

applicationXplorer™

YOKOGAWA ◆
Test & Measurement



E-Newsletter June 2008, Vol 1.0

Dear Customer,

In our ongoing efforts to deliver valuable and practical solutions to engineers, we are proud to present another edition of "applicationXplorer". Yokogawa instruments not only provide unique solutions such as power supply efficiency testing, but also measurement solutions that meet other challenges facing today's engineers.

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Yokogawa T&M Products

Using short Laser Pulse Spectroscopy to Understand Elementary Chemical Processes

Biomolecules are the basic components of life. A further understanding of them could, in the long run, lead to the therapy of diseases such as Alzheimer's, Parkinson or Creutzfeldt Jacob, or other neurodegenerative diseases related to the accumulation of incorrectly folded proteins.

One procedure for the investigation of biomolecular dynamics is Ultrashort Laser Pulse Spectroscopy. The principle is simple: A first laser impulse strikes the molecule, and a second, weaker and time shifted laser impulse measures the reaction. Through repeated measurements with different time shifts, one can map a temporal image of the biomolecule's behavior.



In the laboratory of Professor Dr. Eberhard Riedle, chair for Bio Molecular Optics (BMO) department of the Ludwig Maximilians University in Munich, researchers work with impulses of less than 20 femtoseconds. A femtosecond is 1×10^{-15} Seconds - an order of magnitude that is difficult to imagine. A comparison may help here: In one second light travels 300,000 km, nearly the distance between Earth and moon. In a femtosecond, light



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



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



Digital Oscilloscope DL7480. The world's only eight-channel MSO, plus enhanced functions for Power Analysis & Serial Bus Analysis.



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

travels just 0.3 μm . That's about 1/100th the thickness of a strand of human hair.

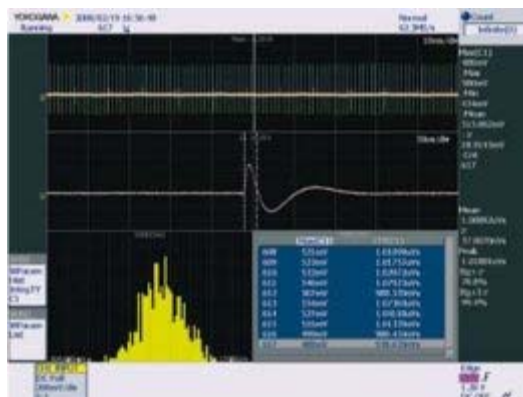
Titanium sapphire lasers (Ti: SA) are used as impulse sources, and they supply impulses with wavelength of approx. 800 nm (red light), duration of 150fs and a 1 kHz repetition rate. Spatially viewed, few cycles of red light can fit into a 20-fs impulse. Applying the well-known Fourier relationship (The shorter the impulse, the broader its frequency spectrum), the researchers shorten the laser pulses by widening the frequency spectrum and selecting the shorter wavelengths.

This transformation reaches the BMO team via a Noncollinear Optical Parametric Amplifier (NOPA). Through a sapphire crystal, feedback and mixing, and prism-based spectral and pulse shaping, the impulse is reduced to just a few femtoseconds.



The original pulse frequency of 1 kHz is preserved through the impulse transformation. However, the amplitude and phase of the laser can be distorted through this process. So, the impulse intensity must be constantly monitored and regulated, because otherwise each test specimen behaves differently.

The BMO examines impulses using a digital storage oscilloscope. The DL9000 measures and analyzes the laser impulses above the clock rate of 1kHz. The center shows a zoomed in shot of a single impulse.



The shape of the curve doesn't indicate the actual pulse envelope, but the output of the photo detector, which, although orders of magnitude slower, still corresponds to the impulse intensity. The list in the lower right indicates maximum values,



Optical Spectrum Analyzer (OSA) AQ6370 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.

indicated in mV, as well as the respective integration over the zoom shot range, indicated in millivolt-seconds (mVsec). These values correspond to the impulse intensity. Also shown is the frequency distribution of the impulse intensity as histogram. In the right hand column, the instrument displays the average values and standard deviations. Since all values are computed on-line, it makes the alignment and optimization of the experimental setup possible.

