

VOLTECH NOTES

A MONTHLY PUBLICATION FROM THE MANUFACTURER OF THE WORLD'S MOST POPULAR POWER ANALYZERS AND TRANSFORMER TESTERS

ISSUE 4

Thank You.

Thank you to everyone who has responded so positively to previous issues of Voltech Notes. We are pleased that you have found the full versions of the technical notes both useful and interesting. If you have any further comments or suggestions, then please let us know.

In this issue of Voltech Notes we continue to expand upon power electronics engineering topics. Three-phase measurements are explained in a brand new technical note and we would also like to make you aware of some new software we have for some of our power analyzer range. The stress testing of transformers is the subject of 'Shorted Turns Detection' and the requirements for testing wound chokes and transformers in the presence of a dc bias current are discussed in detail in the full version of the technical note sampled inside.

For free copies of the full articles please return the faxback form or contact us by phone, email or website as shown below.

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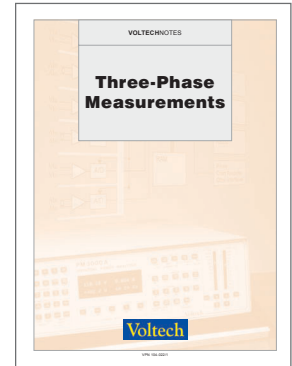
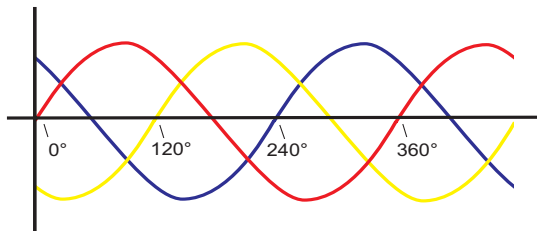
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THREE-PHASE MEASUREMENTS

Electrical power is often distributed using three-phase systems. Power measurements can be made using the "two-wattmeter" or "three-wattmeter" methods and this technical guide discusses the benefits of each.

Although single-phase electricity is used to supply common domestic and office electrical appliances, three-phase alternating current (a.c.) systems are almost universally used to distribute electrical power and to supply power directly to higher power industrial equipment.

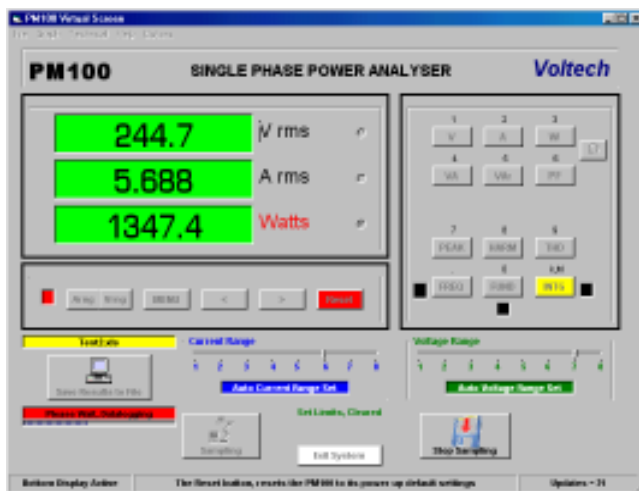
EXTRACT



VIRTUAL PM100 AND VIRTUAL PM300

New software for the PM100 and PM300 power analyzers.

This PC software conveniently duplicates the PM100 and PM300 front panel on a PC screen. Numeric results are displayed in real-time and may be logged to a spreadsheet compatible file. The software also provides facilities for the graphing of stored results.



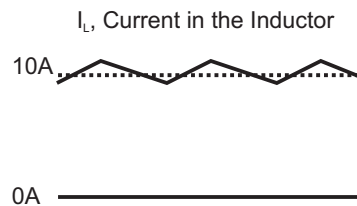
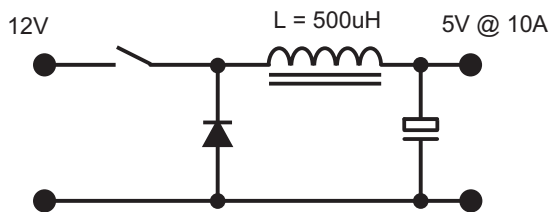
Developed originally as a training aid by our applications team, this software is supplied with sample VisualBasic code and is available free-of-charge on an 'as-is' basis without warranty. The Virtual software does not have the comprehensive functionality of our VPASLite PC software for the PM100 and PM300.

MEASUREMENTS FOR DC CHOKES

Many wound components must operate with dc currents flowing through them, but is it always necessary to test the part at the full rated dc current? This technical note uses design considerations to answer that question.

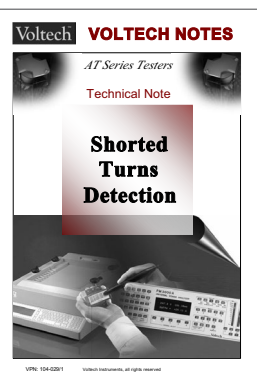
In some cases the dc bias current is small, as in telecom transformers where a winding is connected to the line. In other cases the dc bias current is much larger, such as in inductors that form part of the output filter of dc power supplies.

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SHORTED TURNS DETECTION

One of the causes of premature failure of wound components in the field is the failure of inter-turn insulation. Dropped turns and defects in the winding wire enamel can create weak spots in the insulation between turns of a winding. The fault may not be detected by normal functional test and the result is an early field failure. This technical note discusses the various methods of detecting weak spots during test.



The product from the discharge will be a sinusoidal wave with decaying amplitude. The transformer is characterized by the area under the wave-form, measured in volt-seconds.

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