

# The maintenance manager's guide to always-on measurements



Keeping all the components of an industrial plant running safely and efficiently is no easy task. And nobody knows that better than maintenance managers. Tracking the operational health of all of those components is key to preventing unexpected failures and costly downtime. The trouble is, quarterly, monthly or even daily, maintenance checks often miss intermittent problems. If maintenance technicians aren't taking readings at the right moment, an intermittent fault can go undetected until it escalates into a full-fledged failure.

The most critical assets in a plant often have fixed sensors that take measurements around the clock to enable plant managers and technicians to see intermittent faults as they happen. This helps them get to the root cause and fix problems before they cause a major outage.

However, finding intermittent faults in less critical equipment is a little bit like the proverbial needle in a haystack. If a circuit is tripping intermittently, and everything is back to normal by the time a technician gets to the panel to troubleshoot, there's not much to do other than wait for the next time the circuit trips. It can take several often futile trips until the technician arrives at just the right moment to capture the fault. It isn't financially practical to install fixed sensors on every asset so in-person checks are the most common alternative.

## **Making always-on measurements more available**

Now there is a solution that bridges the gap between permanent fixed sensor monitoring and periodic measurements with a handheld tool. The same wireless technology, networking, and storage infrastructure that has driven the rise of interconnected equipment, sensors, and applications—known as the “Internet of Things”—is also making smart sensor technology more practical for a broader range of equipment.

The Fluke Condition Monitoring system has embraced that technology to produce movable wireless sensors that monitor ac and dc voltage and current, contact temperature, and power quantity for more than four weeks at a time. These sensors feature the same rugged reliability and accuracy found in Fluke handheld meters along with the reliable connectivity of Fluke Connect® wireless technology. They can be applied to dozens of applications in all kinds of process and manufacturing plants.

## 24/7 remote monitoring

Plant technicians can use these sensors to monitor voltage, current and temperature on multiple pieces of equipment simultaneously from anywhere via a smartphone, tablet, or computer. They can view results in real time or browse through historical measurements.

For example, a product distribution facility may have miles of conveyor belt run by hundreds of motors around the clock. All it takes is one motor to go down and a significant part of the operation will go down with it. That downtime can delay delivery and payment and incur extra rush shipping fees. So keeping all of those motors running smoothly is very important.

Fluke Condition Monitoring sensors can make it easier to maintain the health of conveyor system motors. You can start by using them to get a baseline of current, voltage, and temperature on a representative sample of healthy motors under full load. With that baseline established you can take a closer look at motors that may have been found to have some issues or which have been working very hard for an extended period of time.

You simply mount the current, voltage, and/or temperature sensors on the suspect motor and monitor the data. The data collected may indicate symptoms of an issue and offer you early warning to schedule a shutdown so you can repair or replace the motor before it causes a major failure.

If you're looking for an intermittent problem you can collect data over several days to get a comprehensive picture of what's going on when that intermittent fault occurs. Tracking performance over time can help you more accurately predict and even prevent equipment problems, and thus reduce downtime.

## Catching real-time anomalies in three-phase power

Fluke portable condition monitoring sensors make it easy to simultaneously measure all three legs of three-phase power for motors, generators, or electrical cabinets. You can attach one current sensor to each phase or utilize the power monitor and then monitor the results on your smartphone. Because you can view all phases simultaneously in real time, you quickly see differences between phases. Set a threshold on the sensor and the real-time alarms will let you know if there's a sudden spike or drop in current to help you quickly identify intermittent faults. The results will help you identify harmonic distortion, overloads, or degradation or failure of one or more phases before it causes a safety hazard or a breakdown.

## Portable sensor monitoring at a glance

Common applications for Fluke Condition Monitoring sensors, include:

- Setting alarms to indicate equipment performance outside of pre-set parameters
- Finding three-phase power imbalances from harmonic distortion, overloads, or degradation or failure of one or more phases
- Identifying motor amperage spikes or overheating from bad bearings or insulation breakdowns
- Locating potential overloads in electrical panels
- Measuring supply side and demand side power at a common coupling point to monitor power consumption
- Capturing increased temperatures within electrical panels to prevent component failures
- Detecting a drop in temperature in a steam pipeline that could indicate a pressure leak

Since Fluke Condition Monitoring portable sensors transmit measurements wirelessly to the gateway, they don't require running cable or getting into the equipment wiring. This makes them easy and affordable to install and move, and very practical for monitoring critical and less critical assets.

You can use them for:

- **Event logging.** If wireless connectivity is not available, the data will be sent from the sensor to the gateway and stored until the technician uploads it to the cloud with smartphone or tablet.
- **Remote monitoring.** If wireless connectivity is available, the data will be continuously streamed from the sensor(s) to the cloud where it is accessible to smartphones, tablets, and PCs.

### Learn more

Using Fluke Condition Monitoring sensors to monitor the health of critical and less critical systems can help predict and perhaps even prevent equipment problems and downtime. To find out more, consult your Fluke sales representative or visit **[www.flukeconnect.com](http://www.flukeconnect.com)**.

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