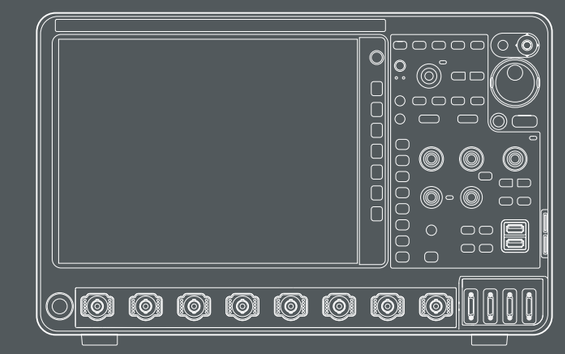
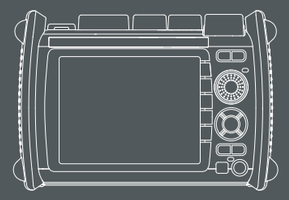
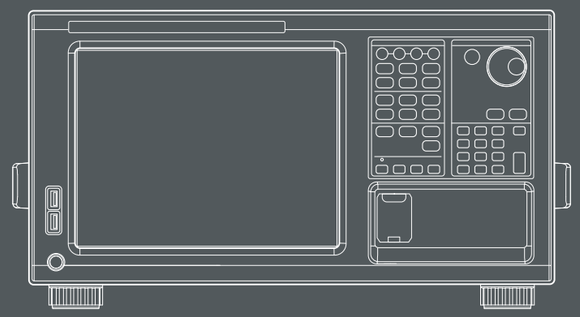
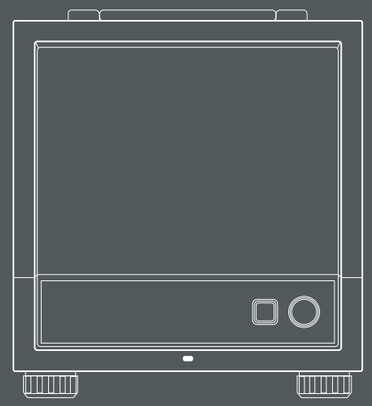
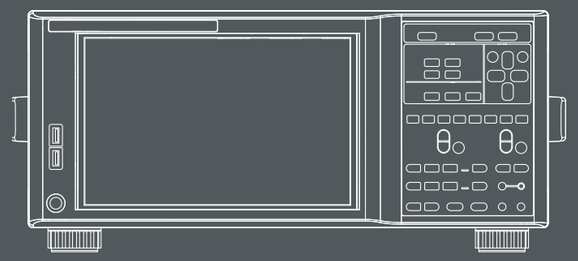
Test&Measurement

