

SUPPLYLINK™

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Power Investigators

> Tracking down your power quality problems



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AMP

uncover your
power quality
problems
by Lora Hyler

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oss Ignall likens the job of a power quality trouble shooter to that of the lead character on the hit CBS show, “CSI: Crime Scene Investigation.” He gets a phone call. On the other end of the line is someone nearly in a panic.

“It’s almost like a police investigation. He needs to isolate what the problems are and try to rule in or rule out power,” says Ross.

As product manager for Dranetz-BMI, a manufacturer of power quality monitoring instruments, Ross helps customers track down electrical power quality problems that they may be experiencing. With critical equipment relying on optimal

power use, thousands of dollars may be at risk. Like their CSI counterpart, power quality trouble shooters want to identify the culprit and solve the case, thus preventing a recurrence.

Once he arrives on the scene, his first order of business is to assess whether the source of a power quality problem is originating from inside or outside the building. Examples of problems within a facility are improper grounding or wiring, code violations, equipment failures or equipment not being used as intended. “If a piece of machinery or process is acting weird, or a breaker trips, you know where to look,” Ross says. “If you have no idea, you do some basic monitoring.

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You start with a power quality survey and look at the service entrance.”

Industry statistics estimate that about two-thirds of power quality problems originate within the facility, though his customers expect it to be the other way around. “Our challenge is to get them to be pro-active,” Ross says. “We ask ‘Are you feeling any pain? Are you experiencing regular downtime?’ A lot of times people aren’t quantifying cost.” Ross says getting the customer to understand that downtime associated with power quality problems costs them money. This lets customers understand they need power quality monitoring equipment. “If you can prove a financial case, most of the work is done.”

For example, a semi-conductor manufacturer can’t afford the loss of revenue resulting from unplanned downtime. Certain hospital procedures can potentially put lives at risk if they’re interrupted by power problems. Though needs vary depending on whether the facility is a hospital, data center, office building or a manufacturing facility, Ross says all businesses need a power quality monitoring program.

“Many companies have a false sense of security. They have UPS (uninterruptible power supply), and think they’re protected. That’s just not the case. We have documented cases of UPS failing.” Ross relies on the investigative skills of his power quality troubleshooter to get to the root of a problem. Recurring problems can be an indication of a larger problem waiting to happen. “We’re trying to educate our customers to do an assessment. In general, the more power quality points you monitor, the better you can isolate problems.”

Ross has designed power quality instruments for Dranetz-BMI for the past 17 years. He recalls the early power quality models as costing between \$15,000 and \$20,000 and measuring only voltage, not current. By contrast, the new

models feature state-of-the-art technology and cost between \$4,000 and \$10,000. “They are much more intuitive and easier to use than the older models. The hand-held instruments have a color touch screen display and a PDA-like user interface,” says Ross. “Our current instruments have an automatic configuration feature but even when you’re manually setting up, they guide you step by step on how to do it.”

During the automatic configuration, “The instrument sniffs the line and sees what’s connected,” Ross says. “If the user agrees, he presses ‘go’ and it’s automatically set up in accordance with Institute of Electrical and Electronics Engineers recommendations. A novice can take it out of the box and be up and running in minutes.”

Dale Peters, Vice President and General Manager of Ferguson Electric Service Co. in Buffalo, N.Y., purchased seven Dranetz-BMI analyzers in December 2006. Ferguson is an electrical contractor servicing commercial and industrial clients, with both new construction and existing facility needs. Dale says their analyzers rotate among many electricians who use them in the field. He designated a team of service technicians, electrical engineers, project managers, administration personnel and IT staffers to decide which power monitoring instruments to purchase based on specific criteria.

“The software had to be friendly, we needed a fast report writing function, enough memory to capture all aspects of data that we would need, and machines that were durable to withstand being out in the field,” recalls Dale. “Our people are well-versed in test equipment. We were able to train everyone in two days.” Dale says he couldn’t be more pleased with the instruments he purchased. He estimates a two-year payback on the power monitoring instruments he purchased.

tools for power analysis

Grainger offers a wide range of power quality instruments from the leading test instrument manufacturers to assist customers when building their predictive maintenance program.



The Dranetz-BMI PowerVisa Power Analyzer

(Items #2TB86, #2TB87, #2TB88)

Equipped with 8 independent channels for any measurement configuration, the PowerVisa is the only advanced power monitoring instrument to incorporate a color touch screen into its lightweight design. Automated setups provide instant detection of circuits and configurations, ensuring that the instrument is ready to successfully collect data. Users can select the length and mode of data collection, including troubleshooting, data logging, power quality surveys, and energy and load studies.

> features & highlights

- Eight channels of measurement (4 voltage & 4 current)
- Intuitive color touch screen in 12 built-in languages
- Long-term recording, 3 months or more
- AC/DC monitoring applications
- Light weight – less than 4 lbs – with rugged rubber boot
- Automated setups for “out of the box” instrument readiness

For a complete selection of power quality analyzers, visit www.grainger.com/analyzers

Dale says the equipment is invaluable when dealing with power quality sensitive customers. Ferguson Electric received a call from a data center at a large bank. They were experiencing UPS problems, burning and vibrating motors, and transformer noise. “Everything is microprocessor-based. That equipment has a very low tolerance for voltage imbalance. We went in, put the power monitor on and were able to identify and correct the problem.”

Perhaps the strongest endorsement of power quality monitoring products comes from utilities themselves. Electric power utilities get the first call when customers notice a problem with their electric service. These utilities own billions of dollars of assets, including thousands of miles of lines connecting to an electric grid servicing hundreds of thousands, even millions, of diverse residential, commercial and industrial customers. Reliability is critical, particularly in a deregulated utility environment.

Southern California Edison is one of the nation’s largest investor-owned electric utilities and serves 13 million people. Juan Menendez leads a team of power quality engineers.

“The instruments are used on a daily basis,” says Menendez. “It provides us with the snapshot of what’s going on electrically. We still have to complete a survey. We use the data we collect from the analyzer as a guide. It guides us as to how we’re going to fix this.” Menendez says his team customizes reports to best explain to each customer the source of their problem and what they need to do to remedy it.

Power quality monitoring instruments and electric utilities both have the same goal in solving businesses’ power problems: to keep the lights on and the equipment running.

And as Ross Ignall can tell you, products that help achieve that goal are worth investigating. **SI**

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