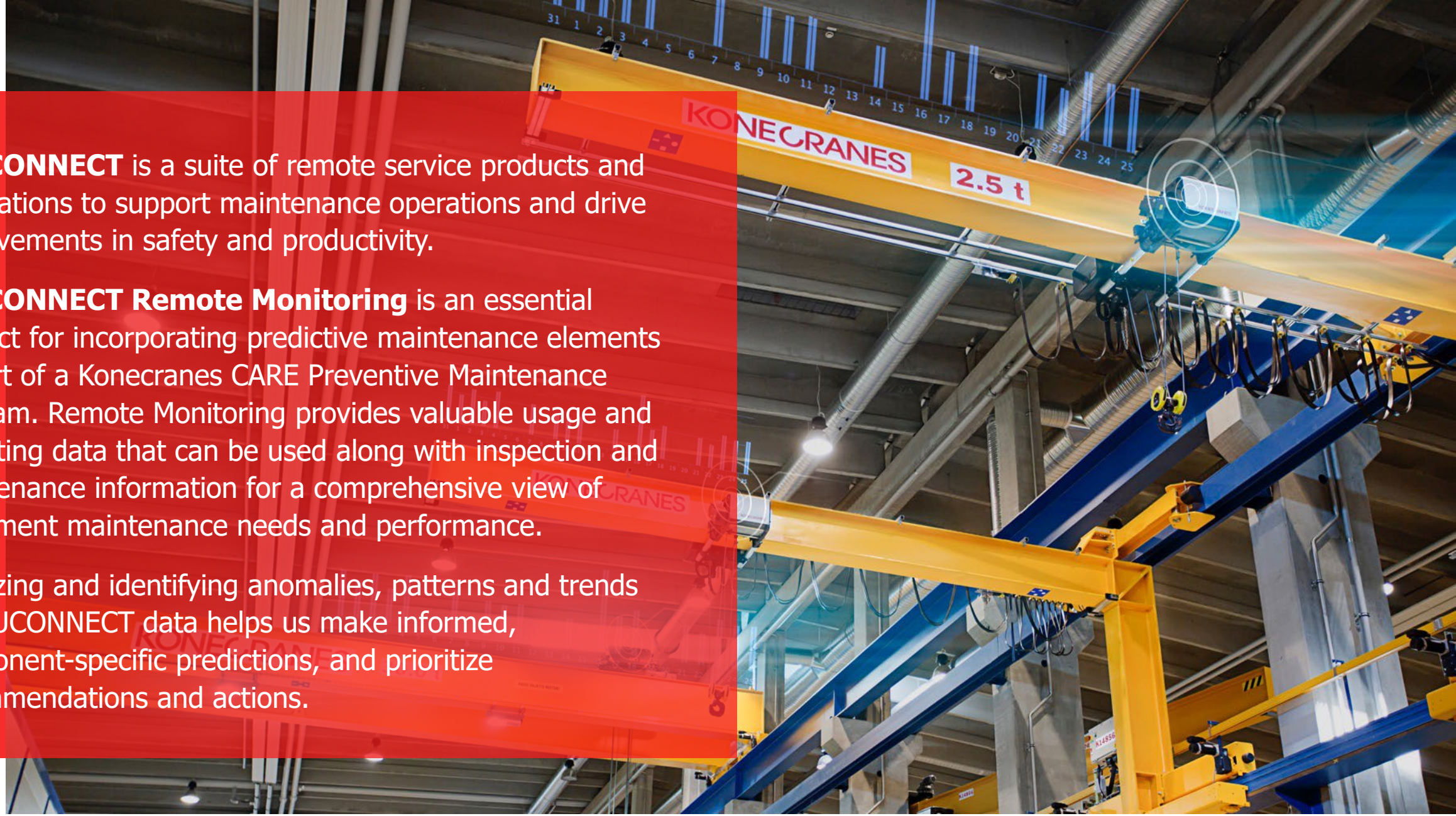
KONECRANES®
Lifting Businesses™

TRUCONNECT® Remote Service

INFORMATION SECURITY MANAGEMENT SYSTEM
DNV
ISO/IEC 27001



TRUCONNECT is a suite of remote service products and applications to support maintenance operations and drive improvements in safety and productivity.

TRUCONNECT Remote Monitoring is an essential product for incorporating predictive maintenance elements as part of a Konecranes CARE Preventive Maintenance program. Remote Monitoring provides valuable usage and operating data that can be used along with inspection and maintenance information for a comprehensive view of equipment maintenance needs and performance.

