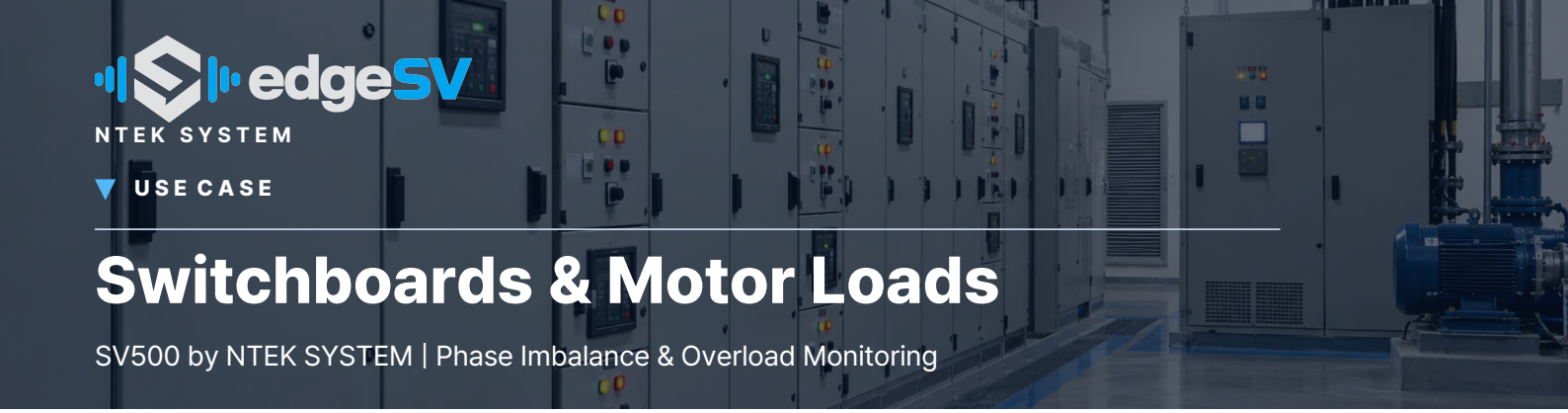


edgeSV
NTEK SYSTEM

USE CASE

Switchboards & Motor Loads

SV500 by NTEK SYSTEM | Phase Imbalance & Overload Monitoring

OVERVIEW

Switchboards are where many critical building loads converge. SV500 analyzes three-phase voltage and current at each feeder and records imbalance, overload and power quality events as trends.

PROBLEM

Load problems on critical equipment are hard to catch with walk-around inspections alone.

Key challenges:

- **Phase imbalance and overload** — Non-linear loads and added equipment shift per-phase loading and can shorten equipment life.
- **Little feeder visibility** — Equipment spread across mechanical and electrical rooms makes continuous change easy to miss on rounds.

EXPECTED OUTCOMES

Send maintenance staff to problem equipment first and favor planned maintenance.

Expected benefits:

- **Spot uneven loading** — Find feeders with high peaks or phase bias as a basis for load rebalancing.
- **Clear monitoring scope** — Coverage follows the measurement channels and feeder layout.
- **Maintenance priorities** — Compare health grades across equipment on one common basis.

TARGET EQUIPMENT

Power panels & MCC | 3-phase motor loads | VFD input/output

SOLUTION

SV500 analyzes three-phase voltage and current at the switchboard to assess load condition.

How SV500 diagnoses:

- **Voltage/current imbalance** — Compares supply-side voltage imbalance with load-side current imbalance at the same time to narrow down the source.
- **Overload, abnormal current** — Records feeder current and load ratio against ratings. Pinpointing a specific machine requires its own measurement point.
- **Power quality events** — Logs sags, swells, momentary outages and overcurrent with timestamps; the causing load is confirmed with operating records.
- **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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