

VOLTECH NOTES

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

ISSUE 5

Right up to date, this issue of Voltech Notes brings details of a new European standard for flicker testing equipment rated at up to 75A. Previously, there was only a requirement to test equipment rated at up to 16A.

Another brand new tech note describes how to configure the versatile AT3600 to test wound components with a constant ac current drive. This tech note has been written in response to recent customer enquiries.

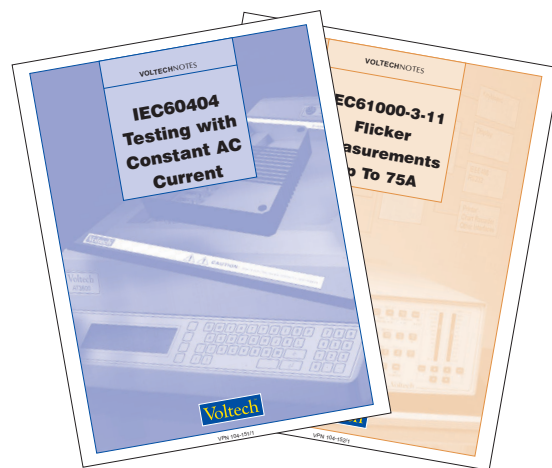
Of more general interest, "Ferrite Transformer Testing" describes the basics of testing high-frequency wound components.

Voltech Notes in Print

Following the success of the technical notes featured in Voltech Notes, the industry magazine Evaluation Engineering (www.evaluationengineering.com) published a tutorial on power factor measurement in their September 2003 issue. The article is based on material originally produced for the Voltech tech note "Back to Basics: AC Theory". To request a copy of that tech note, or any of the others described in this issue of Voltech Notes, please return the faxback form or contact us by phone, email or via our website.

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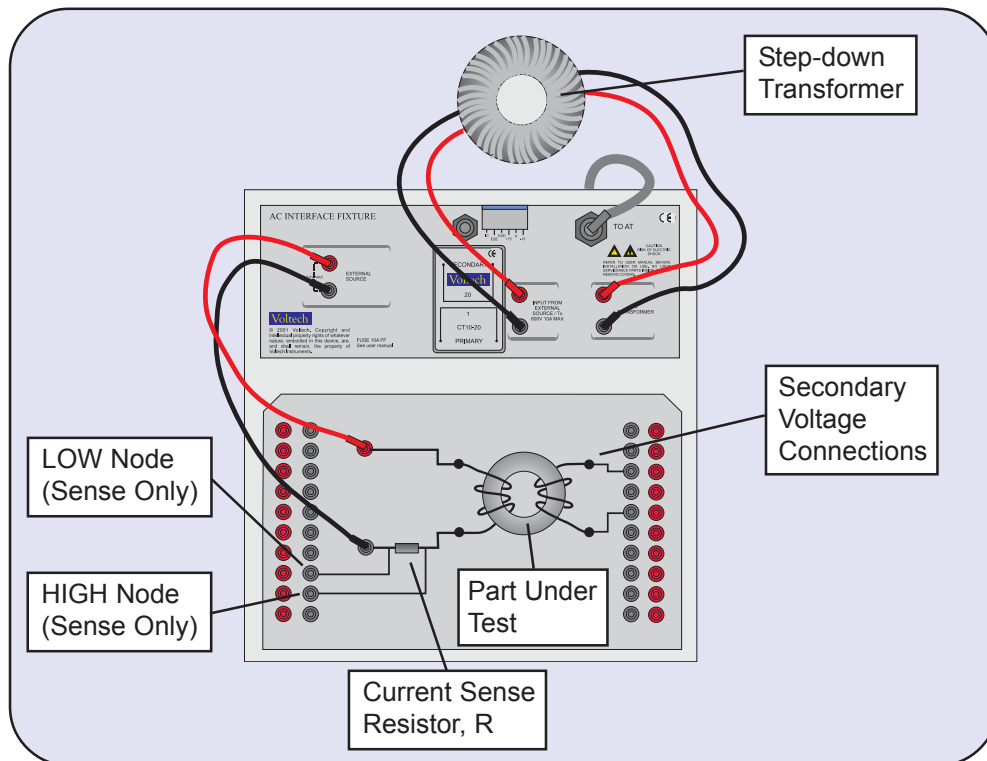
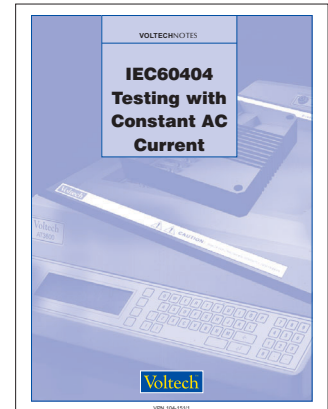
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IEC60404 - TESTING WITH CONSTANT AC CURRENT

