SOLUTIONS &
PRODUCT OVERVIEW

TEST & MEASUREMENT 2012

QUALITY ■ INNOVATION ■ FORESIGHT

http://tmi.yokogawa.com

YOKOGAWA

QUALITY ■ INNOVATION ■ FORESIGHT

Since its founding in 1915, quality, innovation and foresight have laid the foundations for Yokogawa to grow into the multi-billion Euro organisation it is today.

A COMMITMENT TO A SUSTAINABLE FUTURE

At the heart of our overall philosophy and aims, Yokogawa strives to carry out all of its activities in an environmentally friendly manner and provide environmentally friendly products to customers.

By focusing on solving the measurement challenges related to energy conservation, efficiency and sustainability, and providing high quality, highly reliable test and measurement solutions, we enable our customers to design, build and deploy next generation products that increase the quality of life, productivity and the efficient use of the world's resources.

Yokogawa is a global organisation with over 19,000 employees. In Europe and Africa our 1,200 employees, located in a network of strategic locations, are complemented by our partners in a distributor network. From Finland to Portugal and from Ireland to South Africa, every customer receives the local help to support their investment in our green test and measurement solutions to enable them to be pioneers and innovators in their fields.

contents

DIGITAL STORAGE OSCILLOSCOPES

Powerful performance and value

Yokogawa provides digital and mixed signal oscilloscopes with long flexible capture memories, which enable you to maintain high sample rates, and with extensive signal analysis capabilities. The integrated hardware enables serial buses, such as I^2C, SPI, CAN, LIN and FlexRay, to be analysed in real time and multiple parameters to be measured without any reduction in waveform acquisition rate. Yokogawa scopes offer large clear displays, intuitive multi-language user interfaces, easy connectivity and especially, value for money.

DLM6000
Mixed signal oscilloscopes

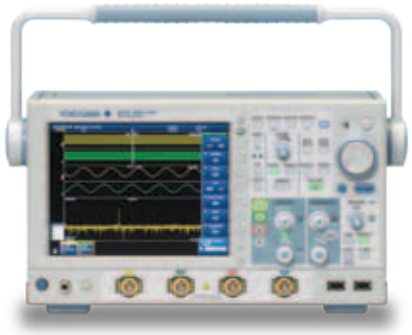
A DLM6000 is not just an MSO. The ability to sample the 16 or 32 logic channels at the same rate as the 4 analogue ones together with features such as full state display and bus display functions, typically found on logic analysers, enable embedded systems and their timing to be comprehensively analysed. A/D and D/A engineers can benefit from the 'virtual A/D' feature to get quick characterisation of circuit designs.

- 500 MHz and 1 GHz bandwidths
- 6.25 M points memory on every channel
- 5 GHz maximum sample rate on every channel

DIGITAL STORAGE OSCILLOSCOPES

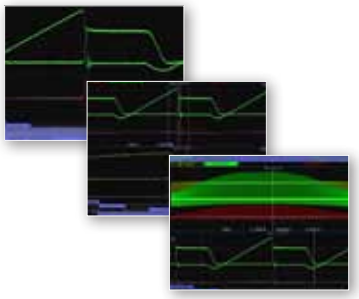
DLM2000 – Mixed signal oscilloscopes
The DLM2000 combines long memory, fast waveform acquisition and up to 20,000 history memories. The input flexibility enables the 4th analogue channel to be converted to 8 logic inputs. They offer a wealth of measurement and analysis capabilities including digital filtering, serial bus analysis and histogram functions. These powerful compact oscilloscopes are the solution to the widest range of applications and budgets.

- 200 MHz, 350 MHz and 500 MHz bandwidths
- 2 or 4 analogue channels (or 3 analogue and 8 logic)
- Up to 2.5 GS/s sample rates
- Up to 125 M points memory



DL6000 - Digital oscilloscopes
With bandwidths up to 1.5GHz, these high performance oscilloscopes offer an unrivalled combination of high speed waveform acquisition and 2000 history memories which provides not only the ability to capture rare and abnormal signals but also to make comprehensive measurements on each one. The 4 maths channels, which can be user defined, deliver extra versatility for countless applications.

- 500 MHz, 1 GHz and 1.5 GHz bandwidths
- 5 or 10 GS/s sample rates
- 6.25 M points/channel
- Up to 2.5 million waveforms per second



Power supply analysis
The oscilloscope power supply analysis option enables high frequency power devices and built-in power supplies to be easily evaluated. The accuracy of switching loss and other power related measurements is maximised using Yokogawa current and voltage probes together with the automatic deskew feature.

- Safe operating area (SOA) analysis
- I^2t inrush current measurement
- Harmonic analysis for EMC emissions testing

software and accessories

Xviewer PC software for DL series
Virtual instrument control, file transfer, waveform viewer and analysis. Support for Ethernet, USB and GPIB interfaces. Comprehensive analysis includes 6 types of FFT calculation for up to 2 M datapoints.

