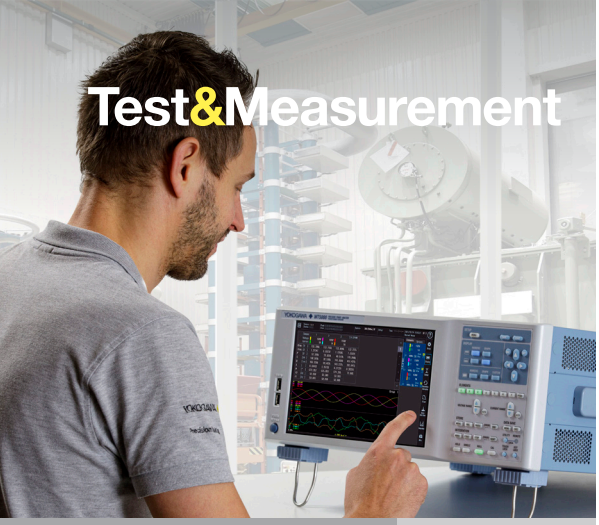

YOKOGAWA

WT5000 Precision Power Analyzer
Transformer Version

Verifying transformer losses

Dedicated to meet the requirements of transformer manufactures the WT5000 Precision Power Analyzer - Transformer version has an unprecedented accuracy at power factors as low as 0.001.
It ensures the consistently reliable measurements that engineers need for R&D, production- and acceptance testing of power transformers.

The WT5000 Transformer version ensures the consistently reliable measurements that engineers need as they seek to reduce the total cost of ownership for utility companies.

- For R&D, production- or acceptance testing of transformers
- No-load loss and no-load current measurements
- Ensure compliance with the IEC60076-8 standard.

- World's greatest accuracy - 0.008%
- 0.6% accuracy at a power factor as low as 0.01 at 100 V and 1 A
- ISO/IEC17025 accredited calibration certificates included
- Measurement to evaluate no-load current harmonics
- Calculations according IEC60076-8

Precision at your fingertips

The WT5000 Precision Power Analyzer - Transformer version is the world's most accurate precision power analyzer guaranteeing its basic power accuracy of ±0.008%. Operable by touch and hardware, the WT5000 offers an intuitive measurement experience for power transformer testing. Define and use event triggers and custom computations to suit your application needs and view measurements in numeric, waveform, bar, vector or trend formats.

Best accuracy at low power factors

The instrument offers the best accuracies at low power factors for commercial frequencies of 45 to 66 Hz. Low power factors have a dramatic effect on accuracy. It offers an accuracy of 0.6% of the reading for measurement at a power factor as low as 0.01 at 100 V and 1 A. This makes the unit ideal for the precision testing of transformer losses according to the IEC60076-8.

Accredited calibration certificates included

When every kilowatt lost beyond specified limits can cost thousands of dollars in fines, it becomes necessary to have confidence in the measurement of power losses. To address this, the WT5000 Transformer Version is optimized by ISO17025 accredited calibration at 53 Hz at power factors of 1, 0.5, 0.05, 0.01 and 0.001. Additional ISO17025 accredited calibration up to 100 kHz ensures performance when measuring distorted waveforms, for example during no-load loss current measurements of transformers. This enables the integrated transformer measurement system to measure power losses with great accuracy and to determine any drift as described in the IEC60076-8 Standard.

Accuracy specifications

As shown in the table below, the WT5000 Transformer Version offers unparalleled accuracy performance by calibration at power factors as low as 0.001

WT5000 Transformer Version accuracy specifications		
Range 100V 1A or 5A, Frequency 45-65 Hz, Temperature 23 +/- 3 deg C, update rate 2 seconds		
Voltage 100 V range	**% of reading**	**% of reading**
	12 months	24 months
10% to 110% of range	0.005	0.006
Current 1 A or 5 A range	**% of reading**	**% of reading**
	12 months	24 months
10% to 110% of range	0.005	0.006
Power accuracy		
12-month accuracy calculation [% of reading]		24-month accuracy calculation [% of reading]
$P_{spec} = \frac{\left(\left(\frac{6 \cdot 10^{-5}}{cos\varphi}\right) \cdot P\right) + (2 \cdot 10^{-5} \cdot P)}{P} \cdot 100\%$		$P_{spec} = \frac{\left(\left(\frac{6 \cdot 10^{-5}}{cos\varphi}\right) \cdot P\right) + (4 \cdot 10^{-5} \cdot P)}{P} \cdot 100\%$
Power 100 V, 1 A or 5 A range	**12 months**	**24 months**
PF 1	0.008	0.010
PF 0.5	0.014	0.016
PF 0.05	0.12	0.12
PF 0.02	0.30	0.30
PF 0.01	0.60	0.60
PF 0.005	1.2	1.2
PF 0.002	3.0	3.0
PF 0.001	6.0	6.0

Direct readout of corrected power for potential transformers

When small loads are connected to the potential transformers, the WT5000 Precision Power Analyzer – Transformer Version directly supports both standard formulas used to calculate the correct power.

The European Standards Laboratory

As one of the few ISO 17025 certified organization that offers calibration up to 100 kHz, Yokogawa is uniquely equipped to guarantee the power accuracy specifications of the WT5000 Transformer Version and improve upon it with calibration. This to ensure performance when measuring distorted waveforms, for example during no-load loss and current measurements of transformers.

In pursuit of precision, Yokogawa's ISO/IEC17025 accredited (RvA K164) European Standards Laboratory offers quantifiable confidence in a measurement system and its results. The European Standards Laboratory enables users to get world's most accurate measurement results. It provides a form of quality assurance and trust which enables engineers to develop the next generation technologies that are environmentally friendly, energy efficient and stand out with leading performance.

3 years warranty

The quality and reliability of the WT5000 is supported by a standard 3 year warranty.

IEC76-1 (1976), IEEE C57.12.90-2010	IEC76-1(2011)
$P = \frac{P_m}{P_1 + k \,.\, P_2}$	$P_0 = P_m\,(1 + d\,)$
$k = \left(\frac{U}{U'}\right)^2$	$d = \frac{U' - U}{U'}$

Where

P or P_0 = corrected power
P_m = measured power
P_1 = ratio of hysteresis loss to total iron losses
P_2 = ratio of eddy current losses to total iron losses
U' = mean value of voltage
U = rms value of voltage

Why choose the WT5000 Transformer Version?

Accuracy – With 0.008% accuracy, the WT5000 Transformer Version is the world's most accurate power analyzer. It also achieves the highest possible accuracy at power factors as low as 0.001 when performing no load loss measurements on transformers.

Trust – Delivered with calibration certificates from Yokogawa's ISO17025 accredited calibration laboratory, the WT5000 Transformer Version delivers the confidence needed in low power factor measurements to ensure compliance with the IEC60076-8 standard.

Simplicity – With a full touchscreen experience, supported by hardware hotkeys and powerful software for remote data capture, connecting and configuring power measuring systems has never been easier.

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