



A Leader in Electric Motor Testing

# Tip Of The Week

May 25, 2015

## VFD vs. Motor...

What action do you take following a VFD trip when the error code indicates a motor fault? Isolating the drive from the motor would be a good first step and for MCEMAX<sup>®</sup> users a quick MCE<sup>®</sup> standard test should confirm the error code. However, it's not always that easy. Nuisance trips can occur with the rapid transient voltages supplied by the VFD creating very early or even false indications of motor insulation failure. On the flip side if a high voltage transient signal is required to see early stages of insulation integrity issues, then the standard DC test signals used for insulation testing may not be sufficient to show this early stage of degradation. So what is the analyst supposed to do? We recommend a phase isolation test to further qualify your phase-to-phase insulation.

Developing insulation anomalies are sometimes easier to see when testing between the phases than when testing to ground. Original motor insulation test procedures included applying DC test voltage on one of the three isolated phases while the other two phases were shorted together and grounded. This test would be repeated twice more with each phase being the isolated phase that the voltage is applied to. For efficiency purposes and the fact that ground wall insulation testing is normally sufficient to see developing trends in insulation integrity most insulation tests today do not require phase isolation. However, if no history is available to establish a negative trend and the only decision left is to replace the drive or motor, then the phase isolation test might be the answer you need.

For more information on performing a phase isolation test visit the Application Note section of our website at:  
[http://www.pdma.com/pdfs/appnotes/0601-Isolating\\_the\\_Cause\\_of\\_a\\_VFD\\_Trip.pdf](http://www.pdma.com/pdfs/appnotes/0601-Isolating_the_Cause_of_a_VFD_Trip.pdf)

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