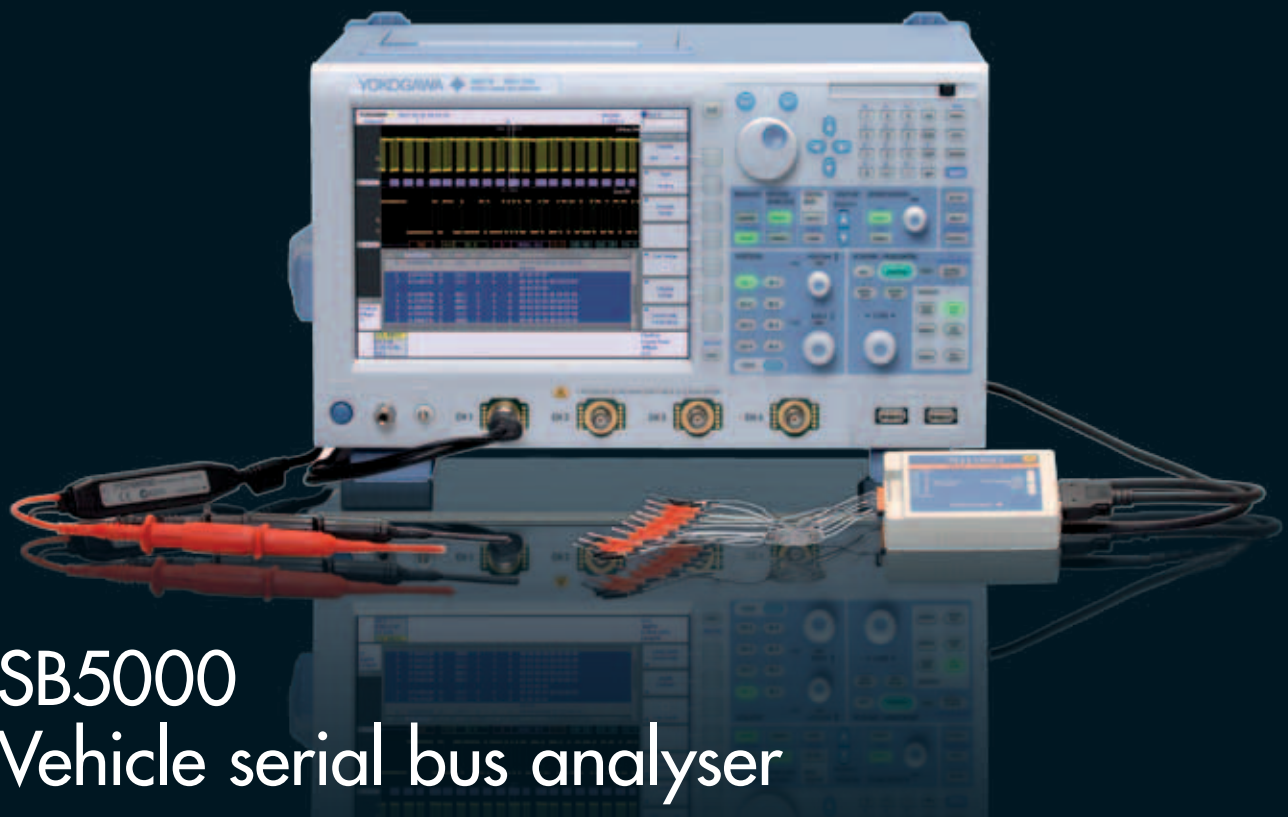
CAN-DBC and logic symbol file editor software
Create and edit logic symbol definition files for use on the DLM6000 and SB5000, and CAN-DBC physical value definitions for the same models plus the DLM2000 and DL6000.

DIGITAL STORAGE OSCILLOSCOPES

All in one vehicle serial bus analysis

To improve safety, reliability and comfort, the rapid expansion in the amount of electronics inside a vehicle is expected to continue. The advanced control systems require new high speed communication technologies such as FlexRay, which offers data rates up to 10Mbit/sec, deterministic behaviour and guaranteed message latency and jitter. Yokogawa provides the physical layer analysis tools which enable the development and implementation of these buses and to test their conformity to their standards.

FlexRay™



SB5000
Vehicle serial bus analyser

The SB5000 is a serial bus analyser focused on in-vehicle serial bus protocols including FlexRay, CAN and LIN as well as providing UART, I^2C and SPI trigger and analysis capabilities. It performs FlexRay signal integrity testing (SI Voting), eye-diagram analysis and bus driver electrical parameter measurement, and provides simultaneous analysis of analogue and logic channels, and simultaneous observation of any two serial buses.

- 4 analogue and 8 or 32 logic channels
- CAN-DBC and FIBEX database import
- Symbolic layer triggering, analysis and trending

DIGITAL STORAGE OSCILLOSCOPES

PBDH1000 – 1 GHz differential probe
- Compatible with the FlexRay standard
- 1 M ohm / 1.1 pF input
- +/- 25V differential voltage input

PBA1000, PBA1500, PBA2500 –Active probes
- 1 GHz, 1.5 GHz and 2.5 GHz bandwidths
- 100 k ohm / 0.9 pF input
- +/- 7 V dynamic range

PBC050, PBC100 – Current probes
- 30 A rms continuous measurement
- DC to 50 MHz or 100 MHz
- Direct readout of current values

PBL5000 – Low capacitance probe
- DC to 5 GHz
- 450 ohm or 950 ohm / 0.25 pF input
- 20 V rms maximum input
- DC blocking capacitor available

701919 – Probe stand and positioner
- Hands-free circuit board testing
- Heavy base and flexible arm (1.5 kg)
- For 8 mm to 13 mm diameter probes

701936 – Deskew signal source
- For use with DL/DLM power analysis option
- Maximises power measurement accuracy
- Accepts large jawed current probes

software and accessories

FIBEX and CAN databases
The free PC symbol editor software enables FIBEX and CAN DBC databases to be converted into physical (message, signal) values, which can then be displayed as trend graphs on the SB5000 or used as triggers etc.

