

edgeSV
NTEK SYSTEM

USE CASE

Conveyors

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

OVERVIEW

Conveyors link the flow of material along a production line. In this scenario SV500 analyzes the voltage and current signals of conveyor drive motors and VFDs to detect abnormalities in the motor and drive equipment early.

PROBLEM

Conveyors run continuously under load, so wear and misalignment develop easily.

- **Large downtime losses** - A Siemens report estimates that the world's 500 largest companies lose 11% of revenue, about USD 1.4 trillion a year, to unplanned downtime.
- **Unplanned stops** - A failure in one conveyor section can affect production line operation.
- **High maintenance cost** - Reactive repairs and emergency work raise cost.

EXPECTED OUTCOMES

Abnormalities in drive motors can be identified early so planned maintenance can replace reactive response.

- **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

Conveyor drive motors | VFD

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.