

Logging and analyzing events with FlukeView® Forms Software

Application Note

Now you see it

From a factory in Missouri to the streets of Portland, OR, USA modern magicians are solving problems that once were invisible.

With Fluke tools and FlukeView® Forms software, today's technicians can call on an electronic assistant to help with an almost limitless range of troubleshooting, monitoring and process documentation jobs.

The ability to log detailed min/max and event data is built into many Fluke measurement tools, including the Fluke 180 Series, 87 V and 89-IV digital multimeters (DMMs), Fluke 53-II and 54-II thermometers, the Fluke 45 Bench Meter and Fluke 789 ProcessMeter™. The Fluke 189 meter, for instance, can log and time-stamp up to 995 readings and keep on recording up to 72 hours.

Those readings come alive when they're downloaded and displayed through Microsoft Windows®-compatible FlukeView Forms software. FlukeView Forms turns simple time and event data into accurate graphical reports that have more uses than duct tape. You can even display readings from up to eight different meters on the same graph to show the links between what's happening in multiple processes, events and locations.

Bringing data to life

Kevin Willer had a problem. A FlukePlus member, Willer is maintenance supervisor at the Gates Rubber Co. plant in Columbia, MO, USA, which processes cord and manufactures rubber used in making automotive belts and hoses.



Monitors were detecting random spikes in volatile organic compound (VOC) levels in a sealed enclosure containing toluene, a toxic and flammable industrial solvent. Each time the monitors sensed the excessive levels, they would stop the production line until the concentrated VOC could dissipate, causing downtime. "We knew it was happening," says Willer, "but we didn't know the frequency or severity of it."

"We couldn't get good readings by just watching the monitors," Willer adds. "The spikes within the system would be so quick that the readout on the front of the thing wouldn't even pick it up. I actually had to graph it with the (FlukeView Forms) software so I could go back and see what it was doing."

Willer connected his Fluke 189 DMM to read the 4 to 20 mA signals generated by four Control Instruments Smartmaxx VOC

monitors in the enclosure. Signal voltage is directly related to the level of VOC the sensor head encounters, and Willer logged the data for four hours.

He then graphed the signal voltage over time using FlukeView Forms software. The graph enabled Willer to determine that dead pockets of concentrated vapor were forming within the enclosure and causing the spikes that hampered production. Adjusting the flow of air cured the problem.

“Recirculation air being supplied to an enclosure will develop a steady path,” he says. “Corners and other obstructions can prevent good air movement. With

the use of dampers and diverters, you can alter the path to rid yourself of dead spots.”

Today FlukeView Forms has a permanent home in Willer’s tool crib.

“We use it for all kinds of stuff,” Willer laughs. “I’ve got in on my laptop, and whenever we run into an intermittent problem I’ll just hook it up and leave it so we can go back later and see how often stuff is happening. Everybody in the department uses it at one time or another. It’s been handy.”

According to Chuck Newcombe, product planner for Fluke Corporation, the ability to troubleshoot intermittent problems like Kevin Willer’s is a key use of

FlukeView Forms. Newcombe says other top applications are characterizing or monitoring system behavior over time, and documenting processes or procedures.

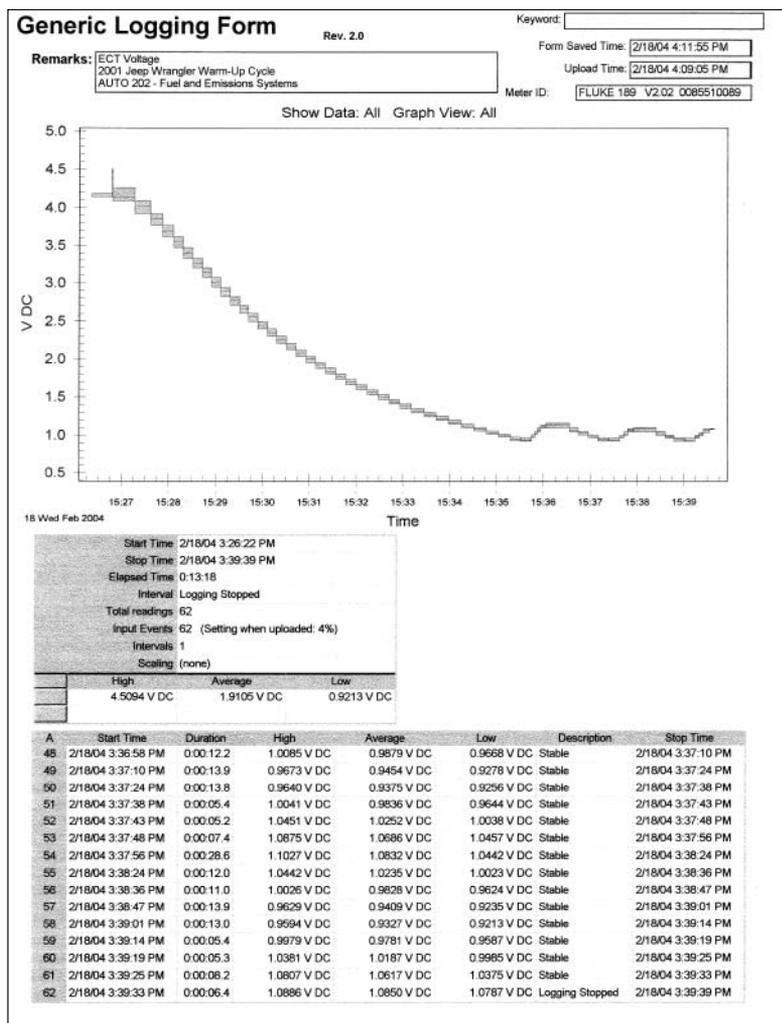
FlukeView Forms comes with standard analysis and reporting forms, graphs, and tables you can modify for your specific needs. The software can record and display data from every function or parameter the meter is capable of measuring, like volts, amps, ohms, frequency, capacitance, temperature, diode testing and more. You can port information stored in FlukeView Forms to other common applications, such as Microsoft Excel, for further analysis and display.