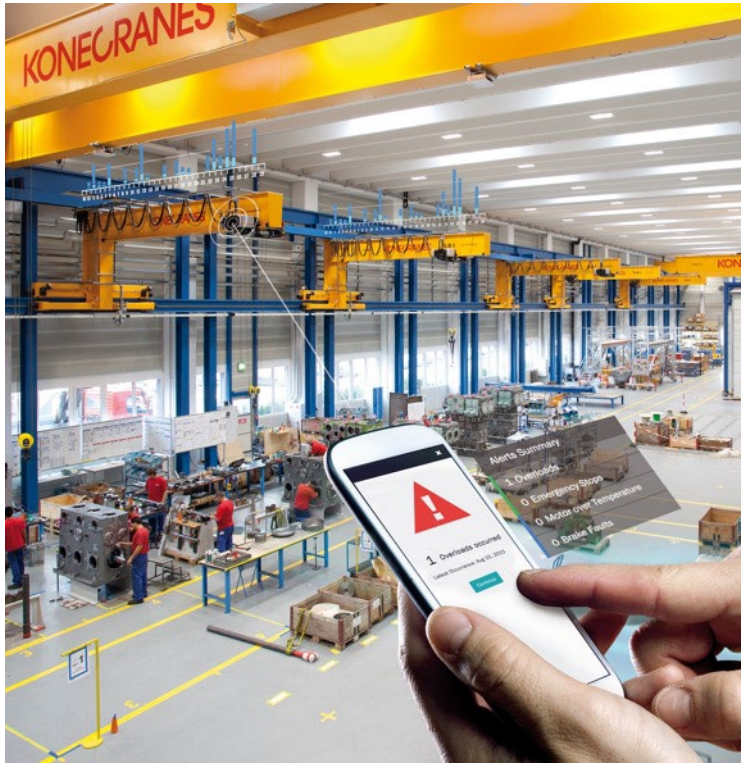
Analyzing and identifying anomalies, patterns and trends in TRUCONNECT data helps us make informed, component-specific predictions, and prioritize recommendations and actions.

TRUCONNECT Remote Monitoring

TRUCONNECT Remote Monitoring collects condition, usage and operating data from control systems and sensors on an asset and provides alerts of certain anomalies. Remote Monitoring data is used in maintenance planning and in predicting possible component or equipment failure.

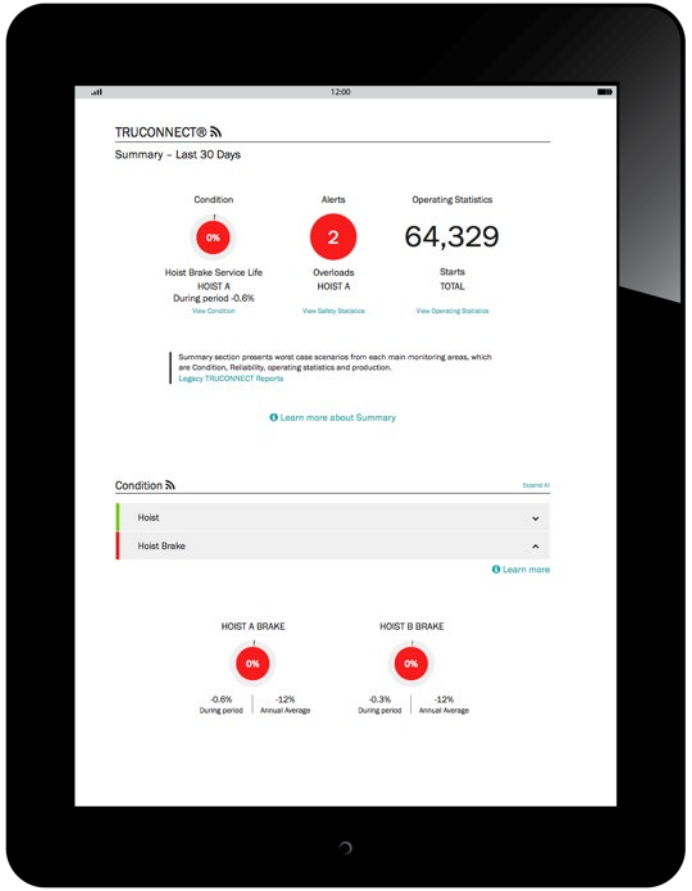
TRUCONNECT Remote Monitoring benefits

- Supports predictive maintenance
- Maintenance actions can be planned based on estimated component condition – i.e., estimated remaining life
- Provides knowledge of the remaining design working period (DWP) and remaining service life of selected components such as hoist, brakes, structures and contactors
- Provides asset usage and operating information that is used to assess crane condition and safety
- Notifies you of brake service life, hoist overloads, emergency-stops and over-temperature occurrences through text or email alerts, allowing for prompt response



