

edgeSV
NTEK SYSTEM

USE CASE

Intake Pumps

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

OVERVIEW

Intake pumps are where raw water supply begins. SV500 applies electrical signature analysis (ESA) to control-panel voltage and current, screening large pump motors for wear and load anomalies without fitting vibration sensors to the pump.

PROBLEM

If an intake pump stops, water supply can be interrupted.

Key challenges:

- **Risk of supply interruption** — Faults affect connected processes and services, so finding changing intervals early is better than recovering after failure.
- **Hard-to-reach large motors** — Submerged or elevated sites make rounds alone prone to miss changes; remote trends and event records are needed.

EXPECTED OUTCOMES

Operators see which units are changing before visiting, and plan maintenance and standby running.

Expected benefits:

- **Supply continuity** — Units with abnormal trends are checked first, buying time to act.
- **No sensors on the pump** — Monitors using only CT and voltage inputs in the control panel.
- **Data-driven priorities** — Compares health grades on one basis to set inspection order.

TARGET EQUIPMENT

Raw water intake pumps | Large drive motors | VFDs, HV feeders

SOLUTION

01 VFD Status Diagnostics

Analyzes VFD input/output voltage and current waveforms to assess rectifier diodes, DC-link capacitors, IGBTs, and the condition of the power supply and power quality.

02 Motor Status Diagnostics

Analyzes motor voltage and current signals without additional equipment-mounted sensors, screening mechanical faults (cavitation, bearings, vibration), electrical faults (stator, cable connections, heat), and load fluctuations.

03 Power Quality Diagnostics

Records and analyzes voltage, current, interruptions, sags, swells, harmonics, and trends to identify power quality abnormalities.

04 Edge AI Device

Performs diagnostic analysis and stores waveforms and results locally. The built-in web interface provides real-time measurements, equipment diagnostics, power quality, 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%
Less unplanned downtime	Maintenance cost savings	Energy savings	Longer equipment life

Indicative ranges only; actual results depend on site conditions and corrective actions.