The Fluke 189, 89-IV and 54 log events and interval data internally. For these tools, FlukeView Forms is the only way to extract and view the detailed min/max and event data from the meter’s memory. And FlukeView Forms is the only way to change the 189’s event threshold from the default of 4 percent.

FlukeView Forms makes data transfer fast and easy through an infrared (IR) serial interface. FlukeView Forms is meter aware, so there aren’t any configuration problems. Using the supplied IR serial cable, the software will automatically recognize your meter and transfer the data. As an alternative, you can wire the meter directly to your PC and actively monitor events with FlukeView Forms.

Charting the way to professionalism

For Jared Struse of Struse Plumbing and Air, Inc., Hereford, AZ, USA, system performance data gathered with the Fluke 189 and displayed through FlukeView Forms has helped his firm document situations before and after, cementing their reputation for professionalism and honesty. “Let’s face it,” says Struse, a FlukePlus member. “When you put it on paper, the customer may not understand everything, but they do understand integrity.”



15 second voltage intervals graphed in FlukeView Forms from a Fluke 189 DMM by automotive instructor Tony Martin.

In the Portland, Ore. area, FlukeView Forms is producing hard dollar savings for TriMet, operator of the city's buses and its MAX light rail system. "For years we've used Fluke 83 multi-meters, working in traction power substations for light rail electric railways," says maintenance engineer Stephen Budahl, also a FlukePlus member. "However, we also used \$5,000 to \$10,000 chart recorders and data acquisition equipment."

"We recently bought some Fluke 189s and found that with the 189 and FlukeView Forms, we're gathering the same data in a much more compact and easy to use format – saving money in the process."

At Lord Corporation in Cambridge Springs, PA, USA, senior engineering specialist Jack Gregory uses Fluke 54 data logging digital thermometers to track temperatures through the curing cycle of Lord's molded rubber products. "For rubber manufacturing, digital data-logging thermometers have improved the methodologies the industry uses, created greater efficiencies and freed engineers to do more important work than manually recording data," says Gregory.

Automotive technology instructor and FlukePlus member Tony Martin uses a FlukeView Forms chart to show his students at the University of Alaska Southeast how an engine coolant temperature (ECT) sensor responds as a Jeep Wrangler test vehicle comes up to temperature.

The graph even depicts the voltage fluctuation that results when the vehicle's thermostat opens and closes.

"If you have a sensor that's acting funny in certain parts of its range, it's important to spot those anomalies," Martin says. "We hook the Fluke 189 up to the temperature sensor, measure the voltage with the key on and the engine off, then start the vehicle and bring it up to temperature.

"(The 189) creates a new record every 15 seconds of the highest and lowest voltage during that interval. If there's a dropoff in any one of those 15-second intervals, you can see it. On a scope, you might not."

The unique way Fluke test tools record data delivers high efficiency and keeps you in control. The Fluke 189, for instance, can log and time-stamp up to 995 individual "events" as brief as 50 milliseconds. The meter doesn't log continuous readings – that would just waste memory and battery power by recording data when nothing unusual is happening. Instead, it logs data only when the input signal exceeds the threshold you set. When such events take place, the meter records the minimum, maximum and average of readings. You can also configure your logging session to take readings at specified intervals (for instance, every five minutes).

Testing at 'Cow Contact'

For dairyman Chuck Untiedt of Lakefield, MN, USA, FlukeView Forms literally helped save the family farm.

Incorrect wiring was directing stray voltage into his milking parlors. When a water pump turned on, cows standing on the concrete floor to drink from a plastic water tank would get shocked. The animals became sensitized and ultra-cautious about any electrical current. Milk production was down, and some cows died from shock.

But testing with his Fluke 89-IV DMM and graphing the results on FlukeView Forms enabled Untiedt to start untangling his farm's electrical problems. For instance, FlukeView Forms helped him document voltage spikes in power from his local utility. He installed surge arrestors, and the spikes disappeared.

"The ability to just let that meter sit there and run allowed us to define the problem," Untiedt says. "Without the software, we wouldn't have the ability to do that.

"Without Fluke, to be very honest, we would not be here. There's no question, we would be out of business. They allowed us to find the problems, document the problems, and then work on getting everything solved."

Fluke. *Keeping your world up and running.*

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