Complete range of probes
A DSO is only as good as its probes. Our range includes active, differential, low capacitance, passive and current types, with frequency bandwidths to 2.5 GHz, and a stand for hands-free precision probing.

SCOPECORDERS

Multi-channel recording & analysis

Whether the signal is DC, AC, high voltage or millivolts, a wide selection of high resolution input modules, with individually isolated channels, allows a ScopeCorder to monitor and analyse a combination of different types of signals all in one synchronised measurement file. By directly connecting popular sensors like thermocouples, accelerometers, strain gauges and tachometers, all kinds of electrical and mechanical application, can be satisfied.

DL850 ScopeCorder

The DL850 is the third generation of our highly successful family of ScopeCorders; versatile multi-channel instruments that combine the benefits of high-speed oscilloscopes and those of traditional data acquisition recorders in a single, portable instrument. It can record for long periods (e.g. 30 days or more) and also capture, and analyse, very fast transients. The DL850 ScopeCorder is an ideal tool for measuring physical and electrical parameters in application sectors such as the automotive industry, mechatronics, transport, power electronics and alternative energy. A dedicated version for the automotive industry – the DL850V Vehicle Edition – includes modules for monitoring CAN and LIN in-vehicle serial buses.

- High-speed sample rates up to 100Ms/s
- 2 to 128 analogue or 128 logic channels
- Isolated inputs up to 1000V

SCOPECORDERS

DL850V – ScopeCorder Vehicle Edition
The DL850V introduces CAN and LIN bus monitoring on the ScopeCorder, making it ideally suited for monitoring and analysis of actual physical data transmitted over the vehicle serial bus.

- Compare CAN data with analogue sensor output
- 60 CAN sub channels/port (2 ports per module)
- 12V DC (from vehicle) power option

SL1400 - ScopeCorder
The SL1400 is ideal for manufacturing and maintenance applications where data needs to be quickly and easily recorded to an A4 chart recorder and/or memory.

- 2 to 16 analogue channels and 16 digital
- Chart recorder, XY recorder and memory modes
- Quick and easy user interface

SL1000 - High-speed data acquisition unit
The SL1000 is a PC-based high speed data acquisition unit and comes with intuitive logging and control software for quick start and easy set-up.

- Ethernet and USB interfaces
- 3.2 MByte/s data streaming rate (1.6 MS/s)
- Up to 128 channels by synchronising 8 SL1000 units

Input modules - for ScopeCorders and SL1000
- High Voltage 100 MS/s, 12-bit, isolated *
- Voltage 10 MS/s, 12-bit, isolated or non-isolated
- Voltage 1 MS/s, 16-bit, isolated
- High Voltage 100 kS/s, 16-bit, isolated with RMS
- Voltage Scanner 200kS/s, 16-bit, 16 channel **
- Temperature Scanner, 16-bit, 16 channel ** NEW
- Temperature & High precision voltage
- Strain gauge
- Acceleration
- Frequency
- Logic data **
- CAN bus monitor ***
- CAN and LIN bus monitor *** NEW

* except for SL1400
** only for DL850 series
*** only for DL850V Vehicle Edition

software and accessories

Complete connectivity
Simply connect a USB stick to a DL850 and quickly store your measurement or setup files. The DL850 is equipped with USB, Ethernet and SD card interfaces. Options include built in hard disk, external ESATA interface for HDD connection and GPIB interface.

Xviewer - PC software
Display and analyse waveforms (using the "Viewer" function), perform file transfers and control a ScopeCorder and SL1000 remotely. The ScopeCorder advanced utility option allows pre-analysis of waveform data while the acquisition on the DL850 is still in progress.

POWER ANALYSERS & METERS

Trustworthy power measurements

The use of alternative energy, the conservation of energy by reducing standby power consumption and the reduction in our dependency on fossil fuels is the roadmap for a greener environment. Yokogawa, the world's largest manufacturer of power analysers and meters, continuously innovates and provides solutions to support improvements in energy utilisation. With its wide range of products, it offers solutions to not only support the development of alternate energy sources, such as solar, wind and water, but also to validate improvements in efficiency and reductions in power consumption.

WT3000
Power analyser

Meet the world's most stable and accurate power analyser, offering high bandwidth and unbeatable performance. The WT3000 is the benchmark for energy efficiency measurements and enables products with standby power modes to be tested according to IEC 62301 Ed 2.0 and EN 50564. It supports 50/60 Hz (10/12 cycles) harmonic and inter-harmonic measurement and analysis, as required by the IEC61000 standards and can measure and analyse voltage fluctuation/flicker according to IEC61000-3-3/-3-11. For the evaluation of motors and inverters, a special version is available that enables the motor and total efficiencies to be measured simultaneously.

- Basic power accuracy 0.02%
- USB and Ethernet interfaces
- Bandwidth DC, 0.1 Hz to 1 MHz

POWER ANALYSERS & METERS

WT3000T – Precision power analyser - transformer test version

For measuring transformer losses under no-load conditions according to IEC60076-8, the WT3000T offers excellent accuracy at low power factors.

- Basic power accuracy 0.02%
- Accuracy better than 0.6% at power factor 0.01
- Accredited calibration certificate at delivery

WT1800 – Precision power analyser

With up to 6 input elements the WT1800 is typically used for efficiency measurements on three-phase motors and drives, power supplies with multiple inputs/outputs and LED lighting applications etc. The WT1800 is a universal meter for power electronic and energy analysis.

