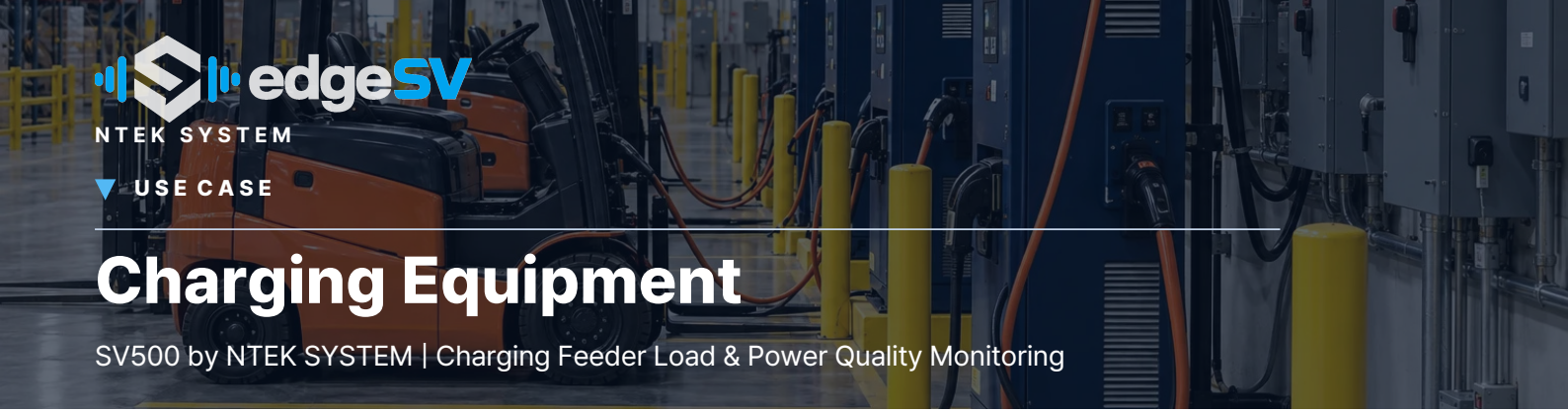


edgeSV
NTEK SYSTEM

USE CASE

Charging Equipment

SV500 by NTEK SYSTEM | Charging Feeder Load & Power Quality Monitoring

OVERVIEW

Many forklift and vehicle chargers running at once can create peak load, phase imbalance and harmonics (current distortion). SV500 records feeder voltage and current as evidence for capacity expansion and load balancing.

PROBLEM

Simultaneous charging affects power quality and feeder loading.

Key challenges:

- **Power quality impact** — Charging feeder load and harmonics affect power quality, so trends and events must be recorded together.
- **Large load swings** — With many chargers in use at once, load varies widely and changes during operation need continuous logging.

EXPECTED OUTCOMES

Use load history to pick circuits for rebalancing or expansion review.

Expected benefits:

- **Avoid charging overload** — Peak-period current and power trends identify circuits to rebalance or expand.
- **Power quality records** — Voltage deviation, harmonics and events are time-stamped to support expansion talks.
- **Data-driven priorities** — Compares status grades and trends on one scale so scarce maintenance staff go to the highest-risk assets first.

TARGET EQUIPMENT

Forklift charging | EV charging branch | Charger transformer

SOLUTION

01 VFD Status Diagnostics

Analyzes the VFD input/output voltage and current waveforms to identify faults in rectifier diodes, DC-link capacitors and switching devices (SCRs or IGBTs). Also monitors power-supply condition and power quality.

02 Motor Status Diagnostics

Analyzes motor voltage and current without additional equipment-mounted sensors. Screens mechanical issues (cavitation, soft foot, bearings and vibration), electrical issues (stator, connections, heat and noise), and load fluctuations.

03 Power Quality Status Diagnostics

Learns normal power-quality patterns and evaluates real-time deviations. Tracks voltage, current, interruptions, sags and harmonics to identify abnormal conditions.

04 Edge AI Server

Performs diagnostic analysis directly on SV500. Built-in storage (8GB eMMC and up to 256GB SD) retains waveforms and diagnostic data. Its web interface shows real-time values, equipment status, power quality, alarms, 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%
Unplanned downtime	**Maintenance cost**	**Energy savings**	**Equipment life**

Illustrative ranges only; not verified SV500 performance. Actual results depend on equipment, site conditions and corrective actions.