

August 2009

**In This Issue**

- Power Analysis: Precision AC Power Measurements Seminar
- When 8-bit Scopes Aren't Enough
- Technical Oscilloscope Probe Seminar
- Oscilloscope Basics & Key Features of Today's Scopes Seminar
- Power Measurement & Harmonic Analysis
- Advances in Mixed Signal Oscilloscopes
- Electric Motor Testing Seminar
- Digital Oscilloscope Power Analysis Seminar
- Upcoming Seminars

**Quick Links**

- [All T&M Products](#)
- [Waveform Measuring Instruments](#)
- [Power Measuring Instruments](#)
- [Optical Measuring Instruments](#)
- [Upcoming Events & Education](#)
- [Contact Yokogawa](#)



**Yokogawa T&M Products**



DL9000 Series Digital Oscilloscopes: Troubleshoot faster with real-time analysis and noise filters, and the industry leading waveform update rate. Select from ten models!

**Dear Customer,**

Ask most engineers today what their biggest challenge is and you'll hear "doing more with less". Engineers are constantly being tasked with covering not only their core competencies but also areas that fall outside their core expertise. Yokogawa is pleased to provide a wide variety of educational seminars geared to providing engineers with the knowledge they need in an easy to digest one hour webinar. Take a look at Yokogawa.

**Power Analysis: Precision AC Power Measurements Seminar**



This one hour seminar will cover Precision Power Measurements and Power Factor Measurements.

**Precision Power Measurements**

- Review Some Basics
- Power Measurements Using a Precision Power Analyzer - and a Power Analysis Digital Oscilloscope
- Single-Phase Power Measurements
- Current Sensors
- Three-Phase Power Measurements
- 2 & 3 Wattmeter Methods
- Practical Applications
- Energy Star®, Stand-by-Power, and Low Power Measurements
- Switching Power Supply Analysis with a Power DSO
- Inverter & PWM Motor Drive Power Measurements

**Power Factor Measurements**

- Develop Power Factor Relationships
- Displacement Power Factor
- True Power Factor
- Power Factor in Single Phase & Three Phase Circuits
- Practical Power Factor Measurements Using a Digital Power Analyzer



DL750P ScopeCorder.  
Sometimes an Oscilloscope,  
sometimes a Chart Recorder,  
this "Hybrid Instrument" is ideal  
for electro-mechanical  
applications



DLM2000 MSO Series shatters  
the "barrier to entry" into mixed  
signal design. It uses a clever  
and industry first "flexible MSO  
input."



SL1000 is the only data  
acquisition system with  
independent, isolated channel up  
to 1KV at 100MS/ch rates, with  
no compromise in bit resolution,  
memory depth or streaming  
performance.



Power Meter WT3000 with a  
basic accuracy of 0.02% for  
direct power measurements of  
up to 4-phases.

### Who Should Attend

- Design Engineers and Managers Involved with Power Measurement on Motors, Motor Drives, Power Conversion Devices, Power Supplies & Lighting Systems.
- Test Engineers Responsible for Testing Power Devices.
- Electric Transportation Systems Engineers.
- Power Quality Engineers Involved with Product Conformance Testing.

[Please click here to register for August 20, 2009](#)

### When 8-bit Scopes Aren't Enough: High Resolution, Isolated, Mixed-Signal Instruments for Electro-Mechanical Measurements Seminar



We all know what a difference the right tool can make. While traditional 8-bit oscilloscopes are the right choice in many situations, they often are not the best choice when making mixed signal, power and/or electro-mechanical measurements. There exists in the market, instruments designed with these applications in mind. Hybrid instruments offer capabilities not found in traditional 8-bit oscilloscopes. These capabilities include: high-resolution (up to 16-bit) and isolated inputs, very long memory for long-term recording and support for a variety of signal inputs (RMS coupling, temperature, strain, frequency-voltage, accelerometers, etc.)

### What you will learn in this seminar:

- Understand differences between oscilloscopes, recorders and hybrid instruments.
- Identify key instrument specifications for electro-mechanical applications.
- Why hybrid instruments are often the best choice.
- Discuss specialized functions designed for electro-mechanical applications.