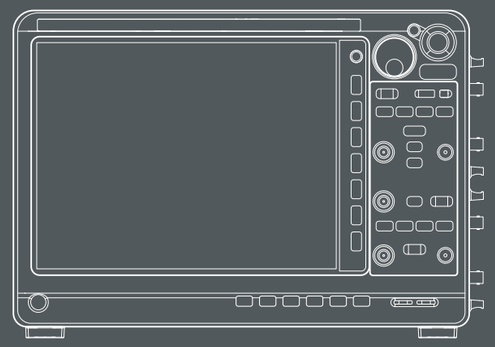













# Products and services overview

**Precision Making**

L1304EV

Test&Measurement

YOKOGAWA

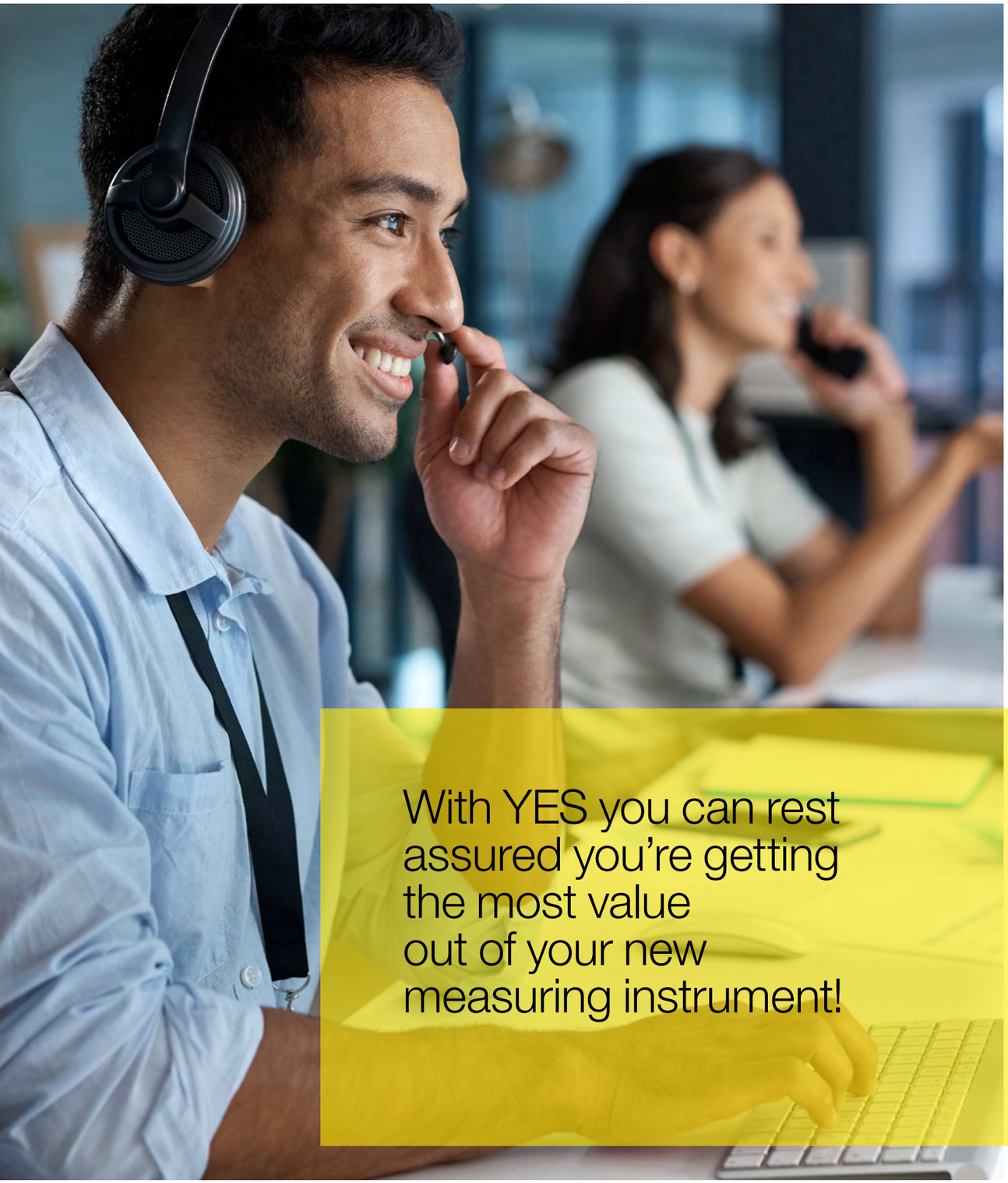
# Your partner for trusted measurements

More than 100 years ago, our founder, Tamisuke Yokogawa, advised: “Just learn and improve our technology. You must make products that earn us the respect of our customers.” Inspired by these guiding words, Yokogawa Electric Corporation was established in 1915, introducing Japan’s first electric meters.

Measurement has always been our core. Today, Yokogawa Test&Measurement offers unparalleled solutions that influence various aspects of our lives, from our homes and offices to our commute between them; from energy generation and industrial operations to communication, environmental care, and interpersonal connections. Precision measurement remains crucial for progress and innovation.

With a rich history in precision, Yokogawa understands the nuanced needs of scientists and engineers. We’re continually refining our technologies to guarantee both accurate and precise measurements that enable tomorrow’s innovations. This catalog showcases our range of products and services, a testament to our enduring commitment to excellence in measurement and innovation.

**Our product portfolio**



With YES you can rest assured you're getting the most value out of your new measuring instrument!

# YOKOGAWA EXPERT SUPPORT

## There's a world of precision at your disposal

We want to make sure you get the most out of your brand-new measuring instrument, whether you have been working with Yokogawa products for some time or you are a new customer.

Yokogawa's YES team is a center of knowledge and experience and is here for you. A team of specialists will answer your questions and are always on top of new functionalities and how these add value to your application. Just like your company's technology evolves, so do our measuring instruments. This continuous cycle of development drives us to exceed your test and measurement requirements. YES can offer off-the-shelf or customized trainings in our training center or at your location for your entire team.

