

edgeSV
NTEK SYSTEM

USE CASE

Standby Equipment Readiness

SV500 by NTEK SYSTEM | ESA-Based Test-Run Records & Health Monitoring

OVERVIEW

Standby cooling pumps, fans and emergency generators run so little that faults can stay hidden. SV500 uses electrical signature analysis (ESA) to record current and load during test runs, so readiness can be compared before changeover.

PROBLEM

Standby equipment can look normal until it is actually started and a problem appears.

Key challenges:

- **Risk of failing to start** — Long-idle equipment needs start-up, stabilization and load response recorded at every periodic test to know its readiness.
- **Unknown normal condition** — Without a known baseline, reliability and maintenance planning suffer, so each test run needs to be recorded.

EXPECTED OUTCOMES

Test-run records support changeover readiness checks and maintenance ordering of standby units.

Expected benefits:

- **Changeover readiness data** — Start-up and load trends from test runs feed readiness checks.
- **Standby reliability** — Round-by-round records show which standby unit needs work first.
- **Data-driven priorities** — Compares health grades on one basis to allocate maintenance staff.

TARGET EQUIPMENT

Standby pumps and fans | Standby auxiliaries | Generator feeders

SOLUTION

01 VFD Status Diagnostics

Analyzes the VFD's voltage output and current waveforms to diagnose faults in rectifier diodes, DC-link capacitors, and switching semiconductors (SCRs or IGBTs). Also analyzes the condition of power supply and power quality of the VFD.

02 Motor Status Diagnostics

Without installing additional sensors on the equipment, analyzes the voltage and current waveforms supplied to the motor to diagnose mechanical faults (Cavitation, Soft Foot, Bearing, Vibration, etc.), electrical faults (Stator, Cable connection, Heat, Noise, etc.) and Load fluctuation fault.

03 Power Quality Status Diagnostics

For power quality diagnosis, saves power quality indicators such as voltage, current, interruptions, sags, harmonics, etc. in trend data.

04 Edge AI Server

Performs all diagnostic analysis directly on the edge device. Built-in memory and storage—2GB DDR, 8GB eMMC, and SD card support up to 256GB—enable long-term storage of diagnostic data and waveforms without transmitting them to a server. The built-in web-based UI/UX provides access to real-time data, diagnostic result of the equipment, diagnostic data of the power quality, alarm events, reports and etc. without a separate server.

Operational Impact of edgeSV

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

20~40%	10~25%	5~15%	10~20%
Reduction in unplanned downtime	**Maintenance cost savings**	**Energy savings**	**Longer equipment life**

Illustrative ranges, not verified SV500 results. Actual outcomes depend on site conditions and corrective actions; PoC validation is required.

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