

Conveyor Belt Predictive Monitoring and Improvement of Patrol Inspection Efficiency

Wide Area Monitoring System

Are you having any problems like this?

Equipment Conveyor Belt

Problems Preparation for sudden breakdowns and extensive patrolling inspections



► The following issues arise when operating a conveyor belt.

- Transport defects due to the belt meandering or breaking
- Fire due to bearing temperature rise
- Conveyor stoppage due to drive unit failure

Because belt stoppage significantly impacts operations, it is desirable to prevent sudden failures in these areas.

► The scope of the patrol inspections is extensive, which is a major burden.



Easy to start using! Wide Area Monitoring System solves remote monitoring issues



Facilities that exist in a wide area can be integrated and managed through remote monitoring.

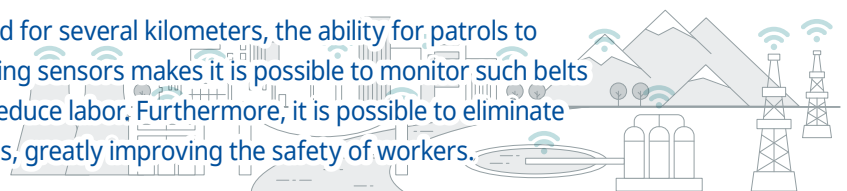
The cloud can be used to reduce time and costs, and to efficiently build monitoring systems.



Value through problem solving

✓ Vibration sensors installed in areas that are often overlooked or difficult to access during routine inspections monitor vibration trends to detect signs of conveyor malfunctions, and maintenance and replacement can be performed before malfunctions occur to prevent sudden failures and minimize downtime.

✓ Because conveyor belts extend for several kilometers, the ability for patrols to inspect them is limited. Installing sensors makes it possible to monitor such belts and other wide areas and to reduce labor. Furthermore, it is possible to eliminate inspections in dangerous areas, greatly improving the safety of workers.



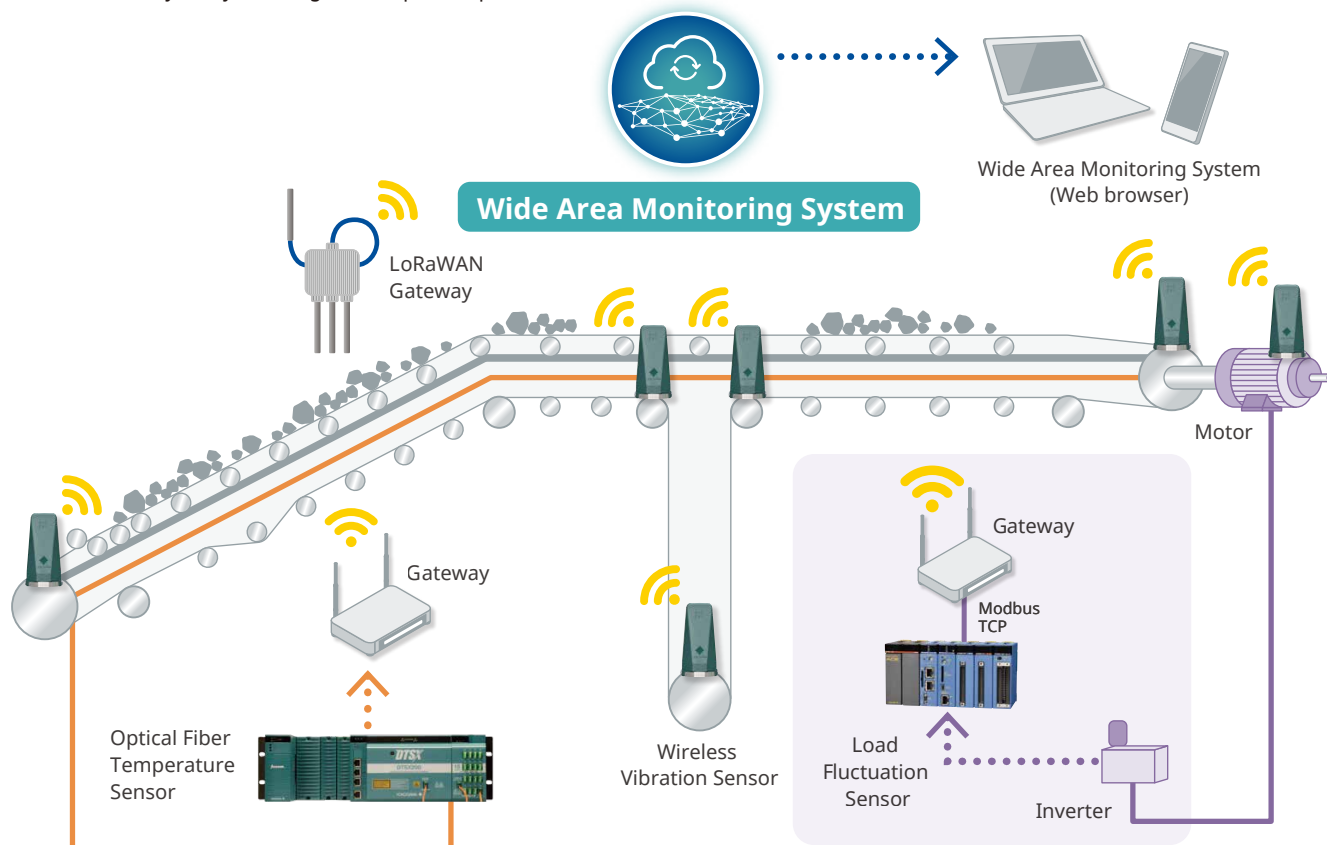
Proposed System Configuration

The wireless vibration sensor has the advantage that it can be easily installed and replaced without the need for wiring on widely distributed belt conveyors. And by attaching it to the location where a problem has occurred, such as the drive motor, pulley bearing, or frame, it is possible to efficiently monitor the operating status of the belt conveyor.

In addition, by installing the wireless vibration sensor on multiple belt conveyors and monitoring vibration trends in the cloud, it is possible to detect signs of problems.

The data collected in the cloud can be monitored on a PC or tablet, etc. and when the set threshold is exceeded, an alert email can be sent to the person in charge at the site.

For conveyors of high importance, by adding a load fluctuation sensor that can monitor the load on the belt drive and other components, it is possible to accurately detect fluctuations in the load on the motor in terms of current values. In addition, it is possible to monitor for signs of a fire on belt conveyors by installing a fiber optic temperature sensor.



▶ Devices

Category	Product	Notes
Cloud	Wide Area Monitoring System	Data acquisition interval: 5 min. or more, 50 measured data
Communication	Wireless Communication Connection License	
Comm. devices/data acquisition	LoRaWAN Gateway, Gateway	
Sensor	Wireless Vibration Sensor	
	Load Fluctuation Sensor	
	Fiber Optic Temperature Sensor	For wood chip transportation

► Industries Production of raw materials for ironmaking, Thermal power generation, Biomass power generation, and Pulp and Paper

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