It is a requirement of IEC60404-2 that measurements of core loss are made under constant ac current test conditions. Ideally, current transformers will also be tested with constant ac current drive.

Most general-purpose transformer test equipment does not have the ability to provide a high level of constant ac current drive.

By following the guidance given in these notes, customers may also configure the AT3600 to test cores, inductors and transformers under constant ac current conditions.



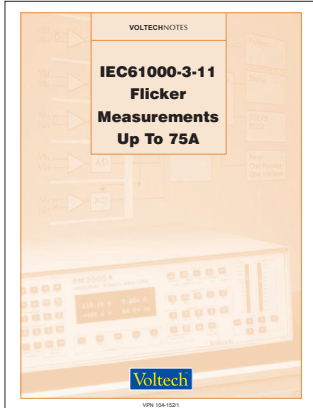
EXTRACT

Features of Constant Current AC Drive on the AT3600

- Constant current is fully programmable for amplitude and frequency.
- Simultaneous measurement of rms or rectified mean (rms scaled) voltage.
- Current carefully ramped up and down under software control.
- Can use external ac source to extend the VA range.
- Integrates into normal test sequence with all other tests available on an AT3600 (including HiPot).

IEC61000-3-11 - FLICKER MEASUREMENTS UP TO 75A

The legislative requirement to measure harmonics and flicker on equipment rated up to 16A rms is well known to organizations selling any type of electrical and electronic equipment in the European Community. The IEC Standard 61000-3-11 is a relatively recent addition to the 61000 series of standards and defines testing methods and limits for the flicker and voltage changes for equipment rated up to and including 75A. This technical note describes practical test strategies for making measurements in accordance with the 61000-3-11 standard.



EXTRACT

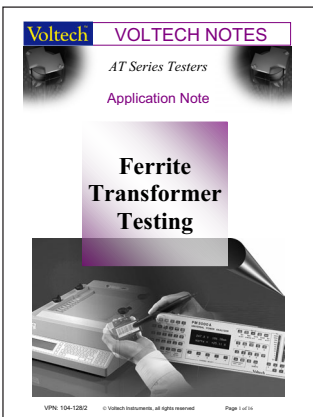
The impedance is defined to be a complex one, consisting of both resistive and inductive elements. The 61000-3-3 impedance is called Z_{ref} in 61000-3-11 and consists of 0.40 ohms resistive in series with 0.25 ohms inductive at 50Hz.

$$Z_{ref} = 0.40 + j 0.25$$

The magnitude of the impedance or $|z_{ref}| = \sqrt{0.40^2 + 0.25^2} = 0.4717\Omega$

FERRITE TRANSFORMER TESTING

Transformers and chokes designed to operate at frequencies above that of the ac line are often constructed using ferrite cores. What sort of tests should be applied to these types of transformers to ensure that they are defect free?



EXTRACT

From the schematic in figure 1, it can be seen that even the most simple of transformers includes quite a complex combination of resistive and reactive components. In order to establish with confidence that a transformer has been manufactured correctly, it is necessary to execute a range of tests that combine to provide an assurance that the materials used and manufacturing process executed results in transformers that meet the design specification.

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FREE TECHNICAL ARTICLES AND APPLICATION NOTES FROM VOLTECH. SEE INSIDE FOR DETAILS.

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(Item # 104-151) | <input type="checkbox"/> IEC61000-3-11 - Flicker Measurements
Up To 75A (Item # 104-152) |
| <input type="checkbox"/> Ferrite Transformer Testing
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