

# TEST & MEASUREMENT 2013



## 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

Oscilloscopes	4
ScopeCorders	8
Power analysers & meters	10
Optical spectrum analysers	14
Optical testers & test systems	16
Optical field testers	18
Signal sources & generators	20
Electrical test tools	22
Data acquisition & logging systems	24
Recorders	26
Contact	28

## Flexible and dependable

Capture, display, analyse, save and export. Alongside 'ease-of-use', these are the principle duties required of any oscilloscope. Using high speed waveform acquisition, history memory and reliable triggering, Yokogawa's scopes are renowned for being able to capture the waveforms that matter to you. The flexible display configuration, dual window zooming and the wealth of high speed measurement features will help you to get the answers you need when you need them.

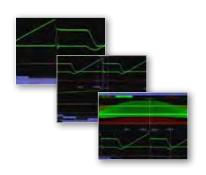


The DLM4000 is a unique 8 channel MSO which provides comprehensive measurement and analysis capabilities for embedded, automotive, power and mechatronics applications. For example, when 3 voltages and 3 currents have to be measured simultaneously, clearly 4 channels are not enough. One analogue channel becomes 8 logic inputs with a press of a button, and 16 more logic inputs are optional. The DLM4000 enables complex measurement challenges to be solved quickly and easily.

- 8 analogue channels (or 7 plus 8 logic)
- Up to 24 logic channels
- 350 MHz and 500 MHz bandwidths
- Up to 125 M points memory







### software and accessories

#### Power conversion device testing

To evaluate the switching loss inside high power devices, it's necessary to capture the actual voltage and current waveforms. A check of the surge voltages & currents, and monitoring of the timing of the gate signals is also essential.

#### PBDH0150 - Differential probe

The PBDH0150 is a 150MHz differential probe intended to satisfy the needs for high voltage floating signal measurements, particularly for power electronics and in the mechatronics market.

- DC to 150MHz bandwidth
- 1400V (DC + ACpeak) differential and common mode voltage
- 1m extension lead (maintains 100MHz bandwidth)

#### PBC050, PBC100 - Current probes

These probes use a Hall effect sensor, which senses the DC current, and a current transformer, which senses the AC current. The probe simply clips around a conductor, making it unnecessary to make any electrical connection to the circuit.

- 30 A rms continuous measurement
- DC to 50 MHz or 100 MHz
- Direct readout of current values

#### Power supply analysis

The DLM /G4 power supply analysis option enables high frequency power devices and built-in power supplies to be evaluated. The accuracy of switching loss and other power related measurements is maximised using Yokogawa current and voltage probes together with the automatic probe deskew feature.

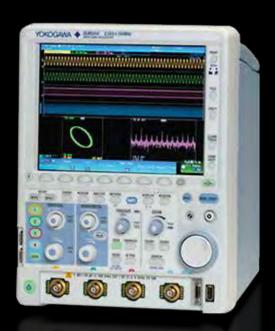
- Safe operating area (SOA) analysis
- I<sup>2</sup>t inrush current measurement
- Harmonic analysis for EMC emissions testing

#### 701936 - Deskew signal source

- Use with the DLM power analysis option for auto deskew
- Maximises power measurement accuracy
- Accepts large jawed current probes

## 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<sup>2</sup>C, 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.



## DLM2000 Mixed signal oscilloscopes

The DLM2000 combines long memory, fast waveform acquisition and up to 20,000 history memories. The input flexibility enables the  $4^{\rm th}$  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.

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





software and accessories

#### Automotive and embedded systems testing

Yokogawa was the first manufacturer to provide triggering and analysis for serial buses in an oscilloscope. Support for automotive buses includes FlexRay, CAN and LIN as well as UART, I<sup>2</sup>C and SPI. The independent dual zoom windows and real-time decoding mean that different buses running at different speeds can be examined in detail and compared.

The simultaneous sampling of up to 8 analogue and 24 logic channels means that DLM oscilloscopes can comprehensively help in the development and debugging of automotive ECUs, their controller software and other embedded systems.

#### PBDH1000 - 1 GHz differential probe

The PBDH1000 is a differential probe designed to meet the challenges of measuring signals in in-vehicle bus development and testing (CAN, FlexRay). Loading on the serial bus is reduced due to the higher input impedance and lower capacitance, and thus displayed signals will be closer to reality.

- 1 *M* ohm / 1.1 pF input
- +/- 25V differential voltage input
- Compatible with the FlexRay standard

#### 701920 and 701922 differential probes

These two differential probes enable any oscilloscope to perform day-to-day testing on low voltage differential serial buses.

