

edgeSV
NTEK SYSTEM

USE CASE

Drainage & Sump Pumps

SV500 by NTEK SYSTEM | Standby Pump Readiness Screening via ESA

OVERVIEW

Drainage and sump pumps sit idle for long periods but must start instantly during rain or leaks. SV500 accumulates start-up current and load patterns to screen standby pumps that need attention.

PROBLEM

Faults in rarely run pumps are discovered late.

Key challenges:

- **Infrequent operation** — A pump that looks normal on standby can reveal problems only when it actually starts.
- **Failures found on rainy days** — A standby pump fault may only surface at the moment it is needed.

EXPECTED OUTCOMES

Pick the pumps to service before the rainy season and plan maintenance.

Expected benefits:

- **Select pumps to inspect** — Compare test-start current and running load under similar conditions.
- **Flood-risk preparation** — Service the units that need attention before the rains.
- **Maintenance priorities** — Compare health grades across equipment on one common basis.

TARGET EQUIPMENT

Sump/drainage pumps | Pump drive motors | Standby pumps & panels

SOLUTION

SV500 analyzes the pump motor's electrical signals at start-up and in operation.

How SV500 diagnoses:

- **Start current and load** — Compares inrush current and time to reach normal operation between test starts and real runs at similar water levels.
- **Motor insulation, bearings** — Insulation wear can appear first in current imbalance and leakage current. If a trend appears, confirm by insulation resistance test and pump lift-out inspection.
- **Imbalance in operation** — Separates phase current imbalance from supply voltage imbalance. If it persists, check insulation resistance and cable joints.
- **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.

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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