



PQSurvey

Helping you identify and address power quality and reliability concerns before they impact your facility's performance and bottom line



For more information go to www.livelineindia.com

An ISO 9001 & 14001 certified company

The Need for Quality and Reliable Power

Today's Internet-driven and microprocessor-based economy relies on electric power to fuel its growth. Increasingly, power quality impacts the bottom line of commercial power users. In addition to IS/IT power needs requiring "D2six nines" or better reliability, industrial and other commercial facilities are using equipment that is highly sensitive to power system disturbances and reliability problems.

LIVE LINE, a leading power protection product engineering company, is ready to help you identify power system concerns and implement solutions that will improve your facility's performance and bottom line.



The question "What is power Quality?" has many different answers, depending on whether you talk to utilities, equipment manufacturers, or power customers. There is a wide range of factors that can cause power quality problems in your facility. Our experience has shown that power quality problems are compounded by the difficulty of identifying potential causes. This is primarily because the cause may be within your facility or hundreds of miles away on the utility power grid.

Power quality investigations focus on the cost impact of power problems. These can include

- Facility or equipment downtime
- Scrapping of products and raw materials
- Process or equipment restart
- Process or equipment restart
- Repair or replacement of damaged machines and equipment
- Operating at less than optimal efficiency
- Increased utility demand charges

Each problem can generate a number of these costs. Predicting the exact cost is difficult, but poor power quality and poor power system performance can cause sufficient losses to justify fixing the problem.

The Increasing Cost of Power Quality

The use of sensitive (electronic) equipment and controls increases the costs of typical power disturbances*

- 1970's D5s USA EST \$10 million (interruptions)
- 1980's D5s USA EST \$100 million
- 1990's D5s USA EST \$ 1 billion (momentary)
- 2000 World Wide \$10 billion
- 2001 Worldwide to \$50 Billion
- 2004 Worldwide a \$100 Billion
- 2005 Worldwide \$150 Billion

*EPRI estimates



Do You Know????

- 30,000 industrial customers are affected by power quality problems every day.
- Estimates of U.S. economic losses from power quality phenomena range from \$15 billion to \$24 billion a year.
- Downtime costs to mission-critical facilities are estimated to range from \$14,000 to \$6.5 million per hour.
- An electric utility research group estimates that mission-critical facility losses attributed to power outages are close to \$13.5 billion per year, with a full 50 percent of that attributed to power quality issues.

PQSurvey - The Right Choice to Ensure Power

System Reliability

Modern power systems are highly complex, and to ensure reliable performance, require consideration of all issues, probable problems and their causes, and potential solutions. Our experience in power and distribution system studies, and our extensive track record in working with customers and their power providers to identify and solve power system problems, makes us the people to call. The PQSurvey can address all aspects of power quality. It focuses on common issues such as harmonic distortion, low voltage, voltage sags, wiring and grounding, and poor power factor. By using the PQSurvey, you can identify potential problems, plan and take corrective measures, and prevent facility downtime, saving both time and money.



What You Get with a PQSurvey

Preliminary review

Before performing an onsite survey, it is important to review your facility's power system performance. This preliminary analysis characterizes the problem, identifies important changes to the facility or to the electric supply system (equipment or wiring changes, modifications, etc.) that could be causing power quality problems, and helps determine a plan for the site survey. Consisting of a conference call, this preliminary review sets the stage for the site survey. Thanks to our expertise, we can sometimes diagnose current or potential problems at this stage, thus reducing the need for or scope of the on-site survey and helping to focus attention where it is most needed.

Site survey & Field measurements

The site survey is designed to gather information about facility, power quality problems, and affected equipment. Examples of questions asked and information gathered during this site visit include:

1. What is the nature of the problem?
2. What are the characteristics of the sensitive equipment experiencing problems?
3. What are the possible sources of power quality events within the facility?
4. Is power conditioning equipment being used and if so, what type?
5. How is your electrical system laid out?



Field measurements are completed in conjunction with the onsite power system and equipment inspection. Example measurement quantities include dc drive line current, bus voltages, and harmonic distortion levels, as well as power factor. Standard reporting forms are used to document all information and measurements.

The PQSurvey assesses these problems...

- ✦ Equipment failure
- ✦ Poor power factor
- ✦ Drives tripping off-line
- ✦ Transformer overheating
- ✦ Harmonic resonance/high distortion
- ✦ Unexplained breaker operations
- ✦ Mis-operation due to utility faults
- ✦ Motor failures due to harmonics

Technical report

Following the preliminary review and site visit, we will prepare a technical report summarizing the findings of the survey. This report will include a summary of all of the information gathered, highlighted power system problems, a summary of field measurements, suggested solutions, and recommendations for follow-on power system monitoring or engineering analysis. This report introduces you to the scope and nature of any problems, and provides an excellent foundation for more analysis and effective power system design.

All at a Reasonable Cost

You get the entire PQSurvey package at a reasonable fixed price - no open ended cost as with other professional services. Additional analytical or engineering services are available on a quotation basis.

For More Information

For additional information or to schedule a PQSurvey, please call +91-33-64520115/16 or send e-mail to info@livelineindia.com.



LIVELINE ELECTRONICS

C-157, Survey Park, Santoshpur, Kolkata - 700 075
Phone - +91-33-64520115/16
Email - info@livelineindia.com
www.livelineindia.com
An ISO 9001 & 14001 certified company