[For more information, please e-mail us](#)

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

New Isolated High-Speed Input Module for SL1000



Yokogawa sets a new standard for High-speed Data Acquisition by introducing the new 100MS/s, Isolated, 2-ch module. The module was developed with the latest ISO-PRO™ technology that achieves galvanic separation by fiber optics to withstand common mode voltages of up to 1000Vrms, additionally, when combined with a 10:1 probe, the system can provide an input impedance of up to 10MΩ with high inter-carrier noise suppression.

With a bandwidth of 20MHz and a vertical resolution of 12-bits, the module addresses applications that require fast scan rates and accurate measurements. Examples of such application are: monitoring output voltage of power packs, measuring shifting power in semiconductor processes, engine testing and explosion testing. The acquired data can easily be stored directly to the internal hard drive (optional) and/or to the PC via USB 2.0 or Gigabit Ethernet interface.

[For more information, please click here.](#)

**** BRAND NEW ** Introducing the WT500 Mid-Range Power Analyzer**



The WT500 is being added to the Yokogawa line of Digital Power Analyzers as a new Mid-Range product. It is positioned as an upgrade to the WT210 & WT230 Entry Level products with enhanced features such as a large Color TFT LCD Display, single & three-phase models, a basic accuracy 0.1% of reading, maximum direct input of 1000 Vrms and 40 Arms, and a bandwidth of DC, 0.5Hz to 100 kHz. This new Power Analyzer can be configured with 1 to 3 totally independent and isolated input elements for the simultaneous measurement of DC and AC signals. Applications for the WT500 will include inverter testing and efficiency calculations for input-to-output power of inverters used in renewable energy products. A new Integration function is provided for Watt-Hour and Amp-Hour measurements that provides evaluation of both Charge/Discharge and Bought/Sold power. Two front panel USB ports are provided for storing measured data in a CSV format directly to a USB memory stick. Communications to a PC is provided by a standard USB Interface, with options for GPIB and Ethernet.

An optional Harmonic Analysis function is available for harmonic component and THD (Total Harmonic Distortion) measurements up to the 50th order. Advanced signal processing circuitry allows for simultaneous measurement of harmonic data along with normal power measurement parameters. The large bright 5.7 inch color Display provides a variety of useful display formats. Numeric data, Waveforms, Trend, Harmonic and Vector displays are user selectable. An optional VGA output is also available. Yokogawa offers a complete line of Digital Power Analyzers designed to meet your application, measurement and budget requirements. The WT500 will be introduced in early June with deliveries starting in mid-July.

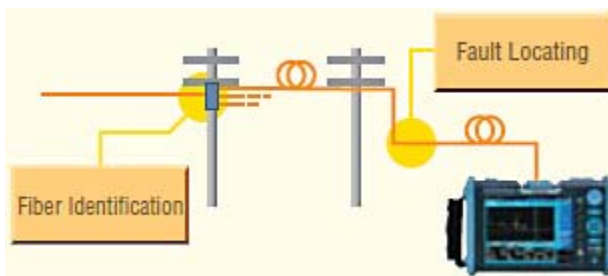
[For more information click here.](#)

Use AQ2200-331 Attenuator to test Communication Circuits



Using the AQ2200-331 Attenuators with built-in power meter to test high speed communications circuits has proven to be cost efficient and effective. It has been shown that you can stress the components of the network by attenuating the signals at the same time that you are sending signals through it. The AQ2200-331 are fast settling optical attenuators with a built-in power meter. By increasing the attenuation of the signal until it fails, a better indication of the reliability, than just sending a signal at a fixed level go / no go test is received.

Visible light source available in the AQ7275 OTDR



The AQ7275 OTDR can be ordered with a visible light source. This source can be used to identify which fiber you are working on. It can also be used to check for sharp bends in the fiber. The light is pulsed on and off at a rate of 2 Hz times per second. Light generated by this source will escape from sharp bends and breaks in jacketed or bare fibers, as well as poorly mated connectors. It can also identify faults in fiber optic jumper cables patch panels and splice trays.

[For more information, please click here.](#)

The DL750 is the perfect tool for the most demanding electromechanical test applications.