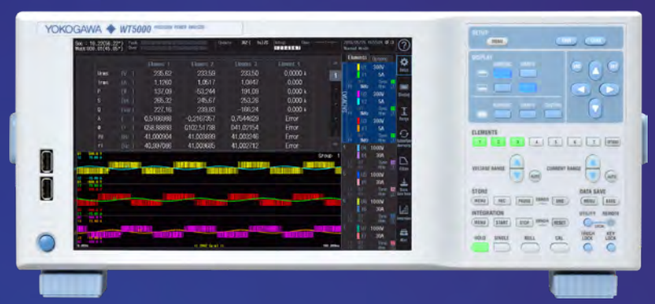
yes
Yokogawa expert support

Test&Measurement

YOKOGAWA


# PRECISION POWER MEASUREMENT

## Trustworthy power measurements



Test&Measurement

YOKOGAWA

# Next generation in precision

As energy efficient technologies gain wider adoption in our homes, offices, transportation and industry, the need for reliability in testing their efficiency, performance and safety has never been greater. Whether it is in renewable energy, electric vehicles, home and office appliances or industrial mechatronics, engineers are constantly dealing with changing test conditions and evolving international standards.

As the leader in power measurement solutions, Yokogawa provides engineers with fully specified and trustworthy measurements across the development cycle. By enabling engineers to validate power consumption and efficiency improvements at high accuracy, for both low and high frequency applications; Yokogawa empowers them to innovate with precision, flexibility and confidence to quickly bring their products from concept to market.

## WT5000 Precision Power Analyzer

The WT5000 is the world's leading power analyzer and represents the next generation in precision power measurements. With its unmatched accuracy, simultaneous analysis on up to 4 motors and a modular architecture that allows users to swap up to 7 input elements, the WT5000 is an expendable measurement platform that takes the guesswork out of product testing. Operable by touch and hardware, the WT5000 offers an intuitive measurement experience for applications such as automotive development, efficiency tests of inverter driven motors, renewable energy technologies and traction applications like pumps and fans.

## WT5000 Transformer Version – Precision Power Analyzer

Dedicated to meet the requirements of transformer manufacturers the WT5000 Precision Power Analyzer – Transformer version has an unprecedented accuracy at power factors as low as 0.001. It ensures the consistently reliable measurements that engineers need for R&D, production- and acceptance testing of power transformers.

## WT300E Series Digital Power Meter

The 5th generation of the world's bestselling power meter provides accurate and reliable power measurements. It helps developers and manufacturers in fields such as domestic "white goods", lighting systems and air conditioning equipment to ensure that their products comply with emerging IEC/EN standards.

## WT500 Mid-range Power Analyzer

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.

## WT1800R Series Precision Power Analyzer

With up to 6 input elements the WT1800R is typically used for efficiency measurements on three-phase motors and drives, power supplies with multiple inputs/outputs and LED lighting applications etc. The WT1800R is a universal meter for power electronics and electric motor analysis with the possibility to perform field oriented control measurements.

## PX8000 Precision Power Scope

World's first Precision Power Scope, combining high accurate power measurements with oscilloscope features such as cursor based specific time-period measurements, enabling analysis of transient waveforms. The PX8000 provides the versatility to make accurate time-based power measurements on everything from renewable power to advanced robotics.

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# PRECISION POWER MEASUREMENT LINE-UP

