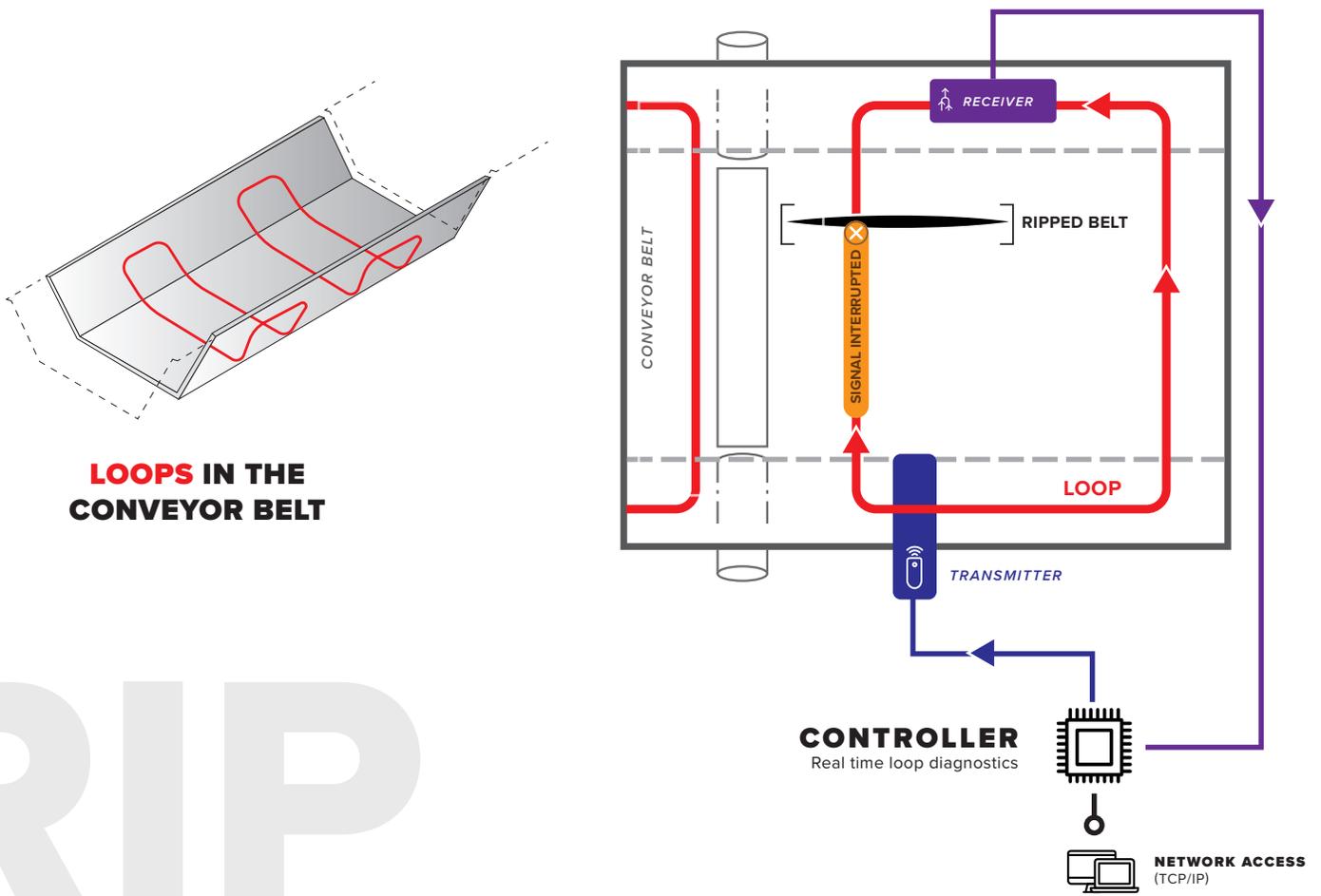
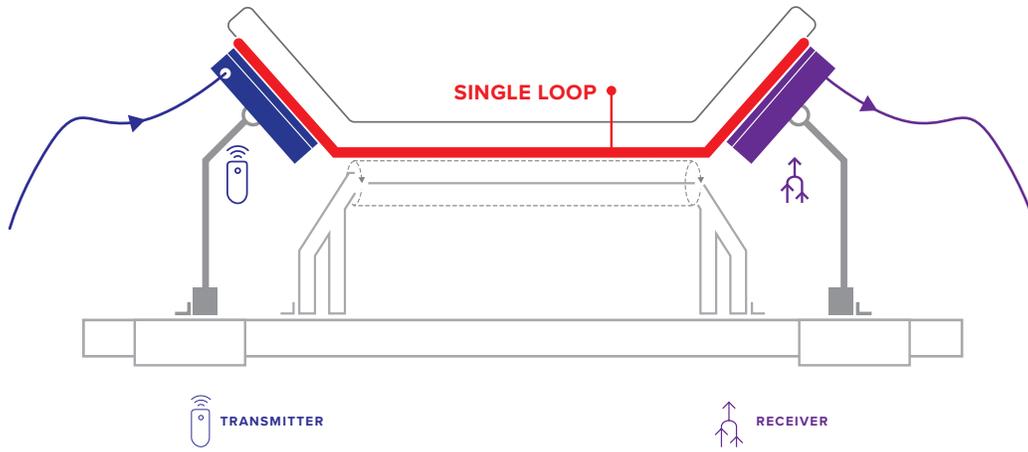
**Belt Speed:** up to 7m/sec

