



FAST SUPPORT FOR UNRESOLVED DISTURBANCES IN THE ELECTRICAL GRID

PQA Quick Scan

At a glance

With Power Quality Analytics (PQA) Quick Scan, Siemens PTI's grid planning team provides you with fast, cost-effective support for identifying the causes of grid disturbances. We focus on quickly evaluating your power quality (PQ) based on targeted, short-term measurements using measuring devices that we provide. To do this, we send a power quality expert to your facility for an entire day. Alternatively, you can install the equipment yourself with our remote support. Siemens PQ experts subsequently analyze the measured data and provide initial suggestions on ways to solve the problem.

- Measurements with mobile PQ recorders
- Data transfer to Siemens PTI
- Analysis of measured data in Siemens' own AI-based PQA system
- Localization of the problem and initial suggestions on ways to solve it

PQA Monitoring Service

We use the PQA system on Siemens' premises to perform the analysis. This system draws on the knowledge, experience and methodology based on more than 60 years of grid analysis and combines this with the latest artificial intelligence (AI) methods. Deviating measured values are reliably detected and pre-classified using anomaly analyses and signal detection processes. Experienced PQ experts conduct the final diagnosis.

The challenge

Events in an electrical grid can lead to disturbances that significantly impair ongoing operations or even cause permanent damage to machines or plants. The cause is often unclear since the disturbances either occur only sporadically or connections between multiple events are difficult to reproduce. To eliminate these disturbances, their cause must first be localized with measurements before further analyses can be conducted. This requires experience and specialized interdisciplinary knowledge.

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Our solution

With PQA Quick Scan, industrial customers and grid operators don't need their own measuring devices or comprehensive power quality knowledge to determine the underlying cause of disturbances quickly and in a targeted manner. Mobile measuring devices are used to collect measured PQ data over a period ranging from one day to a week. The recorded data is then sent to the Siemens PQ experts and analyzed using the PQA system. A solution is found by drawing on the know-how of a wide range of Siemens PTI experts. The customer subsequently receives a report with the measurement results and initial recommendations for the next steps to be taken. This initial analysis can be used to identify targeted mitigation measures that we can support if requested.

- Discussion of plant specifics and disturbance history
- Provision of preconfigured plug & play measuring devices
- Short-term measurements at selected measuring points
- Diagnosis of measured values using our AI-based evaluation system
- Provision of a measurement report with detailed comments and initial suggestions as well as a discussion of vendor-neutral improvement measures

Basic service: PQA Quick Scan Basic

With our PQA basic service, one of your employees installs the mobile measuring devices we provide. You can choose this basic service if an on-site visit by one of our experts is not required.

Scope of Basic service

- Evaluation of the situation: Remote discussion of the plant specifics, operation and disturbance history
- Detailed quick-start instructions and remote support

Benefits of Basic service

- No costs for installation, setup, or travel
- Remote support by a Siemens PQ expert for the entire duration of the measuring process and for answering questions about the results

With on-site support: PQA Quick Scan Plus

An experienced PQ expert accompanies you during the measuring activities for a full day, helps you select the measuring points, and assists with installing the measuring devices. An interview on the plant specifics as well as its disturbance history is conducted on the same day as part of the assessment. This makes it much easier to localize the cause of the problem and ensures that reliable results and initial measures for correcting the problem are quickly available.

Scope of Plus service

- Selection of suitable measuring devices, localization of optimal measuring points, and commissioning of the measuring infrastructure by Siemens PTI experts on site
- Discussion of plant specifics, operation and disturbance history during an on-site inspection and an interview

Benefits of Plus service

- Personal support during evaluation of the situation and setup of the measuring devices by a PQ expert on site
- Precise, perceptive data thanks to a customized measurement strategy
- Quick initial results
- Sharing, discussion and transfer of knowledge

Process	Quick Scan Basic	Quick Scan Plus
Assessment ✓	Remote (checklist-based)	Interview and assessment on site
Setup ✓	Remote-Support	Guided by a PQ expert on site
Measurement ✓	Mobile PQ recorders	
Analysis ✓	AI-based PQA system	
Report	Discussions and reports	

Figure 1: Comparison of PQA Quick Scan services

The service in use

In a paper factory in Germany, damage to equipment kept recurring due to voltage surges. In May 2022, the customer opted for PQA Quick Scan Plus and was able to localize the problem in a five-day measuring campaign. Two measuring devices were provided and connected to selected measuring points. Siemens also met with the customer to discuss the plant specifics as well as its disturbance history, providing valuable information for analyzing and resolving the disturbances.

The measured data was then analyzed using our AI-based PQA framework. In consultation with PTI's protective grounding experts, the measured values and limit value violations were examined and traced back to problems with the grounding system. These problems are now being resolved in a targeted manner through long-term PQA measurements and grounding system inspections.

Benefits at a glance

- Express service, yet tailored to customer requirements
- Fast provision of mobile measuring devices maximizes flexibility and delivers quick results
- Automated analysis process for high efficiency
- Support by experienced PQ experts ensures high-quality results
- Access to the extensive specialized knowledge of the Siemens PTI team of experts
- Attractive basic package available

Published by: Siemens AG

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If you have any further questions, please use our [contact form](#).

SIGSW-B10048-7600
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