

USE CASE

Elevator and Escalator Reliability

edgeRX™ by TDK SenseI | Predictive Maintenance using Edge AI

OVERVIEW

Elevators and escalators are mission-critical systems in commercial buildings, airports, hospitals, and transit hubs. Their reliability directly impacts occupant safety, convenience, and operational continuity. TDK SenseI's edgeRX™ enables predictive maintenance by continuously monitoring equipment health using edge sensors and AI analytics, helping operators detect issues early and maintain smooth, uninterrupted operation.

PROBLEM

Elevators and escalators operate continuously with complex mechanical and electromechanical components such as motors, gearboxes, pulleys, brakes, and drive systems.

Key challenges include:

Unexpected breakdowns causing service interruptions and user inconvenience

Safety risks associated with sudden equipment failure

High maintenance costs due to emergency repairs and downtime

Limited visibility into real-time equipment performance across distributed assets

Difficulty detecting early-stage issues such as vibration anomalies or overheating

EXPECTED OUTCOMES

By deploying edgeRX™ on elevators and escalators, building operators and facility managers can transition to a proactive maintenance strategy that improves reliability and user experience.

Expected benefits include:

Reduced downtime through early fault detection in motors and drive systems

Improved safety and reliability with continuous monitoring and timely intervention

Lower maintenance costs by reducing emergency repairs and optimizing service schedules

Enhanced asset lifespan through proactive maintenance and reduced mechanical stress

SOLUTION

TDK SenseI's edgeRX™ provides a complete machine health monitoring platform with integrated sensors, edge processing, connectivity, and analytics. It enables real-time monitoring of elevators and escalators, especially key components such as motors, gearboxes, and drive systems.

How edgeRX™ improves elevator and escalator reliability:

Continuous monitoring: Sensors capture vibration and temperature data from motors, gearboxes, and moving components

Edge AI analytics: Local data processing enables fast detection of anomalies and reduces latency

Predictive insights: ML models identify patterns indicating wear, imbalance, or potential failure

Actionable alerts: Maintenance teams receive real-time notifications for proactive intervention

Centralized visibility: Dashboards provide system-wide monitoring and trend analysis across buildings or sites

Scalable deployment: Gateway connectivity (4G, Wi-Fi, BLE) supports multiple elevators and escalators across locations

SUMMARY

TDK SenseI's edgeRX™ brings predictive maintenance to elevators and escalators by combining continuous sensing, edge AI analytics, and real-time alerts. By detecting early signs of wear and enabling proactive maintenance, edgeRX™ helps operators reduce downtime, improve safety, and ensure reliable vertical transportation in smart buildings.

