edgeSV

NTEK SYSTEM

USE CASE

PDU & Busway Feeders

SV500 by NTEK SYSTEM | Feeder Load & Power Quality Monitoring

OVERVIEW

PDUs and busways distribute power to server racks. SV500 uses voltage and current signals at each feeder to record per-phase load and power quality, supporting capacity planning and screening for abnormal loading.

PROBLEM

Rack-row feeders change load quickly, and periodic rounds can easily miss those changes.

Key challenges:

- **Load visibility by rack row** — Because of location and operating conditions, rounds miss continuous changes; remote trends and event records are needed.
- **Imbalance and quality drift** — Phase imbalance and power-quality degradation affect feeder reliability, so they need to be recorded continuously.

EXPECTED OUTCOMES

Feeder-level load trends give a factual basis for expansion, rebalancing and maintenance order.

Expected benefits:

- **Capacity planning evidence** — Records peak load, peak time and usage versus rating for each feeder.
- **Overload prevention** — Finds circuits with repeated peaks so rack layout and phase allocation can be adjusted.
- **Data-driven priorities** — Compares health grades on one basis to set the inspection order.

TARGET EQUIPMENT

PDU output feeders | Busway tap-offs | Rack-row feeders

SOLUTION

SV500 analyzes feeder voltage, current and power signals to record load and quality.

How SV500 diagnoses:

- **Feeder load trend** — Records current and power per rack-row feeder. What is visible depends on the metering point, so confirm it on the single-line diagram first.
- **Phase imbalance** — Compares per-phase current to find circuits skewed to one phase, as a basis for adjusting rack layout and phase allocation.
- **Power-quality events** — Logs voltage events and overcurrent with timestamps. Interpretation depends on whether metering is upstream or downstream of the UPS.
- **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.

SUMMARY

SV500 records per-phase current and peak load on rack-row feeders to support capacity planning. Connection temperature, bolt tightness and insulation aging still need separate thermal, torque and insulation checks.

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