- Basic power accuracy of 0.1%
- Input power frequency range of DC, 0.1Hz to 1 MHz
- Simultaneous power measurements and dual channel harmonic measurements up to the 500th order

PZ4000 – Power analyser

Combining high precision power measurement and deep memory oscilloscope technologies, the PZ4000 is a unique instrument suitable for the power analysis of unstable loads and fast transients.

- High speed sampling to 5 MS/s
- Input frequency range DC to 2 MHz
- Harmonic analysis (up to 500th order)

Calibration

The control of product quality is essential and can make a huge difference to the success or failure of a business. Yokogawa Europe, with its own world class standards laboratory for power meters and current sensors, is the only industrial (i.e. non-government or national) organisation to offer traceable power calibration, to national and international standards, at frequencies up to 100 kHz. The exceptional capabilities at high frequencies and low power factors ensure that customers can trust their measurements and meet the requirements of quality standards such as ISO9000.

POWER ANALYSERS & METERS

Efficient energy use

Supported by its own world class European standards laboratory, Yokogawa provides trustworthy measurements for both low and high frequency applications. These range from traditional production line testing of domestic appliances and the measurement of highly distorted power waveforms in lighting circuits and inverters to the measurement of very small improvements in the efficiency of solar inverters and tests on hybrid and electric vehicles.

WT210/WT230
Digital power meters

The most widely used compact power meters in production facilities, easily measure voltage, current, phase angle, power factor and harmonics and are available with one, two or three-input elements. The WT210/WT230 with its superior cost performance is used as a tool for energy saving. The instrument operates over a wide frequency range and is used in numerous applications such as inverters and commercial power supplies. The WT210 together with the Standby Power Measurement Software enables the standby power of household electrical appliances to be easily tested according to IEC 62301 Ed 2.0 and EN 50564.

- Basic power accuracy 0.01%
- Input frequency range DC, 0.5Hz to 100kHz
- Enables to test standby power according to IEC 62301 Ed 2.0 and EN50564

POWER ANALYSERS & METERS

WT500 – Compact power analyser
Specifically designed for evaluating the power conditioning technologies used in renewable energy applications, such as inverters, drives & transformers, the WT500 is available with one, two or three input elements for single and three phase applications.

- Basic power accuracy of 0.1%
- Measurement of bought & sold watt hours
- Frequency range: DC, 0.5 Hz to 100 KHz

CW120/CW240 – Clamp-on power meters
Small-sized and battery powered electric energy and power meters for power quality management.

- Ideal for field applications
- Energy consumption measurement
- Wiring check function minimises connection errors

Current sensors
External current sensors are required to measure currents above 50Arms. The precision sensors from Hitec Power Protection and SIGNALTEC complement Yokogawa's high precision power analysers to ensure that measurements from milliwatts to Megawatts are accurate and reliable.

MACC^{Plus} - External current sensor
The accuracy and cost effectiveness of the MACCplus makes it a very popular sensor with a 1000:1 ratio and is suitable for currents up to 850 Apeak (600 Arms).

SC1000 - Zero-Flux™ split core current sensor
The unique split core principle enables it to be easily installed when power cables cannot be disconnected. Primary currents up to 1000 Apeak (700 Arms) can be measured.

CURACC - Zero-Flux™ external current sensor
When currents above 1000 Apeak (700 Arms) need to be measured, the CURACC offers high accuracy measurements up to 6000 Apeak (4240 Arms).

software and accessories

760122 WT-viewer
Display numerical and waveform data on a PC, perform harmonic analyses and use trend view to monitor power supply voltage fluctuations, changes in current consumption and other time-based variations.

761922 Harmonic software
This software enables harmonic analysis, voltage fluctuation and flicker measurement, compliant to IEC61000-3-12 & IEC 61000-3-3, to be carried out using measurement data from the WT3000.

OPTICAL SPECTRUM ANALYSERS

Leading solutions for R&D and industrial applications

In 2002 Yokogawa became a leading supplier of optical spectrum analysers following the acquisition of Ando Corporation. A commitment to supplying advanced functionality means that Yokogawa OSAs provide the solution to the widest range of R&D and industrial applications. These include the testing of LEDs and lasers, the evaluation of densely spaced communication signals and infrared sensing of gases such as those attributed to global warming.

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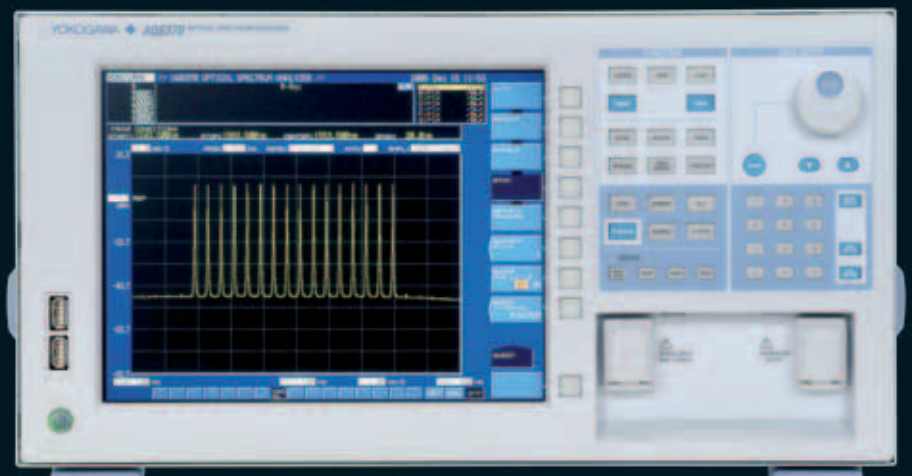


