

PRECISION POWER ANALYSER  
TRANSFORMER TEST VERSION

# WT3000T



QUALITY ■ INNOVATION ■ FORESIGHT



YOKOGAWA

# POWER ANALYSER FOR TRANSFORMER INDUSTRY



## The WT3000T offers:

- Excellent accuracy at low power factors
- Accredited calibration certificate at delivery
- Unsurpassed long term stability
- Clear overload/safety indicators
- Direct readout of corrected power for potential transformers
- Up to 6-digit resolution for power measurements
- Clear, easy-to-read 8.4 inch LCD screen
- Best-in-class precision
- Usage as a calibration standard

## Economic impact of transformer loss

If a transformer exceeds its specified loss under no-load conditions, the penalty can cost the manufacturer up to €8000 per Kilowatt. Any penalty includes the accuracy of the transformer measurement system; therefore the more precise the measurement accuracy, the less likelihood of penalty charges.

Manufacturers of transformers and transformer measuring systems have to prove the accuracy of their test systems. This is achieved through an accredited calibration.

# PRECISION POWER ANALYSER TRANSFORMER TEST VERSION

## ■ Excellent accuracy at low power factors

For commercial frequencies of 45 to 66 Hz, the WT3000T offers exceptional accuracy at low power factor. Normally lower power factors have a dramatic effect on accuracy. However even at a power factor as low as 0.01 the WT3000T offers at 100V and 1A an accuracy better than 0.6% of reading (See screenshot below). This accuracy makes the WT3000T ideal for Transformer Measuring Systems used for high-precision testing of transformer losses, according to IEC60076-8.

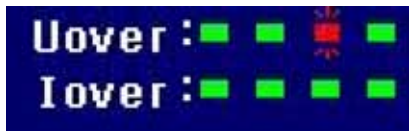
## ■ Accredited calibration certificate at delivery

The calibration and certificate is provided by VSL, the National Metrology Institute of the Netherlands, which calibrates test and measuring equipment according to ISO/IEC 17025. Calibration is performed at a frequency of 53Hz and at power factors of 1; 0.5; 0.05; 0.01 and 0.001. This enables the accuracy of the integrated transformer measurement system to be kept within the limits described in the IEC60076-8 standard.



## ■ Clear overload/safety indicators

The clear on-screen indicators alert the operator when the voltage and/or current inputs of the power meter are overloaded. This prompts the operator to disconnect the power to the transformer under test in order to prevent damage and avoid substantial costs.



## ■ Best-in-class precision

The 32-bit risc processors and specially selected 16-bit AD-converters allow power readings to be displayed in a resolution as high as 6-digits (See parameter F1 on the screenshot). When this setting is used during calibration, it minimizes uncertainties.

## ■ Usage as a calibration standard

Due to its high stability and precision, the WT3000T can be used as a calibration standard.

## ■ Direct readout of corrected power for potential transformers

Both standard formulas used to calculate the corrected power, when small loads are connected to potential transformers, are directly supported.

IEC76-1(1976), ANSI/IEEE C57.12.90-1993	IEC76-1(1993)
$P = \frac{P_m}{P_1 + k \cdot P_2}$ $k = \left( \frac{U}{U'} \right)^2$	$P_0 = P_m (1 + d)$ $d = \frac{U' - U}{U}$
<p><b>Where</b></p> <p>P or P<sub>0</sub> = corrected power            P<sub>m</sub> = measured power            P<sub>1</sub> = ratio of hysteresis loss to total iron losses            P<sub>2</sub> = ratio of eddy current losses to total iron losses</p>	<p>U' = mean value of voltage            U = rms value of voltage</p>

## ■ Solves additional applications

The accuracy of the instrument enables measurements on capacitors and power factor correcting equipment.

## ■ Unsurpassed long term stability

Due to its long term stability, the recommended calibration interval for the WT3000T is 2 years, minimizing the down time and saving money.

## ■ Clear, easy-to-read 8.4 inch LCD screen

The large colour screen makes measurements easy to read and the WT3000T simple to operate.

### Readout of:

Rms voltage	U <sub>rms1</sub>	100.053	V
Rms current	I <sub>rms1</sub>	1.00154	A
Power	P1	1.007	W
Power, 6-digits	F1	1.00712	W
Apparent power	S1	100.208	VA
Power factor	λ1	0.01005	
Phase angle	φ1	G 89.424	°
Frequency	fU1	52.941	Hz



The Power Meter PZ4000

Since its origins in 1915 as a meter research institute, Yokogawa has been a major force in power measurement and is the largest power meter manufacturer in the world. In 1950 Yokogawa introduced the thermodynamic power meter and then achieved world wide recognition with the patented 2885 standard watt converter, which was used by many laboratories and organisations as a primary standard and was followed by innovative power meters such as the 2531, the 2533 and the PZ4000.

## WT3000T Power Analyser ordering code

Model	Suffix Codes	Description	
T760303-03-SV		WT3000T 3 input elements model	
T760304-04-SV		WT3000T 4 input elements model	
		GPIB communication (standard delivery)	
Power Cord	-D	UL/CSA Standard	
	-F	VDE Standard	
	-R	AS Standard	
	-Q	BS Standard	
Options	*) Highly recommended:		
	/G6*)	Advanced Calculation, harmonics measurements.	
	/C7*)	Ethernet port, (100BASE-TX/10BASE-T)	
	/DT	Delta calculations, calculate individual phase voltages from line voltages	
	/CC	Cycle by cycle measurement, time series listing of measurements/cycle	
	/C5	USB ports, for screenshots, data and settings on USB memory. Keyboard	
	/C12	Communication with PC by USB connection type B	
	/FQ	Frequency measurements from six (standard: 2) measurement channels	
See also our WT3000 bulletin BU7603-00E		/V1	VGA output to external monitor
		/B5	Internal printer

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Yokogawa has an extensive distribution network. To find the representative in your country or close to you, go to <http://tmi.yokogawa.com> or call +31 (0) 88 464 1000 or email to [t&m@nl.yokogawa.com](mailto:t&m@nl.yokogawa.com)

#### 760122 WT-viewer software

Application software tool that reads numeric, waveform and harmonic data measured with one of the WT-series.

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### YOKOGAWA ELECTRIC CORPORATION

Yokogawa's global network of 19 manufacturing facilities, 89 affiliate companies, and over 650 sales and engineering offices spans 32 countries. Since its founding in 1915, the US\$4 billion company has been engaged in cutting-edge research and innovation, securing more than 7,500 patents and registrations, including the world's first digital sensors for flow and pressure measurement. Industrial automation and control, test and measurement, information systems and industry support are the core businesses of Yokogawa. For more information about Yokogawa, please visit our web site at [www.yokogawa.com](http://www.yokogawa.com)

