edgeSV

NTEK SYSTEM

USE CASE

Production Lines

SV500 by NTEK SYSTEM | ESA-based Motor & VFD Predictive Maintenance

OVERVIEW

A production line links many motors and variable frequency drives (VFDs), so one stoppage can spread along the whole line. SV500 uses Electrical Signature Analysis (ESA) to screen each drive for early condition changes.

PROBLEM

A stop in one section can halt the entire line.

Key challenges:

- **Cascading stoppages** — When one machine in a series stops, downstream processes may stop with it.
- **Locating the source** — With many drives, it is hard to tell which motor the change started in.

EXPECTED OUTCOMES

Compare all line drives on one basis to set inspection order.

Expected benefits:

- **Early stop-risk view** — Screens the drives with the largest changes first.
- **Planned maintenance** — Inspections can be placed in shift changes or idle time.
- **Inspection priority** — Per-machine status grades set the check order.

TARGET EQUIPMENT

Production line | Line drive motors | VFD | Control panel

SOLUTION

SV500 analyzes voltage and current signals of line motors and VFDs.

How SV500 diagnoses:

- **Per-drive trends** — Compares motor current and load trends under the same product and speed to screen change candidates.
- **VFD output faults** — Compares phase-current imbalance on the VFD output; cables and terminal connections become check targets.
- **Power event records** — Logs voltage sags, momentary outages and overcurrents with timestamps to help trace line stops.
- **Adaptive thresholds** — Machine learning learns each asset's normal condition and judges its status with load-dependent adaptive thresholds, rather than fixed limits.
- **Web dashboard and integration** — Check diagnostic status in real time on the device's built-in web dashboard without a site visit, and connect to higher-level systems such as BMS or SCADA over Modbus TCP/RTU. Additional interfaces such as MQTT depend on the project configuration.

SUMMARY

SV500 screens electrical-signal changes in production-line motors and VFDs. Mechanical parts, sensors and process conditions still need the line's own control and inspection routines.

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