AQ6370
Series optical spectrum analysers

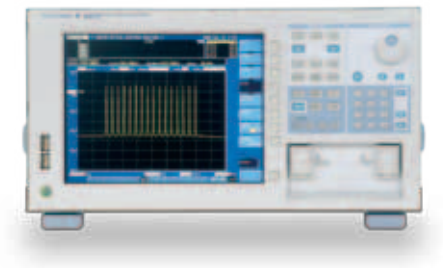
AQ6370 optical spectrum analysers are the most advanced on the market today. Covering wavelengths from 350 to 2400 nm they offer a unique combination of excellent performance, long term reliability and outstanding ease of operation. This makes them instruments of choice in not only demanding R&D applications, but also in many industrial process and quality control applications.

- High speed recording, and real-time analysis
- Compatible with single-mode and large core multi-mode fibres
- Simple operation & maintenance (incl. auto-calibration, mouse control or remote control)

OPTICAL SPECTRUM ANALYSERS

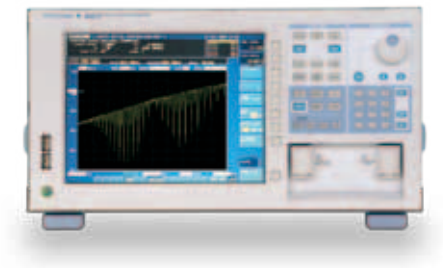
AQ6373 – Short wavelength range OSA
The AQ6373 offers extremely high resolution measurement of visible wavelengths and part of the near-infrared region. Advanced auto-analysis features include laser testing and light colour determination as perceived by the human eye (CIE 1931 XYZ).

- Uniquely covering the wavelength area 350 to 1200 nm
- Up to 20 pm resolution (10 pm between 400 and 470 nm)
- Laser development, visible wavelength communication, LED testing



AQ6370C – Mid wavelength range OSA
The AQ6370C is the ideal spectrum analyser for telecommunication applications. A complete set of automatic analysis functions are available for the evaluation of lasers, filters, DWDM signals and fibre amplifiers. Standard and high performance models are available to satisfy the most demanding applications.

- Wavelength range from 600 to 1700 nm
- Up to 20 pm resolution
- Telecom R&D, scientific research, quality control in component manufacturing



AQ6375 – Long wavelength range OSA
Uniquely covering the wavelength area 1200 to 2400 nm, the AQ6375 produces high sensitivity measurements using thermo-electric cooling of the internal photodetector.

- Wavelength range from 1200 to 2400 nm
- Up to 50 pm resolution
- Analysis of laser diodes, fibre lasers and super-continuum sources
- Fibre Bragg Grating manufacturing and absorption spectroscopy

software and accessories

Remote viewer software
The remote viewer software provides real-time monitoring of measurement results and complete instrument control from a remote PC (Ethernet). Using the same software, previously stored measurement results can also be analysed off-line.

OPTICAL & MULTIMEDIA TESTERS

Optical testing

Applications that are based on the propagation of light are entering our daily lives. Varying from applications in telecommunication, automotive, research, aerospace and consumer goods, each one requires its dedicated optical components to be thoroughly tested.
Yokogawa optical test systems offer the flexibility, speed and functionality to meet all requirements.

AQ2200
Multi application test system

The modular platform of the AQ2200 offers a solution for many optical test applications. With the broad range of available plug-in modules, complex measurement setups are simplified, with a single-box solution.
A single MATS frame can handle multiple applications simultaneously, allowing different users to control the modules thus saving cost.
The fast response of the instrument makes it an ideal tool in a manufacturing environment

- 3 and 9-slot frames allow hot-swapping of modules
- Fast command processing and programming capabilities
- Ethernet, GP-IB and USB interfaces

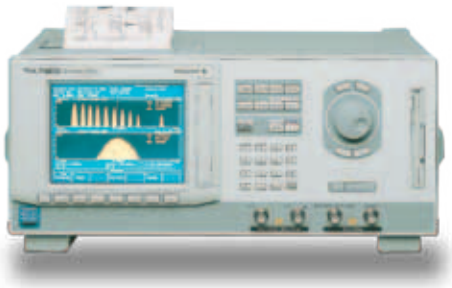
OPTICAL & MULTIMEDIA TESTERS

AQ2210 Series – Plug-in modules
A broad range of modules is offered to satisfy the extensive range of applications i.e. different laser diodes (tunable & fixed wavelength), sensor modules, attenuators, optical switch.

AQ4305 – Broadband (Halogen) Light source
- Up to 40 dBm output power
- Free-space output, FC/PC fibre connector
- High stability of +/- 0.05 dB
- GPIB control

SLDxx-Series – High-power, broadband Light source
The combination of a broad spectral range and a high power level is achieved by spectral combination of multiple super-luminescent diodes (SLD).

- 3 models with output spectrum ranges up to 1250 - 1650nm
- Total output power up to 16 dBm (40 mW)
- Spectral power density >-30dBm/nm
- Power stability +/- 20 mdB @ 15 min



TA720 – Time interval analyser
The TA720 is the de-facto standard for measuring jitter and analysing the performance of optical disks, including Blu-ray, in development and production environments, due to its outstanding sample rate, accuracy and resolution.