- 500MHz and 200 MHz bandwidths
- +/- 12V and +/- 20V differential voltage inputs
- Built-in DLM scope option provides probe power

#### 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

## **SCOPECORDERS**

## A deeper insight into your application

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 outputs
- 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 \*\*
- Temperature & High precision voltage
- Strain gauge
- Acceleration
- Frequency
- Logic data \*\*
- CAN bus monitor \*\*\*
- CAN and LIN bus monitor \*\*\*
  - \* except for SL1400
- \*\* only for DL850 series
- \*\*\* only for DL850V Vehicle Edition

### software and accessories

## **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.



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 & METER



## 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



#### 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

## **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.



# WT310/WT330 Digital power meters

The  $5^{\text{th}}$  generation of the world's best-selling power meter combines accurate and reliable power measurement over a wide power range with flexibility. The WT300 helps developers and manufacturers of electrical equipment to ensure that their products comply with emerging IEC and EN standards. These range from domestic "white goods" to lighting systems and air-conditioning equipment. With the ability to carry out simultaneous measurement of normal power parameters such as RMS, mean or DC power along with measurement of harmonics up to the 50th order, overall measurement times are reduced.

- Basic power accuracy of 0.1%
- Direct measurement of currents down to 50 micro Amps and up to 40A rms
- Input frequency range DC, 0.5 Hz to 100 kHz
- Enables standby power testing according to IEC 62301 Ed 2.0 and EN50564

## POWER ANALYSERS & METERS



#### 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 instrument operates over a wide frequency range and is used in numerous applications such as inverters and commercial power supplies.

- Basic power accuracy of 0.1%
- Input frequency range DC, 0.5Hz to 100kHz
- Enables standby power testing according to IEC 62301 Ed 2.0 and EN50564



#### 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



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.



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-FluxTM

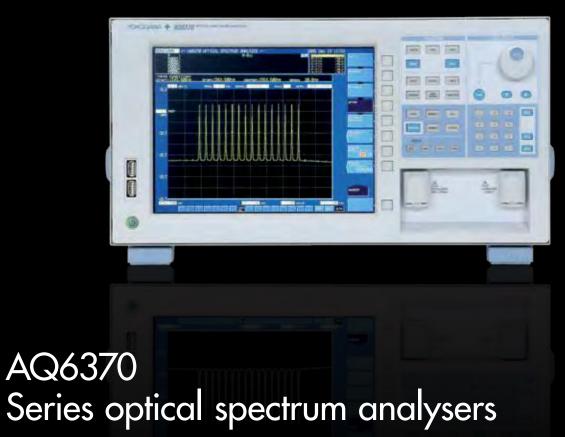


## **OPTICAL SPECTRUM ANALYSERS**

## 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.

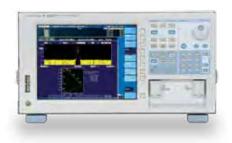




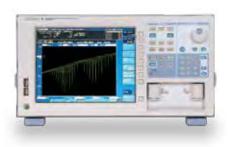
AQ6370 optical spectrum analysers are the most advanced on the market today. Covering wavelengths from 350 to 2400 nm they offer a unique combination of excellent performance, long term reliability and outstanding ease of operation. This makes them instruments of choice in not only demanding R&D applications,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

- High speed recording, and realtime 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 nearinfrared 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.

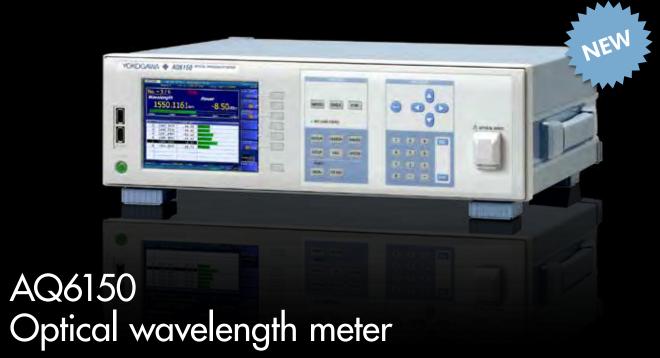
- Wavelength range from 1200 to 2400 nm
- Up to 50 pm resolution
- Analysis of laser diodes, fibre lasers and supercontinuum sources
- Fibre Bragg Grating manufacturing and absorption spectroscopy

### software and accessories

## **OPTICAL TESTERS & TEST SYSTEMS**

## Laboratory and production line testing

Applications that are based on the propagation of light are now all around us. Varying from applications in telecommunication, automotive, research, aerospace and consumer goods, each one requires its dedicated optical components and transmission systems to be thoroughly and quickly tested. Yokogawa optical meters and test systems offer the flexibility, speed and functionality to meet these requirements.



The AQ6150 and AQ6151 optical wavelength meters are fast, accurate and cost-effective instruments for carrying out measurements in the telecommunications wavelength range from 1270 to 1650 nm. Their high acquisition and measurement speeds make them particularly suited to the production testing of active optical devices such as tunable lasers. Up to five measurements per second can be carried out in repeat mode.

- High wavelength accuracy to 0.3 pm
- Simultaneous measurement of up to 1024 wavelengths
- Acquire, analyse and transfer a measurement within 0.3 sec

## OPTICAL TESTERS & TEST SYSTEMS



#### 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



#### AQ2210 Series - Plug-in modules

Particularly suitable for the evaluation of the gain, noise and insertion loss of optical filters, optical amplifiers and fibre components, a broad range of modules is offered to satisfy the extensive range of potential applications.

