

Power quality analysis for electric utilities

PowerLogic™ application brochure

Schneider
 **Electric**

Take charge of power quality monitoring

Monitoring power quality is serious business

Utilities need serious energy information technology to meet the challenges.

Our systems help you:

- Meet power quality compliance standards
- Monitor power availability and reliability
- Reduce downtime
- Verify contractual performance commitments
- Increase profitability
- Optimise maintenance
- Analyse power quality data to:
 - Troubleshoot
 - Identify root cause
 - Anticipate faults
 - Detect disturbance direction
- Track and verify:
 - Frequency stability
 - Voltage variations
 - Unbalances
 - Harmonics and other unfavourable conditions



Improve network reliability

Sophisticated power quality monitoring and reporting provide the information needed to validate compliance, improve system stability, and minimise unplanned downtime.



Remove guesswork

Know exactly what quality of power and service you're delivering to your customers. We have the ideal solution.



Power quality matters for efficiency and profit

Energy suppliers need cost-effective, real-time power quality monitoring

Utilities must have accurate PQ data and analysis to increase reliability and meet demands.



Schneider Electric exceeds the traditional boundaries

We offer:

- Open protocols
- Advanced communication options
- Gateways
- Customised solutions
- Integration into existing infrastructure
- Accommodation of third-party equipment

Our power monitoring and control systems are designed to unite your entire enterprise, from end-to-end. All systems work together to help reveal new energy opportunities.

Communications include:

- Local mastering
 - Data concentration of serial/Ethernet metering devices
- Gateway functionality
- Web-based presentation
- Email data transfers
- Ethernet support of metering, SCADA, and PQ protocols

24/7 monitoring & analyzing

Avoid the costly affects of power quality problems

- Reduction of transformer life through heating
- Reduced fundamental frequency system capacity
- Degraded motor performance
- Tripped sensitive loads
- Blown fuses, cycling UPS
- Telecommunications interference



Don't lose money

Effective PQ monitoring and analysis can provide a rapid return on investment in terms of revenue, value of service, and competitive edge in the marketplace.

Average cost of momentary interruptions:

- | | |
|-----------------------------|----------|
| ▪ One- to two-second outage | € 11,000 |
| ▪ 15-cycle voltage sag | € 7,700 |



Benefits of PQ analysis

Save time

- Reduce the number of points to analyse through data aggregation
- Identify the problem through Classification
- Share analysis over a web-based platform
- Analyse events at multiple sites concurrently by overlaying waveform captures and aligning trigger points

Show improvement

- Benchmark system performance to industry standards
- Trend performance over time and show to customers as a value-added service
- Support performance-based rates
- Satisfy regulators
- Provide proof of ROI for capital expenditures (either yours or your customers)

Identify cause

- Classify events for filtering and reporting
- Group events by color or symbol to see which types are causing problems
- Detect disturbance direction
- Create views and reports of:
 - Customer-caused events
 - Utility-caused events
 - Planned events
 - Unplanned events
 - Weather related events

Increase revenue

- Gain competitive advantage by guaranteeing customers a power quality threshold
- Add value to your service by providing customers a view of their power quality
- Implement performance-based rates to increase revenue



Class A measurements

For electric utilities - Class A results ensure that power quality data being reported to operators, customers or regulators, is accurate and auditable, and that system improvements are recommended based on reliable data.

For regulators - Class A results ensure that reports from separate utilities will be consistent and system performance can be compared to worldwide benchmarks.

For consumers - Class A results ensure that both the customer and utility will agree on the level of power quality provided, avoiding costly investigations should any disputes arise.

Our Power Standards Laboratories (PSL) certificate, test report and letter prove our compliance to the IEC 61000-4-30 Class A requirements.

PQ Measurements in IEC 61000-4-30

- Power frequency
- Supply voltage magnitude
- Flicker
- Voltage deviations (dips and swells)
- Voltage Interruptions
- Transients
- Voltage unbalance
- Voltage harmonics
- Voltage interharmonics
- Mains signalling
- Rapid voltage changes
- Under- and over-deviation

Certifications and approvals

- CFE (LAPEM, Mexico)
- INTI (Argentina)
- SENCAMER (Venezuela)
- KEMA Labs (Netherlands)
- KERI Labs (Korea)
- EPRI (China)
- EGR (New Zealand)
- OFGEM (UK)
- EAC (Russia)
- IESO (Ontario, Canada)
- Measurement Canada
- Hydro Quebec (Canada)
- California ISO (USA)
- ERCOT (Texas ISO, USA)
- Met Labs (Independent Lab, USA)
- NY State (USA)
- PJM (USA)

Accurate PQ analysis saves time and money

Heading off potential problems

Power quality issues on a transmission and distribution network can be complex and require deeper analysis as more advanced generation and load-control techniques are employed. And today's customers need higher levels of power quality information due to the growing sophistication and sensitivity of their process controls.

Utilities need a power monitoring system to help track and investigate frequency stability, voltage variations, unbalances, harmonics and other conditions to maintain a high level of power quality and resolve issues before a problem develops.

PowerLogic technology from Schneider Electric has the tools you need to meet higher power quality targets by comprehensively analysing and isolating all power quality-related issues.

Advanced meters strategically located at customer service entrances and substations capture and store data on a wide variety of characteristics, including harmonics, flicker, short-duration transients, dips, swells, and outages.

Meters instantly categorise events on-board then upload compliance indicators and all relevant supporting data to PowerLogic system software for analysis and reporting.

Recommended products for power quality analysis

Software:

StruxureWare Power Monitoring Expert™

PowerLogic ION Setup

Power and energy meters:

PowerLogic ION8800

PowerLogic ION8650

PowerLogic ION7650

PowerLogic PM8000 series

PowerLogic ION7400

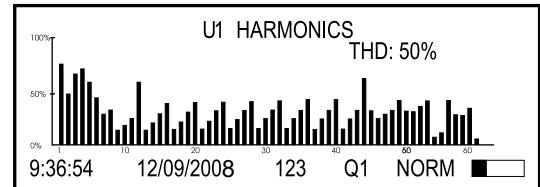
PowerLogic ION7350

Complementary products

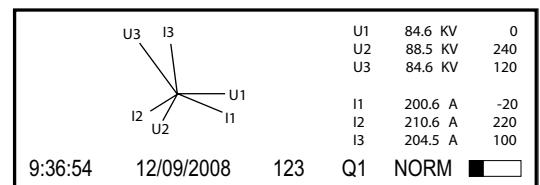
Sepam™ protective relays

Masterpact™ and Compact™ breakers

Modicon™ programmable logic controllers



Meter display of a harmonics histogram



Meter display of phasor data



PowerLogic technology is your key to achieving sustained results. PowerLogic products together with Schneider Electric services and expertise will help you align strategic decision making and energy management best practices for a lower total cost of ownership.

Make the most of your energySM

Schneider Electric Industries SAS

Head Office
35 rue Joseph Monier
92500 Rueil Malmaison Cedex- France
Tel.: +33 (0)1 41 29 70 00
www.schneider-electric.com

Schneider
 **Electric**TM