- 80 MS/s sampling rate, 25 ps resolution
- Simultaneous data-to-clock and data-to-data jitter measurement
- Inter-Symbol Interference analysis

software and accessories

Remote viewer software for the AQ2200
Viewer software for the AQ2200 provides real-time monitoring of measurement results and complete system control from a PC via Ethernet. Remote users can therefore easily access the instrument even when it is integrated into a production line or another machine.

OPTICAL FIELD TESTERS

Testing fibre-optic networks

Driven by an increasing demand for fast internet access, fibre-optic networks are rapidly expanding around the world. These networks need to be tested during both installation and maintenance. Yokogawa's rugged optical field testers are simple to operate and reliable, and allow accurate measurements to be performed under the most difficult conditions.

AQ7275
Optical time domain reflectometer

The AQ7275 offers the industry's best performance in terms of event separation capability and the shortest dead zone, less than 80cm, to enable multiple-event detection even when events are close to one another. Its high-speed operation optimises work efficiency, while automatic test functions enable installers to execute tests easily and reliably.

- 4-wavelengths, covering the requirements of core, metro and access networks
- increased work efficiency with fast power up time, high quality large screen colour LCD and one-button testing
- Multi core and PON measurements

OPTICAL FIELD TESTERS

AQ1200 – Handheld OTDR
The AQ1200 Optical Time-Domain Reflectometer is a compact, lightweight and easy to use optical fibre network testing tool. Its all-in-one design offers automatic fault finding, automatic event analysis, optical loss testing, visual fault location, fibre scope support, USB data storage and remote control.

- 1310 and 1550 nm wavelengths for common installation applications
- 1625 nm and 1650 nm wavelengths for the maintenance of active networks
- Enables novice users to quickly become productive

AQ1100 - Optical loss test set
The AQ1100 OLTS provides a power meter and light source(s) in one very portable unit for testing optical fibre networks such as FTTH (fibre to the home) and LAN (local area network). The optional PING function extends its capabilities and the USB port offers simple data storage. Choices of light source(s), including support for both single mode and multi mode fibres, and power meter, mean that the AQ1100 is a genuine Multi-field tester.

- power measurement up to +27 dBm
- PON (1490/1550 nm) parallel measurement
- optional visible light source for fault finding

software and accessories

AQ7940 - Intermittent* disconnection monitoring software
The AQ7940 is PC software for detecting and monitoring intermittent disconnections of an optical fibre connected to an OTDR, which is controlled via an Ethernet or USB interface. Disconnections could be caused by cold weather, animals or insects, for example, and may require quick action. Disconnections as short as 100 ms can be detected.

*Occuring occasionally or at regular or irregular intervals

AQ7932 - OTDR emulation software
This windows based software can analyse trace data obtained with AQ1200 and AQ7275 OTDRs on the PC. With its "Wizard" function it can easily generate tabular or waveform graph reports from the test data. Report data can also be output in Excel format.

SIGNAL SOURCES & GENERATORS

Fast, flexible and precise

For general purpose standalone applications or as core components in a high speed test and measurement system, Yokogawa sources and signal generators are highly accurate and functional. The integration of source and measurement into a single unit greatly simplifies the test process. Semiconductor devices, sensors, displays or batteries etc can therefore be quickly and easily characterised.

GS820
Multi channel source measure unit

The GS820 is a highly accurate multi channel voltage/current source measure unit that incorporates voltage generation/current generation as well as USB storage and an Ethernet interface. Since the two source channels and two measuring channels can be operated arbitrarily, almost all electrical characteristics can be evaluated.

- Dual sink and source operation: 7V and 3.2A or 18V and 1.2A
- Precise pulse generation (down to 100 µsec width with 0.1 µsec resolution)
- Drag & drop operation via USB

SIGNAL SOURCES & GENERATORS

GS200 – DC voltage/current source
The GS200 is a programmable DC voltage/current source/sink that combines high accuracy, high stability, and 5 1/2-digit resolution. The GS200 is thus able to generate extremely low-noise DC voltage and current signals that are required for many applications. Additionally, the optional monitor feature allows variations in the load voltage or current to be monitored and logged.

- Voltage source up to ±32 V. Current source up to ±200 mA
- Programmable output up to 10,000 points
- Built-in USB mass storage device

GS610 - Source measure unit
The GS610 is a high accuracy, high speed programmable voltage and current source that incorporates both generation and measurement functions as well as USB storage and an Ethernet interface. As the GS610 can operate as a current source or a current sink, a wide range of electrical characteristics can be evaluated.

- wide range sink and source operation (3.2 A, 110 V, 60 W)
- precise pulse generation (down to 100 μs width with 1 μs resolution)
- drag & drop operation via USB

FG100 - Synthesized function generator
This simple to use function generator provides the most commonly required test waveforms and functions with 10 bit setting precision. Direct digital synthesis is used to generate highly accurate signals, which makes it a perfect choice for a wide range of applications, from research & development to production.

- 1 or 2 independent channels
- 1 μHz to 2 MHz waveforms
- Precise phase control between channels

software and accessories

Multi-channel capability
Use the external input/output connectors to source or generate multiple synchronised channels and make test systems scalable.

Full connectivity
As well as GPIB, the GS610 supports Ethernet, which allows remote control using a web browser, and FTP file transfers. By using USB, the memories in the instrument appear as storage devices on the PC.