Remote Monitoring data on yourKONECRANES.com

- Safety-related occurrences, such as brake service life, over-temperatures, attempted overloads and emergency stops
- Pareto analysis of critical alerts and faults
- Operating statistics, such as load spectrum, monitoring of hoist jogging, overloads, emergency stops, work cycles and running hours
- Estimates of remaining Design Working Period (DWP) of selected components, such as the hoist, hoist brake, contactors and trolley (SMARTON)



KONECRANES®

TRUCONNECT Brake Monitoring

The hoist brake is one of the most critical load wearing components in a crane. In heavily used cranes the service lifetime of brake wearing parts may end sooner than expected. Knowing current brake condition and estimates of remaining service life is a valuable safety improvement.

TRUCONNECT Brake Monitoring is a condition monitoring device available for electromagnetic disk brakes which monitors the brake control signal and opening current. The data—made available on yourKONECRANES—provides brake air gap condition and estimated service life and alerts are sent via email.

TRUCONNECT Brake Monitoring benefits

- Provides visibility to brake condition between normal inspection visits
- Helps minimize the risk of load drop with the detection of brake faults
- Helps you avoid unnecessary brake disassembly for inspection
- Enables predictive brake maintenance
- Assists in further optimization of maintenance activities to reduce unplanned downtime and to improve equipment safety, productivity and lifecycle value

For new cranes or as a retrofit

TRUCONNECT Brake Monitoring comes standard in new PLC-controlled SMARTON cranes. Brake Monitoring can also be added as a retrofit to CXT, selected S-series hoists, UNITON and SMARTON hoist brakes if equipped with electromagnetic disk brakes.

NEW CRANES

PLC-controlled SMARTON

RETROFIT

CXT & S-series
(selected S-series hoists)

RETROFIT

UNITON and SMARTON

TRUCONNECT Brake Monitoring

Data on yourKONECRANES

TRUCONNECT data is viewed on the yourKONECRANES customer portal. Regular reviews of the data can alert you to problems with your cranes before they give way to critical issues that can impair safety and performance, helping you plan and leaving less room for surprises. Analyzing TRUCONNECT data can also help you develop an operational baseline and identify opportunities for maintenance and process improvements.

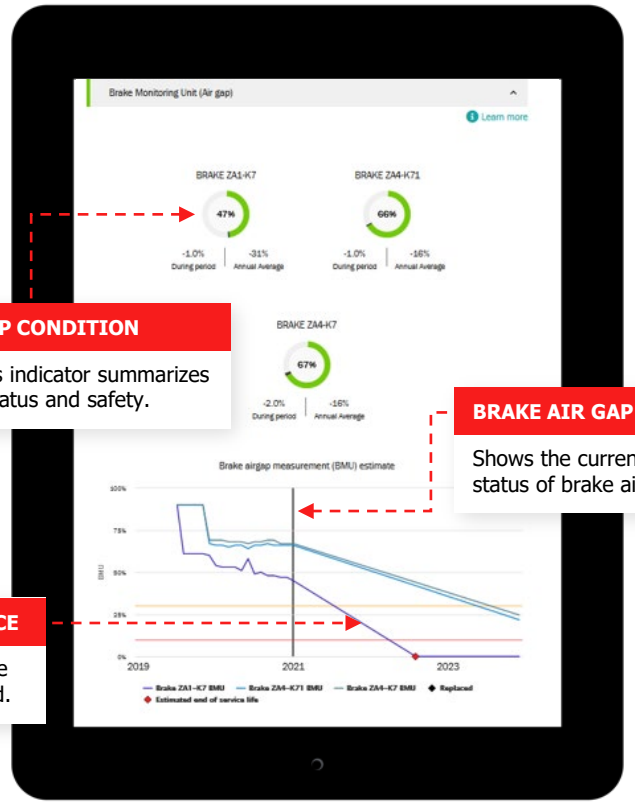
FAULTS / ALERTS

Activity view shows alerts and faults with detailed descriptions and recommended maintenance actions.

FAULT TYPES

Brake cannot open (mechanical failure)
Brake cannot open (electrical failure)
Brake cannot close (electrical failure)
Brake boost failure
Brake wear failure limit exceeded

BRAKE MONITORING



BRAKE AIR GAP CONDITION

Real time status indicator summarizes brake air gap status and safety.