It offers real time analysis, the ability to separately capture high speed transients during low speed recording using "Dual Capture", and the power of "GIGAZoom", which enables up to 1 billion samples of data to be displayed and quickly analyzed.

This powerful and compact ScopeCorder won the prestigious 2008 "Test of Time" award from Test & Measurement World, because of its reliability and versatility. The award-winning DL750 has the powerful ability to combine the functions of an oscilloscope for capturing instantaneous phenomena and the ability to capture prolonged trend measurements as a data recorder. It is popular with engineers who make electromechanical measurements, especially within the areas of automotive, aerospace, and electrical powers.

Yokogawa strives to innovate and provide quality products for its customers and the DL750 is an excellent example of this passion and dedication in motion. The annual "Test of Time" award honors a product that continues to provide state-of-the-art performance for at least five years after its introduction (www.tmworld.com/awards). With Yokogawa you can rely on the quality of products and the follow-on service to take you far into the future. This Test of Time award confirms that promise.





Released in 2002, the DL750 is billed as having triple the analog accuracy at half the physical size (355x250x180 mm) of its predecessor. Customers are amazed at the compact size of the measuring unit and its multi-tasking performance. Coupled with its long memory and GP-IB and Ethernet support, Yokogawa offers you a winning tool to meet your needs.

"Engineers benefit from the ScopeCorder in ways that simply aren't possible with traditional oscilloscopes or data acquisition systems. It's truly the 'Swiss army knife' of electromechanical test tools." notes product manager Joseph Ting.

Yokogawa's customers are finding real satisfaction with the DL750 in a variety of applications. Boeing Aircraft of Seattle, WA, selected the DL750 over other options "because it offers superior isolation, memory depth, and a larger variety of inputs."

The DL750 houses advanced measurement, triggering, and display technology, along with an internal hard drive, a large screen, and a printer, all in one compact unit. Three USB ports, an Ethernet port, a SCSI port, a video port, a GPIB port, 16 digital inputs, and optional features of a ZIP drive, floppy drive, or PC Card drive offer additional I/O and connectivity. The DL750 supports up to 16 analog inputs and even a voice recorder for documentation. Indeed, the DL750 is multi-functional and has a powerful combination of features and a wide range of applicability.

The DL750 ScopeCorder allows users, in the same instrument, to trigger and capture instantaneous electrical events, or make prolonged trend measurements of physical sensors such as thermocouples or strain gauges. The user can also correlate a vast variety of physical sensors and industrial electronics signals (motors, drives, utility power), with no additional signal conditioning. The DL750 ScopeCorder gives users the hardware functionality of several instruments in a single unit. As a result of its innovative and versatile features, the ScopeCorder has become the standard instrument for bench top or portable measurements of physical and electrical quantities at 10MS/s or under.

[For more information, please e-mail us](#)

Yokogawa University 2008

In order to provide our customers with outstanding technical support and application guidance Yokogawa recently hosted our 2008 Yokogawa University. Executive product managers from Yokogawa served as instructors and provided valuable information on getting the most of Yokogawa's high performing products.

More than 75 product representatives, who came as 'students', eager to learn more about our award-winning



measuring tools and instruments, participated in rigorous course work. Each student participated in five required classes and six elective courses in topics ranging from Advanced ScopeCorders to High-Speed DAQ's.



Yokogawa University is an excellent venue for keeping our product representatives fully informed so they can provide our customers with up-to-the-minute product information and service. Yokogawa is dedicated to ongoing training as part of our commitment to service excellence. Yokogawa University is an important part of this commitment.

Sensors Expo 2008

Please join us at Sensors Expo 2008 at booth #1104, June 10th and 11th at Stephens Convention Center, Chicago O'Hare.

[Click here for details about the conference.](#)

[Click here to pre-register for a "free" Expo Pass](#)

Introducing New and Improved Y-Link Support Site

To better serve our customers' needs and requirements, we have added another utility called "Worldwide Network". This utility will allow users to quickly get access to the nearest Yokogawa offices or representatives.

[To register your Yokogawa products today, please click here](#)

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 it's earnings into R&D and has nearly 6,200 patents to show for it.

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

Promotions & Deals



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QUALITY ■ INNOVATION ■ FORESIGHT

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