ELECTRICAL TEST TOOLS

High performance hand-held instruments

Yokogawa supplies a wide range of field instruments including digital multimeters, insulation testers, clamp-on testers and thermometers. Designed for day-to-day field troubleshooting and maintenance of electrical systems, electrical power systems and associated equipment, Yokogawa products help our customers to analyse, troubleshoot and repair their systems to ensure maximum performance. For use in industry, R&D and education, our products are safe and reliable, and they comply with the required safety standards.

Digital multimeters

Yokogawa's family of handheld DMMs is packed with advanced functionality, such as frequency, pulse width, duty cycle, temperature, capacitance and dB measurements. The TY series offers memory and USB communication functions, true RMS and mean value measurements, closed case calibration, a low pass filter and safety shutters. Features and functions like these allow the technician to test, troubleshoot and calibrate equipment, regardless of whether it is on the bench or in the field.

- TY700-series: 4.5 digit with 0.02% basic accuracy, 50000-count dual display and 51-segment bar graph
- TY500-series: 3.5 digit with 0.09% basic accuracy, 6000-count dual display and 31-segment bar graph
- 732 series: 3.5 digit, 4300 count with mean value measurement
- 73101: 3.5 digit, 4300 count pocket DMM

ELECTRICAL TEST TOOLS

CA450 - Process multimeter

The CA450 is a multi measuring test tool that not only offers the functionality of a true rms digital multimeter but also those of a calibrator for electrical and process measurements.

- Simultaneous 24V loop power and mA measurement.
- HART mode setting with loop power (250Ω resistance)
- Transmitter simulation (sink) function

Calibrators

- CA11E: voltage/current calibrator with auto step (4 to 20 mA), 20 mA sink, and sweep function
- CA12E: temperature calibrator with selectable RTD, Pt100 or JPt100, and built-in RJC
- CA51: handy calibrator with simultaneous signal source and measurement, and many useful functions
- CA71: handy calibrator with RTD, TC (10 kinds), and online communication functions
- CA150: hand-held calibrator with simultaneous signal source and measurement, SINK, auto sweep, loop check, data save and many other useful functions

Insulation testers

- MY40 series: 4 range digital insulation testers with automatic discharge, memory, comparator and conductor resistance measurement
- MY10 series: single range analogue insulation testers with automatic discharge function, AC voltage measurement, and a protective covering
- 2406E series: 2 and 3 range analogue insulation testers with a discharge function and electro-luminescent backlight

Clamp-on testers

- CL series: clamp-on testers for AC currents, AC/DC currents and leakage currents; ranges 20 mA-1000 A; 40 mA -4000 A; 3 mA-1000 A
- Low pass filter (some models)

DATA ACQUISITION & LOGGING SYSTEMS

Network-based data acquisition systems

Yokogawa's wide range of data acquisition and logging systems meets all kind of application requirements. Ethernet communication interfaces support fast and easy connection to LAN environments, enabling remote monitoring applications and centralised back up services. Standard software for the configuration of measurement devices and applications offer easy set-up and minimises preparation time. Advanced software packages can be used with Yokogawa recorders, data acquisition instruments and other measuring equipment to build an integrated PC-based data acquisition system.

DAQMaster series
PC-based data acquisition systems

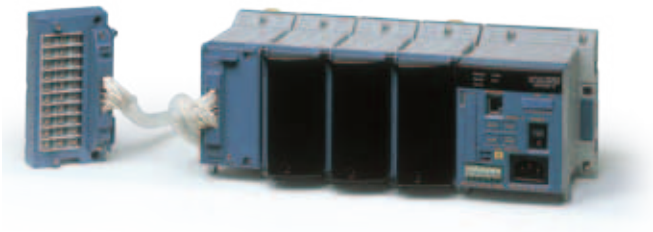
DAQMaster is the next generation of PC-based data acquisition. The MX100 offers a simple and flexible solution as a PC front-end system. The MW100 has the versatility of webserver-based remote monitoring and configuration, with many advanced network capabilities, and supports standalone use.

- modular design with various input/output modules
- standard Ethernet communication interface
- CompactFlash card memory support up to 2 GB

DATA ACQUISITION & LOGGING SYSTEMS

MX100 - Modular data acquisition system
The MX100 gets you up and running very quickly with a highly reliable, PC based, real time data acquisition system that meets your requirements for R&D, durability testing, quality assurance, and facilities monitoring.

- high scanning speed: 10 or 100 ms
- wide range of inputs (mV, V, mA, TC, RTD, strain, digital) and outputs (digital, V, mA)
- scalable from 4 to 1200 channels



MW100 - Web-enabled datalogger
The web-enabled MW100 datalogging system allows you to use your standard web browser to access data from multiple locations, making it ideal for facility management and remote equipment monitoring.

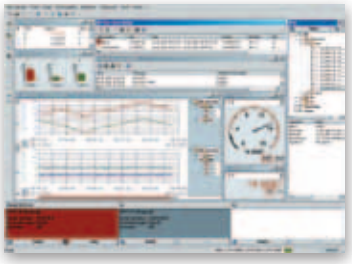
- datalogging system for standalone and network applications
- advanced network functions including e-mail, FTP, SNTP, DHCP
- strong mathematical and event action functions for custom applications

MXLOGGER – Advanced software
High speed data acquisition software for use with MX100.

- supports up to 20 units with maximum 1200 channels
- up to 60 mathematical channels for customer computations
- flexible combination of trend displays, numerical displays and alarm displays

DAQWORX – Data acquisition software suite
integrates a wide range of recorders, dataloggers and measuring devices into one software solution for datalogging and monitoring.

