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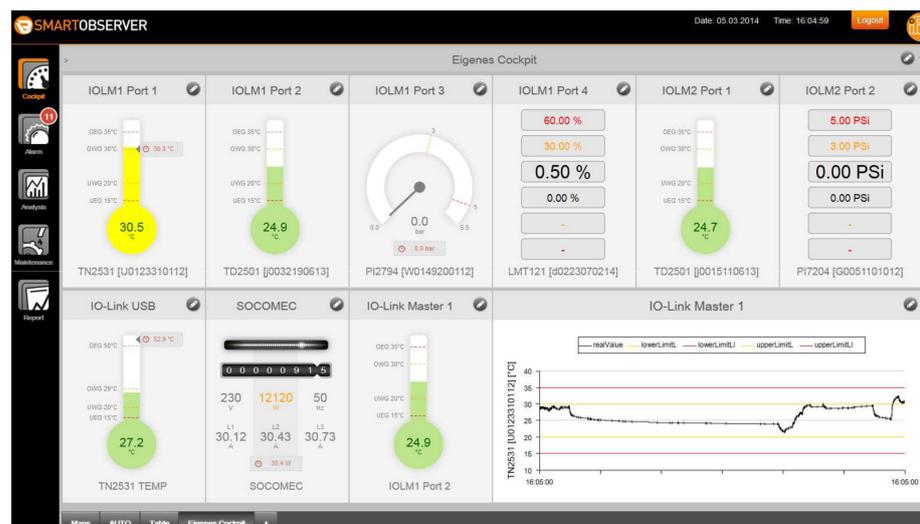
# MONITORING BROCHURE

## MONITORING CONVEYOR BELTS TO OPTIMISE MINE OPERATIONS

Poor outdoor connectivity, legacy equipment, mine location and the harshness of the terrain are just a few of the stumbling blocks preventing mines from operating optimally. SS Telecoms (SST) offers a bespoke mobile wireless solution that addresses these pain-points to provide increased productivity and optimisation of business operations.

### Monitoring a conveyor belt provides the following benefits:

- Protects against accidents with people and machinery via local and remote safety monitoring.
- Reduces complex and expensive wiring with controls and safety networking.
- Ensures optimal product transportation monitoring speed and blockage, as well as belt misalignment.



### END TO END MONITORING SOLUTION

SS Telecoms creates a network and connects all the devices required to monitor conveyor belts on mines. The mine control room is equipped with a condition monitoring app that feeds data on each device back to the mine's monitoring platform for real-time viewing of each working element of the conveyor belt.

### The various devices within the system provide:

- Condition monitoring of bearings
- Rip and tear detection on the belt
- Integration with fire suppression systems - when a fire is detected, it activates an alarm and indicates to the control room in which section the fire alarm was activated for prompt response.

## These devices include:

- **Control unit** – for reliable vibration monitoring including imbalance, rolling element bearing or gear state
- **Vibration sensor** – for vibration detection
- **Temperature sensors** – provides precise temperature measurement on conveyor surfaces
- **Connection cables** – these have a high protection rating for the requirements of harsh industrial environments and are vibration- and shock-resistant
- **Rip and tear controller** – provides reliable transmission of machine data, process parameters and diagnostic data to the controller
- **Rip and tear sensor** – for reliable belt rip and tear detection to protect the conveyor system from damage or destruction
- **Long-range infrared sensors** in a robust housing for use in harsh industrial environments.

## PROACTIVE APPROACH = REDUCED MAINTENANCE COSTS & DOWNTIME

The condition monitoring app is the brain behind the whole monitoring system. It derives data from each of the monitoring devices and an intuitive dashboard provides an overview of the entire site. When users log into a specific field device, they are provided with data on the readings for that specific section of the conveyor belt.

The ability to digitise the complete monitoring of the conveyor belt provides mines with the necessary Industrial Internet of Things (IIoT) tool to relay proactive alarms. This replaces traditional reactive maintenance with predictive maintenance which translates into minimal downtime, since operators are alerted in advance when a component – such as a bearing – is deteriorating. In this instance replacement bearings can be on hand to allow immediate replacement of worn or damaged components before the conveyor becomes inoperable.

## The app provides:

- Continuous condition monitoring via communication with intelligent sensors for data analysis
- Deposit limits
- Visualisation and analysis with trend displays for:
  - Vibration
  - Alarm management
  - Maintenance management
- Energy monitoring through visualisation and analysis with trend display for:
  - Pressure
  - Flow
  - Temperature
  - Current
  - Number of revolutions
  - Deposit limits
  - Alarm management
  - Maintenance management.

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