- Optical power / sensor modules
- DFB-LD light source modules
- Grid tunable laser source (TLS) modules
- Optical attenuators
- Optical switches
- Optical transceiver test modules



#### 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

#### software and accessories

## **OPTICAL FIELD TESTERS**

## Fibre-optic network testing

Driven by the 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 field testers are simple to operate and reliable, and allow accurate measurements to be performed under the most difficult conditions.



## AQ1200 Handheld optical time domain reflectometer

The AQ1200 handheld OTDR 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. The PON (passive optical network) measurement mode enables faults in drop cables in FTTH (fibre to the home) installations to be correctly identified where high-port-count optical splitters are used.

- 7 models, 4 wavelengths, 1 or 2 optical ports
- 1, 2 and 3 wavelength models for installation and maintenance
- Optional power meter and visible light source ports
- Event dead zone down to 0.75m

## **OPTICAL FIELD TESTERS**



#### 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 and automatic test functions enable installers to test core, metro and access networks quickly and reliably.

- 9 models, 4 wavelengths, 1 or 2 optical ports
- 1, 2, 3 and 4 wavelength models
- Single mode and multimode fibres
- Multi core and PON measurement



#### 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). Choices of power meter and light source(s), including support for both single mode and multimode fibres, mean that the AQ1100 is a versatile and cost effective field tester.

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

### software and accessories

## 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  $\mu$ s width with 1  $\mu$ s resolution)
- Drag & drop operation via USB

### software and accessories

## **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 electrical test tools help customers to analyse, troubleshoot and repair their systems to ensure maximum performance. For use in industry, R&D and educational environments, 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





The CA450 is the ideal all-in-one tool for the installation and maintenance of process instrumentation such as transmitters, flow meters, signal conditioners and valve positioners. It uniquely combines the functionality of a true rms digital multimeter and those of a calibrator and can be used for electrical and process measurements.

- 2-wire transmitter simulator (20 mA SINK)
- Loop check Simultaneously provides 24V transmitter power and precisely measures DC mA signals
- HART mode setting with loop power (250  $\Omega$  resistance)
- Step or sweep response test of valve positioners



#### Hand held calibrators

Yokogawa's wide range of hand held calibrators enables process instrumentation to be maintained in field and laboratory environments. They offer direct calibration of variables such as pressure, temperature, voltage, current and frequency.

- CA11E Voltage / Current Calibrator Transmitter loop checking (source & measure)
- CA12E Temperature Calibrator Simulation of common thermocouples and RTD sensors
- CA51/CA71 Multifunction Calibrator Voltage, current and temperature calibrator with additional monitoring & AC voltage measurement functions.
- CA150 Multifunction Calibrator with simultaneous signal source and measurement, SINK, auto & programmable sweep, transmitter loop check, memory function, data save and other functions.



#### Clamp-on testers

The wide range of Yokogawa clamp-on testers enables electric currents in conductors to be measured, without making physical contact or breaking circuits. The CL Series consists of AC, AC/DC, and leakage current clamps with assorted ranges and dimensions. The multiple options include RMS, mean, temperature and frequency measurements, and a recorder output.

- Measure leakage currents with a resolution of 0.01mA
- Measure DC and AC currents up to 2000A
- Low pass filter removes current harmonics (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 setup 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. Advanced network functions allow seamless integration in a PC environment, supporting remote access functions for monitoring and configuration of the recorder devices.



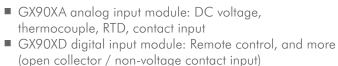
## GP10/GP20 SMARTDAC+ Portable paperless recorders

Business environments are complex and fast changing which requires systems to be smart, powerful and adaptable to specific processes. SMARTDAC + is a fresh approach to data acquisition and control, with smart and simple touch operation as a design priority. Measure, display and archive process data with greater levels of clarity, intelligence and accessibility. The multi-touch screen operation and simple menu structure offer easy use and quick setup of the recorder. The SMARTDAC + concept begins with the all-new GP, an integrated I/O, highly adaptable and very capable recording system with a familiar touch interface.

- Bright multi- touch colour display
- 10 to 100 universal input channels
- SD card and USB memory storage
- Report and printer output functions

## **RECORDERS**





GX90 Series - Input/output modules

GX90YD digital output module: Alarms, and more (relay,

The smart architecture of paperless recorders GP10/GP20 allows modules to be added or removed at any time in the future. Select from a wide variety of input/output modules. The I/O terminals are detachable and come in M3 screw

c contact input)

and clamp-terminal types.



#### DR230 - Darwin recorders

High performance and reliable desktop recorders that will measure data from 10 to 30 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 250 mm recorders

■ 10 to 30 configurable input channels

 PC communication via GPIB, RS232 or Ethernet for setup/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)

