

## Fluke power quality tools help rental customers with power “forensics”

### Application Note



The units met with our customers' approval, so we kept buying more," says Mr. Miller. "We have bought other products in the past that received poor customer feedback. Those instruments sit on a shelf and seldom get rented again, so they're not profitable for us. But once someone tries the Fluke/RPM, they never go back. It gives them everything they need."

The 1650 Power Recorder is a three-phase power quality tool featuring Full Disclosure™ Technology – a system that uses patented sampling hardware and algorithms to record everything the load sees by processing every cycle on all channels, while recording min/max/avg values and looking for sags, swells and transients.

The system can store 6000 events to allow the user to see everything from sub-cycle events to long-term outages in clear detail. It also records power parameters, rms current, harmonics, flicker and monitors for power quality events on all channels simultaneously without the need to reconfigure. There are no thresholds to set, eliminating missed events or a memory full of noise, and allowing the system to record any changes in measurements – even ones that are almost out of tolerance.

"If there is any kind of problem with the electrical power, the Power Recorder will pick it up. The software is incredible and definitely easier to use than other programs," says Mr. Miller.

From across North America, customers call Ian Miller at Accutech Rentals with their power problems.

"They might have a specific problem with their power, like a disturbance, or they might have an electrical equipment malfunction," says Mr. Miller. "We match them up with the best piece of equipment to solve their problem, then we box it up, ship it out and they get the information they need."

Accutech Rentals, based in Alberta, Canada, boasts a 14-year history of helping customers solve tough power quality problems by renting instrumentation and electrical testing equipment to plants, engineering companies and electricians. Many of their customers ask for specific name brand products such as Fluke or RPM.

"A few years ago, our customers began asking for the Fluke/RPM Power Recorder units so we added it to our inventory.



Most of Accutech Rentals' customers use the Power Recorder to get a general profile of their power system to provide a baseline measurement of power quality.

"They will connect the unit for a weekend and get voltage, current, watts and harmonics readings, as well as any disturbances," says Mr. Miller. "Having a baseline is important, because you have to know if your transformers are rated properly. If you design the plant and find out you have a much higher harmonic distortion than you initially thought, your transformers are going to be under-rated, which

can cause overheating, equipment damage and burnt-out motors."

As an example, Mr. Miller tells the tale of a plant that was suffering from monthly motor burn-outs. The motor manufacturer blamed the plant's power quality. The plant suspected a manufacturer's defect in the equipment. The Power Recorder settled the debate by proving there were no problems with the plant's power.

"Equipment failure is incredibly expensive in terms of downtime. For a lot of plants, shutting down a motor in one process for three hours can mean a loss of a million dollars every time. This plant was forced to shut down for three hours every month! We were very happy that we were able to provide the Power Recorder in this situation, and allow our customer to resolve the problem with the motor manufacturer," Mr. Miller says.

But not all power quality problems cause millions of dollars of damages. Sometimes it's the small problems that can be the most baffling.

"One of the educational institutes here in Edmonton was experiencing a lot of frustration over one of the photocopiers in their copy room continually going down. They thought it was a problem with their power and blamed the utility."

Accutech provided the educational institute with a single-phase disturbance analyzer — to help solve this power quality mystery. The answer? Another copier in the room was creating a spike on the power line every time it was turned on — a spike strong enough to damage the circuit board on the first photocopier.

"A lot of people blame the utility for any power quality problems they experience, but it's usually not warranted," says Mr. Miller. "We get a lot of calls about spikes, and we try to provide our customers with the tools they need to do self-diagnostics, establish a pattern and pinpoint any problems in the facility first...power quality forensics."

Accutech Rentals is pleased to be able to offer Fluke products.

"We're really pro-Fluke. We have a lot of their tools, and we've also found their support over the years to be really helpful," he says. "We serve our customers by giving them the equipment for the specific situation or problem they're trying to solve. The Fluke family of Power Quality test tools gives them everything they need."

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