[Please click here to register for August 25, 2009.](#)

### Technical Oscilloscope Probe Seminar

Who Should Attend:

### Engineers and technicians who:

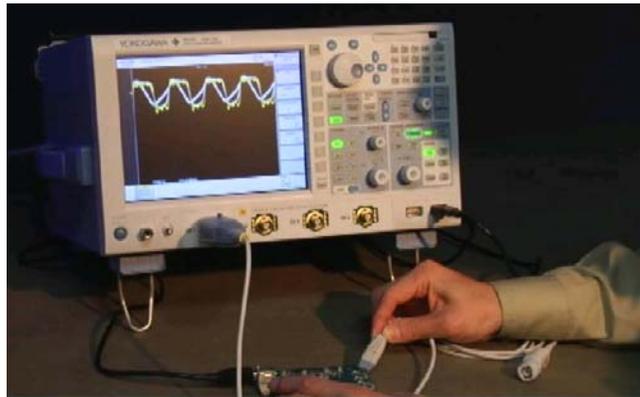
- are new to testing signals with oscilloscopes
- make measurements at 50 MHz or higher
- design or test power supplies
- desire to improve test result repeatability
- wish to more fully utilize existing scopes by choosing the best probe for a given application.



WT210/WT230 has five times the high-frequency range and approximately twice the basic accuracy as the previous generations plus a high-speed data acquisition rate. and a compact design make this digital power meter highly desirable.



Optical Spectrum Analyzer (OSA) AQ6370B is a bench-top high performance OSA covering 600 to 1700nm wavelength range. Its newly implemented USB interface adds strength in operability and data handling.



#### What you will learn:

- Voltage Probe Basics
- Specifications for Probes
  - Phase Compensation
  - Probe Matching
  - Low Capacitance probes
  - FET/Active Probes
  - Differential Probes
- Real World Circuit Probing
- Benefits of Using Probes
  - Loading Effect
  - Filtering by Probe Capacitance
  - Resonance by Inductances
  - Use of Damping Resistors
  - Stability of Probe Cables
  - Stability of Ground Levels
- Current Probe Basics
- Hints and Tips for Successful Probing

[Please click here to register for September 10, 2009.](#)

[To contact a local representative in your region, please click here](#)

**Oscilloscope Basics & Key Features of Today's Scopes Seminar**

Oscilloscopes are a tool of utmost importance for anyone wanting to look at the behavior of electrical signals in the time domain. This one hour seminar will provide a broad overview of oscilloscopes, focusing on key specifications and on some of the advanced waveform analysis capabilities of modern scopes.



**In this seminar we will cover:**

- Key oscilloscope specifications including: bandwidth, sampling rate, memory length and how they affect measurements
- Triggering
- Input settings and acquisition models
- Waveform analysis including: FFT, XY display, math, histograms and waveform parameters
- Application specific measurements: power analysis and serial bus analysis (CAN, I2C, SPI, FlexRay, etc.)

[Please click here to register for September 22, 2009.](#)

**Power Measurement & Harmonic Analysis: Applications using the latest Digital Power Analyzers**

Power Measurement & Harmonic Analysis Seminar is the second part from the Yokogawa T&M University series on precision AC power measurements. This 1-hour seminar is packed with tips and techniques for making accurate power measurements on distorted waveforms like from a Power Supply, Electronic Ballast and Variable Speed PWM Motor Drive. We will also cover methods for making and analyzing the harmonic content of various power waveforms.

**Who Should Attend:**

Design Engineers & Managers involved with AC power measurements on Motors, Power Conversion Devices, Power Supplies & Lighting systems.

Test Engineers responsible for testing power devices.

Electric Transportation system engineers and Power Quality engineers involved with product conformance testing will also benefit greatly from this seminar.

[Please click here to register for September 24, 2009.](#)



**Advances in Mixed Signal Oscilloscopes**



Yokogawa, a global leader and pioneer in digital oscilloscopes, invites you to attend a technical seminar sharing the latest advances in mixed signal oscilloscope technologies. It will discuss the theory and applications of anomaly/glitch detection, waveform characterization, signal enhancement, serial bus analysis, special mixed signal considerations, and more.

**Seminar Topics:**

Traditional Digital Oscilloscope Applications

Emerging Oscilloscope Applications and Advances in mixed signal technologies.

