



WT5000 Precision Power Analyser

Next Generation in Precision

Packing the very best in isolation, noise immunity, current sensing and filtering in a modular architecture, the WT5000 is an extensible measurement platform that unlocks precision power analysis for development of energy-efficient systems.



Ideal for efficiency analysis of:

- Hybrid and electric vehicles
- Wind power generation
- Photovoltaic inverters
- Inverters, motors and drives
- Pumps and matrix converters
- Domestic / Office appliances
- Batteries and power supplies
- Aircraft power systems
- Standby power measurement

- World's greatest accuracy - 0.01 % reading, 0.02% range at 50/60 Hz
- Frequency power range 5MHz
- Sampling rate 10 MS/s (18-bit)
- Fast response with 10ms update rate
- **New!** Dedicated current sensor module with built-in sensor power supply
- Current measurement – 5mA to 5A module or 0.5A to 30A module
- Raw data streaming up to 2MS/s
- IEC compliant Current Harmonics and Flicker measurement

Precision at your fingertips

The WT5000 is the world's most accurate precision power analyser that guarantees a basic power accuracy of $\pm 0.03\%$. Operable by touch and hardware, the WT5000 offers an intuitive measurement experience for applications such as automotive development, efficiency tests of inverter driven motors, renewable energy technologies and traction applications like pumps, fans. Define and use event triggers and custom computations to suit your application needs and view measurements in numeric, waveform, bar, vector or trend formats.

Insights from up to 7 swappable input elements

Make simultaneous measurements on up to 7 inputs and compare them in split screen mode on the high resolution 10.1 inch touchscreen. The modular architecture of the WT5000 features 7 slots for users to swap between different types of input elements, allowing you to expand or reconfigure the WT5000 as your applications and their needs change.

Evaluate up to 4 motors simultaneously

The motor evaluation function enables measurements of rotation speed and direction, synchronous speed, slip, torque, mechanical power, electrical angle and motor efficiency from the analog or pulse outputs of torque sensors or pulse outputs of rotation sensors. A single WT5000 can be configured for measurements of up to 4 different motors simultaneously using torque and rotation sensors.

Precision harmonic analysis

Analyse harmonics up to the 500th order and fundamentals up to 300kHz. With a lower frequency limit of 0.5 Hz, the WT5000 enables measurement of harmonics and total harmonic distortion (THD) even at very low motor rotation speeds. Users can view harmonics alongside conventional RMS values of voltage and current or compare different inputs side by side (particularly useful when comparing input and output of inverters, ballasts, emergency power supplies etc.).

Easy wiring and star - delta conversion

Obtain differential voltages, line and phase voltages from the sums and differences of the instantaneous values of voltage and current in each element. The WT5000 enables conversion of measurement values for a 3 phase star wiring system to those for a delta wiring system and vice versa.

Data streaming

The raw waveform from all voltage, current and motor inputs can be streamed to a PC. This can be done using a sample speed of up to 2MS/s. The WT5000 not only measures with the highest precision, but also enables detailed analysis of the measured signals. The captured raw data can be used to make custom calculations.

Evaluation of multi-phase motor control

The user defined computations of the WT5000 have presets to measure I_d I_q , V_d V_q and L_d L_q . These field-oriented control parameters are used by inverters to simplify the control of multi-phase motors by applying a dc control model at the input of a complex AC commutation output. This allows the inverters PID control loops to regulate only a limited of non-time varying (DC) variables, thus greatly simplifying processing and essentially controlling an AC motor like a DC motor. By using the presets to calculate these parameters allows evaluation of the motor control simultaneously with efficiency measurements of the motor.



Advanced filtering

Whether it is for custom synchronization of measurements, smoothing of signal fluctuations or simultaneous wideband and harmonic power analysis, the advanced filtering options of the WT5000 puts the user in control of his measurements without compromising on accuracy.

- Synchronization source filter: Instead of synchronizing to zero crossings, users can select any specific point of the synchronization source signal.
- Enhanced frequency filter: Allows users to simultaneously measure fundamental and switching frequencies without influencing any other parameter.
- Digital Parallel Path Filters: Together-Together with a high frequency anti-aliasing filter, two separate line filters for normal and harmonic measurements ensure accuracy without aliasing in wide band and harmonic measurements. Users can limit the number of harmonic orders to eliminate attenuation in low bandwidth measurements.

3 years warranty

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

Why choose the WT5000?

Reliability – With a guaranteed accuracy of $\pm 0.03\%$, harmonic comparisons up to the 500th order and custom computations, the WT5000 delivers multichannel measurements that you can trust.

Versatility – 7 slots for user swappable input elements, diverse main-frame options and simultaneous evaluation of up to 4 motors enable you to expand or reconfigure the WT5000 as your applications and their needs change. Optionally raw data can be streamed to a PC, for detail analysis.

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

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