

# LSRS

## LOOP SENSING RECEIVER **with** SMARTWIRE

Conventional rip detection systems for conveyor belts use copper wire loops that, when damaged, fail to send an electromagnetic signal that results in the conveyor being stopped for a rip event. These old legacy systems are prone to many intermittent and false alerts, which makes it hard to know if there is a real problem with the belt or the issue is just a damaged sensor. Additionally, because of all the problems they cause, many legacy loops are inactivated, leaving long sections of the belt unprotected and making it more difficult to narrow down the area with the damage.

Each one of these loops and sensors typically cover multiple square feet/meters of the belt section resulting in large areas of repairs when replaced. During the replacement of old loops, as the area exposed is larger, moisture ingress might cause further damage to the original belting in the long term in such a way that the belt can be rendered irrecoverable.

The EMSYS LSRS units scan a larger area than competitor systems and transmit and receive signals that can be utilized to monitor both traditional loops and the EMSYS SmartWire technology with the same device. This unique value added enables the user to scan older belts that may still have working sensors as well as having the freedom to replace all broken or problematic copper-wire loops with SmartWires. Furthermore, SmartWires take up a

much narrower surface area, allowing them to be installed in approximately one hour, while offering the best protection.

SmartWires are installed across the width of the belt at a 2-inch (5 centimeters) distance from both edges and are usually placed every 50-200 feet (15-60 meters) apart. SmartWires can be embedded during the belt manufacturing process or retrofitted into existing belts. Our LSRS Retrofit Kit provides a hot-blade skiver, control box and a narrow vulcanizer to facilitate pre-laminated SmartWires being installed in approximately one hour each.

SmartWires are flexible and more impervious to belt impacts due to their innovative design and strong materials: a Kevlar based cable attached to breaker fabric to ensure its performance even in the toughest applications and making it completely compatible with all types of belts. Through a principle called "energy harvesting", the two RFID tags communicate with each other to determine belt rips. This reliability and the digital signal provide more dependable and precise data that can be analyzed faster and easier afterwards.

Monitoring by the belt rip detection system can be done via the included control cabinet, utilizing hard-wired relay communication, or via our internal Modbus registers. The LSRS also includes Almex Connect connectivity for remote assistance and troubleshooting support from Almex technicians.

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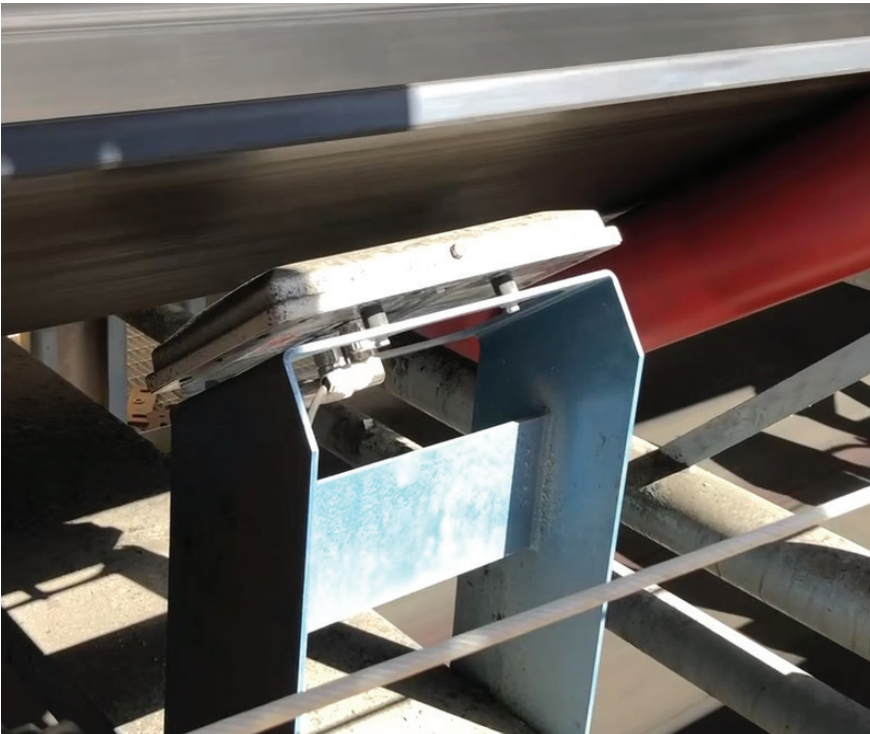
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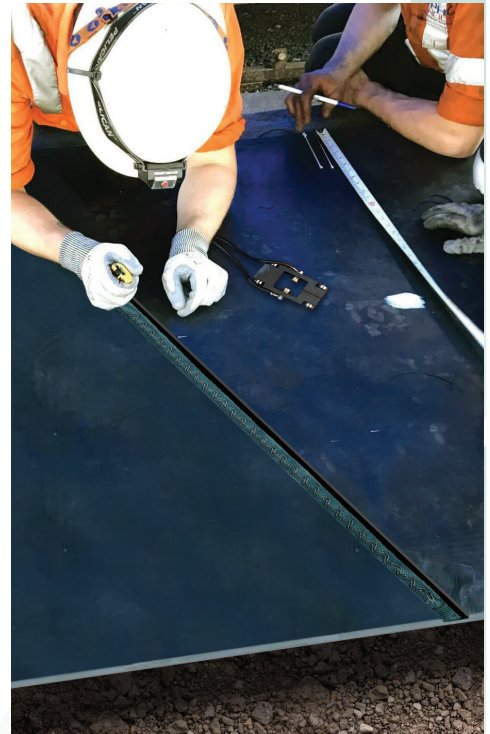
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LSRS Sensor actively scanning belt.



EMSYS SmartWire being installed.



EMSYS LSRS Transmitter and Receiver

## LOOP SENSING RECEIVER **with** SMARTWIRE

### FEATURES:

**DATA SCANNING:** The transmitter and receiver scan every SmartWire and inductive loop within the conveyor belt.

**COMMUNICATION:** Monitoring can occur through Modbus communication and contact relays.

**SMARTWIRE:** Narrow RFID sensors embedded in the belt, made of compatible and durable materials, that take up only a fraction of space compared to traditional copper loops, and determine belt rips much more accurately.

**UNIVERSAL COMPATIBILITY:** The EMSYS LSRS system is compatible with, and able to read, existing loops of most major belt manufacturers.

**RETROFITTING:** Existing belts, with or without broken sensors, can be retrofitted with SmartWires and the LSRS system quickly and in a more cost-effective manner than other rip monitoring solutions based on loops. A SmartWire can be inserted and ready for use in approximately 1 hour.

**LOOP SURFACE COVERAGE:** The LSRS digital transmitter and receiver can read a greater surface area of the loop due to our state-of-the-art RFID technology coupled with the highly effective digital signals. This larger scanned area helps loop readability and prevent false positives, even in the harshest environments.

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