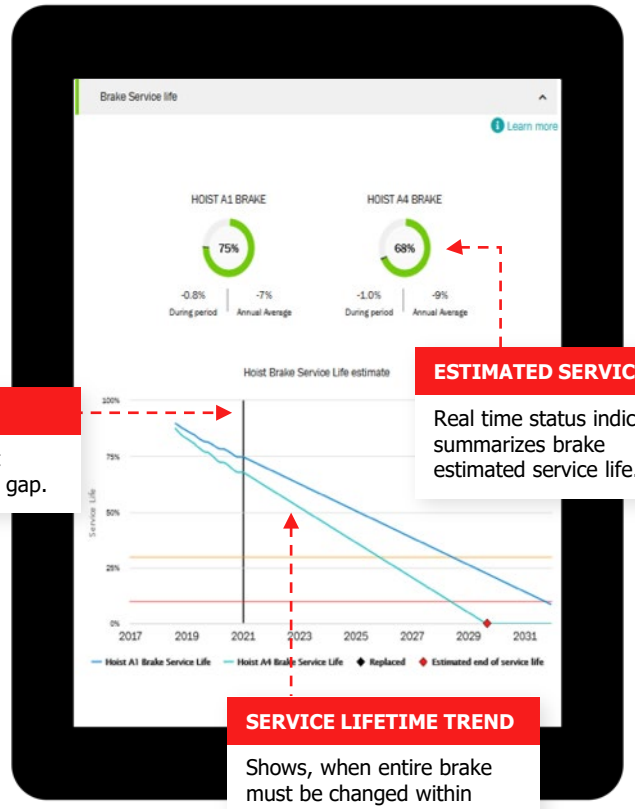
BRAKE AIR GAP

Shows the current status of brake air gap.

BRAKE MAINTENANCE

Check when next brake maintenance is needed.

BRAKE SERVICE LIFE



ESTIMATED SERVICE LIFE

Real time status indicator summarizes brake estimated service life.

SERVICE LIFETIME TREND

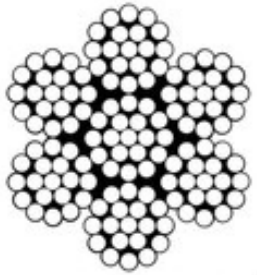
Shows, when entire brake must be changed within safety margin.

TRUCONNECT Wire Rope Monitoring

TRUCONNECT Wire Rope Monitoring is designed to provide real-time insight into the condition of a wire rope. It reveals both visible exterior defects as well as internal defects that are not detectable with a visual inspection. Specialized and patented sensors continuously monitor the wire rope while the crane is in normal operation and alerts via text or email occur when rope condition deteriorates below set limits.

TRUCONNECT Wire Rope Monitoring benefits

- Know the condition of your wire ropes in an instant and at any time
- Helps you discover defects that are not visible in periodic inspections
- Assists in reducing the risk of load drop and other safety risks related to wire ropes
- No shutdown needed to inspect rope condition
- Offers potential to optimize rope change intervals – plan ahead to have the wire rope replaced during a planned shutdown
- Less expensive than regular NDT tests
- Rope safety can be monitored remotely without interrupting crane operations



Wire Rope Monitoring data on yourKONECRANES.com

- Current condition of wire ropes (traffic light indicators)

  (Green) Number of detected broken wires (loss of material) below the warning limit. No further actions needed.

  (Orange) Number of detected broken wires above the warning limit, but below the discard limit. Increased safety risk. Prepare for upcoming rope replacement.

  (Red) Discard limit of detected broken wires exceeded: Very high safety and/or load drop risk. **REPLACE WIRE ROPE IMMEDIATELY.**
- Detailed view to locate defect areas
- Trend view to see development of defects

TRUCONNECT Remote Support

TRUCONNECT Remote Support provides 24/7 access to a global network of crane experts and specialists, offering problem solving and troubleshooting to help reduce unplanned downtime. In controlled circumstances, two-way communication with the machines and their operators can be established to expedite corrective action. Remote Support is ideally suited for extremely remote locations.

TRUCONNECT Remote Support benefits

- Short lead time to begin troubleshooting helps minimize downtime
- Troubleshooting for problems that require high-level technical expertise
- Quick response support for even extremely remote locations
- Support 24/7 from one easy point of contact, available by phone
- Helps identify the need for corrective on-site maintenance actions and spare parts which may eliminate unnecessary site visit

TRUCONNECT data security

TRUCONNECT and yourKONECRANES have been awarded ISO/IEC 27001:2013 certification for information security management. The ISO/IEC 27001 certificate demonstrates a commitment to proactively manage the information security of Konecranes digital services and ensure compliance with legal and customer requirements.

NOT JUST LIFTING THINGS, BUT ENTIRE BUSINESSES

Learn more at konecranes.com