

VOLTECH NOTES

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

ISSUE 7

The unique ability of the AT3600 and ATi transformer testers to accurately test a wide variety of transformers at high speed makes them the most versatile transformer testers available today. Over 40 different tests are now available, including those suitable for checking line frequency, laminate-type transformers, ferrite power transformers and chokes and signal and pulse transformers.

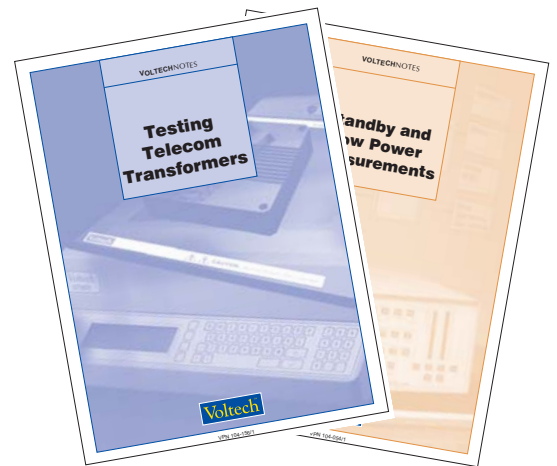
Both testers may also be equipped with a suite of tests for testing telecommunications transformers, and these are introduced in this issue of Voltech Notes.

To request full technical details of the telecom tests, or any of the features in this issue, please do not hesitate to contact Voltech, as described on the back page. Details of your local representative may be found on our website at www.voltech.com.

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TESTING TELECOMMUNICATIONS TRANSFORMERS

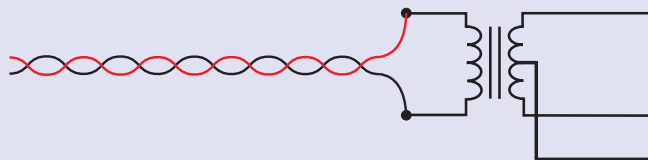
What is a telecoms transformer?

Telecoms transformers are an essential part of the infrastructure used to transmit analog (audio) and digital data over communications networks. They are found in conventional analog telephone systems (both private and public networks), modems including xDSL (digital broadband), ISDN and also in Ethernet (LAN) servers, hubs and client computers.

What is special about them?

Like most transformers, telecoms parts provide electrical isolation and voltage conversion between one part of a circuit and another. In addition, telecoms transformers are connected to telephone or network cables that have a specific impedance and are balanced lines, where balance means that the two wires carrying the signal (typically a twisted pair) are driven equally but in opposition to each other about ground. This means that the transformers must be designed and constructed carefully to provide:

- a) A total ac impedance that matches the line impedance to optimize power transfer and avoid unwanted signal reflections.
- b) An equal impedance to ground for both wires to preserve balance and avoid crosstalk and other noise problems.



Telecom transformer impedance should be balanced and matched to the line impedance.

What tests are required?

Production tests

Once the design is finished, and the core material, wire, turns and so on have been specified, it is necessary to confirm that each part has been assembled correctly during manufacture. Suggested tests are:

Test	Description	Manufacturing Fault Detected
R	DC Resistance	Wrong gauge wire. Poor termination.
LS	Inductance (Series)	Incorrect number of turns (primary). Wrong core material. Poor core assembly.
TR	Turns Ratio	Wrong number of turns (all secondaries).
LL	Leakage Inductance	Windings in wrong order or wound with poor tension.

TESTING TELECOMMUNICATIONS TRANSFORMERS (CONT.)

Test	Description	Manufacturing Fault Detected
Q	Quality Factor	Wrong core material, turns or stretched wire.
RLOS	Return Loss	Wrong or incorrectly assembled cores. Wire wound unevenly.
ILOS	Insertion Loss	Wrong or incorrectly assembled cores. Wire wound unevenly.
LBAL	Longitudinal Balance	Windings wound unevenly, in the wrong order or in the wrong position.
IR	Insulation Resistance	Poor or missing insulation between windings.

The Voltech AT Series testers are unique in being able to provide all the production tests required in one station that is optimized for the speed, quality and cost of production testing telecomm transformers. For more information, including details of each test, please contact us as shown on the back page.



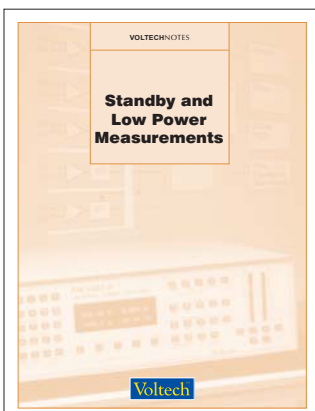
MEASURING STANDBY POWER WITH A PM100 POWER ANALYZER

EXTRACT

There is increasing legislative and consumer pressure to minimize the standby power consumption of common domestic and office electrical equipment. For example, USA Presidential Executive Order 13221 requests that government agencies shall 'purchase products that use no more than one watt in their standby power consuming mode'.

The unique long averaging mode of the PM100 overcomes the problems encountered by other power meters when measuring low power or standby mode power and provides consistent and reliable results in the shortest possible time.

Note: Guidelines for Measurement of Standby Power Use may be obtained from http://oahu.lbl.gov/measurement_guidelines.html.



	Requirements	Voltech PM100
Power Measurement Resolution	Resolution of less than 0.1W when measuring 1.0W	0.001 W
Watt-Hours Accumulation	20mW minimum	1mW
Measurement Period	Greater than 5 mins.	1 min. to 99 hrs.
Time Measurement	Accurate to within 2 secs.	2 secs. accuracy up to 6 hrs. 50 mins.
Crest Factor	Not less than 5 at rms currents of 2 amps or less	Full spec up to 20

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

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| <input type="checkbox"/> Testing Telecom Transformers
(Item # 104-156) | <input type="checkbox"/> Audio & Telecom Testing Q & A (Magazine Article)
(Item # 104-153) |
| <input type="checkbox"/> Low Power Measurements
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Mail hardcopies. **OR** E-mail PDF files.

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