- DAQLOGGER can handle up to 1600 channels per second
- DataBrowser lets you efficiently search files for desired data and display the results as waveforms
- AddObserver lets you create your own graphical user screens for remote monitoring



MCPS – Multi channel process system
Brings a complete software studio for data acquisition and evaluation.

- advanced alarm monitoring and logging functions
- powerful mathematical functions for on-line and off-line computations
- customer specific reports
- powerful custom scripting functions for performing complex data analysis, transfer data online to Excel or to send commands to devices and enabling control of automated test stands

RECORDERS

Advanced and versatile recording technology

Yokogawa offers a wide range of paper and paperless recorders to meet all recording needs. Universal inputs accept voltage, thermocouple and RTD signals, and offer maximum flexibility over recording span and scaling of units. Battery options provide extra versatility when mains power is not available.

MV1000/MV2000
Portable paperless recorders

Innovative paperless recorders for both stand alone and networked applications. FTP, webserver and e-mail functions provide seamless integration with intranet and internet environments. The quick setup menu enables simple and easy configuration of the recorder.

- Bright TFT colour display with wide viewing angle
- 4 to 48 universal input channels
- CF card and USB memory storage

RECORDERS

DX1000/2000 - DAQSTATIONS

Support more input channels and faster measurement speeds to handle more applications. Advanced networking functions include time synchronisation (SNTP) and automatic network setup (DHCP), and the possibility of communicating with power monitoring, controller subsystems, etc.

- 400 MB non-volatile memory
- up to 240 additional input channels via remote I/O
- USB interface (to load/save set-up files, connect keyboard)

DR130/DR230 - Darwin recorders

High performance and reliable desktop recorders that will measure data from 10 to 300 channels. Accepts a large variety of input types including voltage, temperature, pulse and strain, enabling the configuration of the optimum data acquisition environment.

- advanced, versatile 150/250 mm recorders
- 10 to 300 configurable input channels
- PC communication via GPIB, RS232 or Ethernet for set-up/datalogging

LR Series - Laboratory recorders

The LR series has a reputation based on outstanding reliability and performance. Electrical contacts and gears are eliminated. Data processing is digitised to facilitate PC-based data recording and analysis. A fast 135 Hz sampling rate makes it ideal for machine performance testing.

- 1 to 12 universal input channels (mV/V/TC/RTD)
- chart speeds from 10 mm/hour to 1200 mm/minute
- digital printing and analogue recording functions

XL120 (Datum-Y) - Portable datalogger

An 8 or 16-channel compact portable datalogger optimised for high performance and simple operation in field measurement environments. Provides wide-ranging functions and extensive communication capabilities for a multitude of acquisition applications. Measurement data can be stored on SD card, CF card and USB memory.

- compact and battery powered
- various communication interfaces: USB, Ethernet (IPv6)
- fast scan interval: to 100 ms

software and accessories

Solid state relays with high breakdown voltage (SSR)
Offer long operation life and accurate measurement.

USB flash drive
Can be used to transfer data and set-up files to your PC, or to attach an external keyboard for set-up and text entry.

Data Viewer software
Displays and prints data from measurement files. Data can be viewed in trend, digital and circular forms, and converted to ASCII, Excel or Lotus 1-2-3.

EUROPEAN HEADQUARTERS

YOKOGAWA EUROPE B.V.
Euroweg 2,
3825 HD, Amersfoort
The Netherlands
Tel. +31 88 464 1000
Fax +31 88 464 1111
tmi@nl.yokogawa.com

http://tmi.yokogawa.com

Sign up today for the Buzz Test & Measurement e-Newsletter.

www.yokogawa.com/eu/buzz

EUROPE
TEST AND MEASUREMENT SALES NETWORK

THE NETHERLANDS
Yokogawa Europe B.V.
T&M Division -
Sales Netherlands & Belgium
Euroweg 2,
3825 HD, Amersfoort
The Netherlands
Tel. +31 88 464 1000
Fax +31 88 464 1111

GERMANY
Yokogawa Deutschland GmbH
Gewerbestrasse 17
D-82211 Herrsching
Germany
Tel. +49 815293 100
Fax +49 815293 1060

ITALY
Yokogawa Italia S.r.l.
Via Pelizza da Volpedo 53
20092 Cinisello Balsamo (MI)
Italy
Tel. +39 02 66 055 1
Fax +39 02 66 011 415

SPAIN IBERIA
Yokogawa Iberia S.A.
c/Lezama, N°22
28034 Madrid
Spain
Tel. +34 91 771 31 50
Fax +34 91 771 31 80

UNITED KINGDOM
Yokogawa Measurement
Technologies Ltd
Stuart Road, Manor Park
Runcorn, Cheshire
WA7 1TR
United Kingdom
Tel. +44 1928 597200
Fax +44 1928 597201

NORDIC
Yokogawa Measurement
Technologies A.B.
Finlandsgatan 52, 2fl
SE-164 74 Kista
Stockholm
Sweden
Tel. +46 8 477 1900
Fax +46 8 477 1999

T&M DISTRIBUTOR NETWORK
Yokogawa has an extensive distribution network. To find the representative in your country or close to you, go to http://tmi.yokogawa.com/ea or call +31 (0) 88 464 1000 or email to tmi@nl.yokogawa.com

ABOUT YOKOGAWA

Yokogawa's global network of 25 manufacturing facilities and 80 companies spans 54 countries. Since its founding in 1915, the US$3 billion company has been engaged in cutting-edge research and innovation, securing more than 7,200 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

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