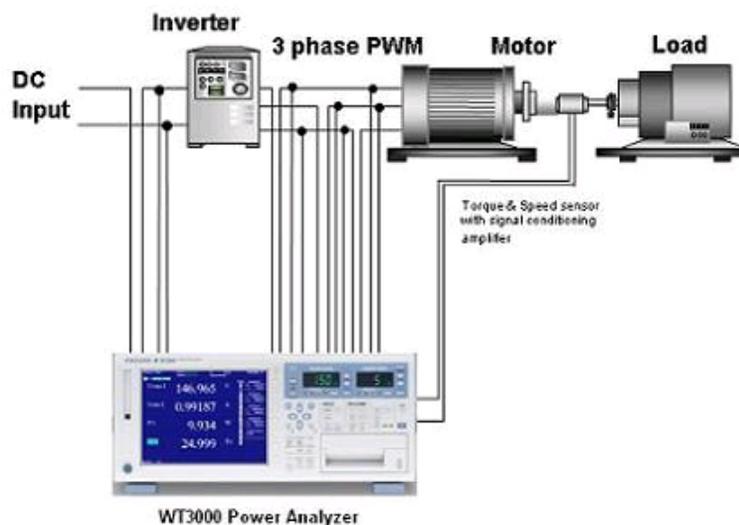
How the latest mixed signal instruments can perform the function of several traditional instruments in one, and even enable methods that are not possible with a logic analyzer or protocol analyzer alone.

Measurement techniques such as state and timing mode logic analysis, triggering and real-time decoding of advanced serial protocols, and considerations for correlating or analyzing analog measurements.

Special, useful methods for making meaningful display and analysis of your mixed signals, such as "bundling", "virtual D/A", logic persistence, and "history" memory segmentation

[Please click here to register for September 29, 2009.](#)

### Electric Motor Testing Seminar



This one hour seminar will cover making precision electrical power measurements on AC motors and variable speed drives. Topics will include efficiency measurements of the drive, motor and complete system, accurate measurements of the fundamental PWM voltage of a drive, phase voltage measurements without a neutral line, and other testing techniques outlined in IEEE Standard 112B, Test Procedure for Polyphase Induction Motors.

[Please click here to register for October 8, 2009.](#)

### Digital Oscilloscope Power Analysis Seminar

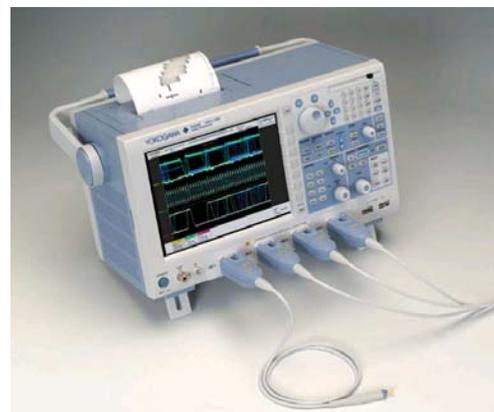
As today's power supply designs evolve, so do testing requirements. During this webinar, you will be introduced to the many specialized power measurements necessary to evaluate switched-mode power supplies.

#### Topics covered will include:

- switching loss
- in-rush current, safe operating area
- dynamic ON resistance
- harmonics
- power factor

Test equipment requirements will be covered as well.

[Please click here to register for October 13, 2009.](#)



### Upcoming Seminar Topics

**October 22, 2009** - [UART, I2C/SPI/SM, CAN/LIN/Flexray: Tips & Tricks for Serial bus Protocol Analysis & Physical layer Troubleshooting using MSOs](#)

**October 29, 2009** - [40G Client and Line Side Testing Basics](#)

**November 5, 2009** - [Technical Oscilloscope Probe](#)

November 19, 2009 - [FTTH OTDR Testing for Networks with 32:1 Splitters](#)

## Getting to Know Yokogawa



Yokogawa was established in 1915 and has grown into nearly a \$4 Billion company over the past 90 years. Yokogawa is a technology leader that annually reinvests nearly 10% of its earnings into R&D and has nearly 6,200 patents to show for it.

YOKOGAWA

[To read more about Yokogawa's approach to the T&M market please read the following Test and Measurement World article.](#)

We hope this newsletter provided you with some valuable information and we look forward to seeing you on-line. Stayed tuned for future issues of **applicationXplorer** and more useful information from Yokogawa. If you received this email in error please use the "SafeUnsubscribe" link below.

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