

# How to get more troubleshooting and preventive maintenance done in less time

## Application Note

Since we launched the Fluke Connect™ app we've heard from several customers about how Fluke Connect-enabled tools help them get more done in less time. John Bohling, a service technician and member of Pipefitters Local 597 in Chicago, recently shared some troubleshooting and preventive maintenance tips he collected using the following modules.

- a3000 FC Wireless AC Current Clamp Module
- v3000 FC Wireless AC Voltage Module
- v3001 FC Wireless DC Voltage Module
- t3000 FC Wireless K-Type Temperature Module

### Monitor temperature and electrical at the same time

John uses the FC Wireless K-Type Temperature module frequently for day-to-day troubleshooting applications. It measures temperature in one location and then wirelessly relays the results to his smart phone (with the Fluke Connect app installed). This comes in very handy for checking multiple components of heating and cooling systems simultaneously. For example, at one site he set up the temperature module to monitor refrigerant line temperatures while he worked on the refrigeration components located elsewhere.



He also uses the K-type temperature module on split system-style chillers. In one instance the chiller, which had a microprocessor-based control, was located in the basement; the air-cooled condenser was located on the roof. John was able to oversee the fan-cycling controls by measuring the motor amp draw using the a3000 FC current clamp. At the same time he monitored the liquid line temperature using the temperature module, and observed a specific percentage on the microprocessor in the basement. He viewed the results from all three tools simultaneously, in real time, on his smart phone.

### **Finding a needle in a haystack**

With the Fluke Connect dc voltage module, John measured a 0-10 V dc signal to a variable frequency drive (VFD) located in a supply air cabinet. The third-party panel was inaccessible so the VFD was the only place to test. "If I had tried to monitor the third-party signal at the VFD with a standard meter, it would have tripped an alarm due to 'no proof of air flow' by the air flow switch," he said. "Using the Fluke Connect dc voltage module I found that the building automation system was not sending the proper ramp signal when duct static pressure dropped."

This same FC module helped him find a chronic problem in a dc power supply that was intermittently dropping the 5 V dc it supplied. This caused the chiller to fail and trigger an alarm. He left the dc voltage module on the power supply overnight. "The results showed that the power supply dropped voltage and then restored itself. I replaced the power supply with confidence the next day," John said. "These meters will be of incredible value as safety concerns rise and more tests need to be conducted outside of the electric panels and in more remote locations."

**Fluke.** *Keeping your world up and running.<sup>®</sup>*

**Fluke Corporation**  
PO Box 9090, Everett, WA 98206 U.S.A.

**Fluke Europe B.V.**  
PO Box 1186, 5602 BD  
Eindhoven, The Netherlands

**For more information call:**  
In the U.S.A. (800) 443-5853 or  
Fax (425) 446-5116  
In Europe/M-East/Africa +31 (0) 40 2675 200 or  
Fax +31 (0) 40 2675 222  
In Canada (800)-36-FLUKE or  
Fax (905) 890-6866  
From other countries +1 (425) 446-5500 or  
Fax +1 (425) 446-5116  
Web access: <http://www.fluke.com>

©2014 Fluke Corporation.  
Specifications subject to change without notice.  
Printed in U.S.A. 10/2014 6003568a\_en

**Modification of this document is not permitted without written permission from Fluke Corporation.**