

edgeSV
NTEK SYSTEM

USE CASE

Sorters

SV500 by NTEK SYSTEM | ESA-based condition monitoring & predictive maintenance

OVERVIEW

Automated sortation systems handle sorting and dispatch of parcels in distribution centers. In this scenario SV500 analyzes the voltage and current signals of the motors and VFDs that drive the sortation equipment to detect abnormalities early.

PROBLEM

Sortation equipment runs continuously at high speed, so wear and misalignment build up easily.

- **Sorter failures and delivery delays** - At PostNord's Veddesta terminal in Sweden a sorter failure trapped about 70,000 parcels and 25,000 were rerouted to other terminals, and at a Posti sorting center in Finland an equipment failure delayed some parcel deliveries by about 24 hours.
- **Unexpected equipment failure** - When sortation equipment stops, order processing and dispatch schedules are affected.
- **Limited visibility of distributed equipment** - It is hard to see in real time the condition of drives spread over a wide area.

EXPECTED OUTCOMES

Abnormalities in the sortation drive motors can be identified early so maintenance can be planned.

- **Early detection of potential failures** - Detects potential failures early to minimize unexpected incidents and risk.
- **Optimized maintenance schedules** - Diagnostic data helps predict and optimize maintenance schedules.
- **Lower cost and downtime** - Higher operating efficiency helps reduce energy consumption, maintenance cost and downtime.

TARGET EQUIPMENT

Sorter drive motors | VFD | Roller conveyor drive motors

SOLUTION

01 VFD Status Diagnostics

Analyzes the VFD input/output voltage and current waveforms to identify faults in rectifier diodes, DC-link capacitors and switching devices (SCRs or IGBTs). Also monitors power-supply condition and power quality.

02 Motor Status Diagnostics

Analyzes motor voltage and current without additional equipment-mounted sensors. Screens mechanical issues (cavitation, soft foot, bearings and vibration), electrical issues (stator, connections, heat and noise), and load fluctuations.

03 Power Quality Status Diagnostics

Learns normal power-quality patterns and evaluates real-time deviations. Tracks voltage, current, interruptions, sags and harmonics to identify abnormal conditions.

04 Edge AI Server

Performs diagnostic analysis directly on SV500. Built-in storage (8GB eMMC and up to 256GB SD) retains waveforms and diagnostic data. Its web interface shows real-time values, equipment status, power quality, alarms, events and reports.

Operational Impact of edgeSV

Continuous monitoring and early detection support availability, maintenance and energy efficiency.

20–40%	10–25%	5–15%	10–20%
Unplanned downtime	Maintenance cost	Energy savings	Equipment life

Illustrative ranges only; not verified SV500 performance. Actual results depend on equipment, site conditions and corrective actions.