**Belt Thickness:** minimum 6 mm cover thickness – pulley cover preferred

**Belt Type:** Steelcord and Fabric



## Blueprints and diagrams of Rip Ranger



**LOOPS IN THE CONVEYOR BELT**

**CONTROLLER**  
Real time loop diagnostics



**NETWORK ACCESS**  
(TCP/IP)

# RIP RANGER

RESTORE POINT  
FIELD FLOW CT  
P-34.34-3

# Fenner Dunlop rEscan™ 24/7

**rEscan 24/7 provides advanced monitoring systems and services for early detection of cord breaks, cord corrosion, and splice failures.**

Scanning continuously on fixed or variable speed belts, rEscan 24/7 will alert you the moment any significant cord or splice damage is detected. Our processing computer allows you to stop the system at any location along the conveyor.

rEscan 24/7 also offers a Splice Monitoring System (SMS) for fabric belting. By measuring splice elongations, the SMS can predict and prevent splice failure. The SMS system reads the position of small targets embedded at set distances around each splice, allowing constant monitoring of splice conditions.

## Components:

Steel Cord Condition Monitoring  
Array with precise Encoder feedback,  
Magnetic Array.

## Applications:

Any Steel cord belting conveyor that requires  
continuous condition monitoring to mitigate risk.

## Features and Benefits

- Continuous interrogation for belt integrity
- Detailed condition reports, automatically or on demand
- Programmed reporting available with detailed belt map, splice condition, anomalies or damage events, belt cycles and setting changes automatically reported
- Options for system alarm, email notification of automatic stoppage
- Park any event or splice in a pre-set maintenance window, reducing downtime and better facilitating quick belt repair
- Integrates into many existing rip detection systems

## HOW IT WORKS

A magnetic array will magnetize the entirety of the conveyor belt. A Steel Cord Condition Monitoring Array will read Magnetic Flux Leakage of damage events and splices, create a graphic profile of the belt's original condition and continuously measure changes that may require action. Data gathered is also available through the detailed reports that can be sent to you as frequently as you – or changing conditions – require.



## Tough Belts for Tough Applications

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Fenner Dunlop strives to be the premier provider of the safest and most complete conveyor systems and services to the mining and industrial sectors, including belt manufacturing and system engineering. Through strategic acquisitions and investments, and a strong management and financial discipline, the company is well positioned to help customers grow over the long haul. Today, within our 150 years of proven belting manufacturing experience, Fenner Dunlop Americas brings more than 70 years of service solutions and 20 years of belt conveyor system engineering.



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