| Model | WT5000 | WT5000 – transformer version | WT1800R | PX8000 | WT500 | WT300E |
|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| **Number of Input Channels** | 1 – 7<br>Up to 1000 Vrms – 30 A | 3 – 7<br>Up to 1000 Vrms – 30 A<br>100 Vrms and 1 or 5 A enhanced ranges | 1 – 6<br>Up to 1000 Vrms – 50 A | 1 – 4<br>Up to 1000 Vrms – 5 A | 1 – 3<br>Up to 1000 Vrms – 40 A | 1, 2 or 3<br>Up to 600 Vrms – 40 A |
| **Basic Power Accuracy (50-60 Hz)** | 0.01% or Reading<br>+ 0.02% of Range | 0.008% | 0.05% of Reading<br>+ 0.05% of Range | 0.1% of Reading<br>+ 0.1% of Range | 0.1% of Reading<br>+ 0.1% of Range | 0.1% of Reading<br>+ 0.05% of Range |
| **U & I Bandwidth** | 10 MHz (-3dB)<br>I-direct input 5 MHz (-3dB) | 10 MHz (-3dB)<br>I-direct input 5 MHz (-3dB) | 5 MHz (-3dB) | 20 MHz (-3dB)<br>I-direct input 10 MHz (-3dB) | 100 kHz | 100 kHz |
| **Power Accuracy Bandwidth** | DC, 0.1 Hz to 1 MHz | DC, 0.1 Hz to 1 MHz | DC, 0.1 Hz to 1 MHz | DC, 0.1 Hz to 1 MHz | DC, 0.5 Hz to 100 kHz | DC, 0.1 Hz to 100 kHz |
| **Resolution & Sampling Speed** | 18 Bit<br>10 MS/s | 18 Bit<br>10 MS/s | 16 Bit<br>2.5 MS/s | 12 Bit<br>100 MS/s | 16 Bit<br>100 kS/s | 16 Bit<br>100 kS/s |
| **Additional Features** | ■ 10.1 inch touchscreen<br>■ Multi-motor evaluation<br>■ Modular inputs individually calibratable<br>■ Digital Parallel Path technology<br>■ Bidirectional integrations<br>■ Harmonics (DC up to 500th order) | ■ 10.1 inch touchscreen<br>■ Multi-motor evaluation<br>■ Modular inputs individually calibratable<br>■ Digital Parallel Path technology<br>■ Bidirectional integrations<br>■ Harmonics (DC up to 500th order) | ■ 8.4 inch display<br>■ Motor Evaluation<br>■ Automatic update rates and ranging for integration of fluctuating inputs<br>■ IEC Harmonics (DC up to 500th order)<br>■ Compare harmonics simultaneously from 2 inputs<br>■ Bidirectional integrations | ■ 10.4 inch display Transient analysis<br>■ Zoom between cursors<br>■ Modular inputs<br>■ Cycle-by-cycle trend analysis<br>■ X-Y display and phase analysis<br>■ De-skew compensation | ■ 5.7 inch display<br>■ 100 ms data update rate<br>■ Harmonics (DC up to 50th)<br>■ Bidirectional integrations | ■ Compact – 7 segment display<br>■ Autoranging and range skip functions during integration<br>■ Standby power IEC62301, Energy Star, and SPEC power<br>■ Harmonics (up to 50th order) |
| **Harmonic fundamental frequency** | 0.1 Hz – 300 kHz | 0.1 Hz – 300 kHz | 0.5 Hz – 2.6 kHz | 20 Hz – 409.6 kHz | 10 Hz – 1.2 kHz | 10 Hz – 1.2 kHz |



Discover more about our Power Analyzers

# POWER CALIBRATION SERVICES

## Summit of Accuracy

The drive for precision, and ever stringent performance targets of R&D projects, is directly influenced by global sustainability goals

And as such there is an ever-increasing demand for accurate, precise and stable power measurements.
However, no measurement is ever truly ‘correct’ no matter the precision of the measuring instrument, there is always an unknown, finite, non-zero difference between a measured value and the corresponding ‘true’ value. In pursuit of precision Yokogawa’s ISO/IEC17025 accredited (RvA K164) European Standards Laboratory offers quantifiable confidence in a measurement system and its results. The European Standards Laboratory enables users to get world’s most accurate measurement results. It provides a form of quality assurance and trust which enables engineers to develop the next generation technologies that are environmentally friendly, energy efficient and stand out with leading performance.

**PCS**
power calibration services

# SCOPECORDERS

## High-speed data acquisition and the versatility to discover more


89 kWh LITHIUM-ION BATTERY PACK

74.235 %

38,266.596 s

TIME BEFORE NEXT CHARGE

LITHIUM ATOM

LITHIUM-ION BATTERY

YOKOGAWA

# Perfected over years of continuous innovations

ScopeCorder is Yokogawa's unique range of powerful data acquisition recorder solutions that can capture and analyze both transient events and trends up to 50 days, or stream continuously to a PC. Using flexible modular inputs, it combines measurements of electrical signals, physical sensors and vehicle serial buses and can trigger on electrical power related and other calculations in real-time. As such it is often perceived by users as one of the most powerful portable data-acquisition instruments available on the market.

## SL1000 Data Acquisition Unit

The SL1000 is a PC-based high-speed data acquisition unit that delivers independent, isolated channel hardware that captures waveforms at high speeds up to 100 MS/s per channel. Choose from a wide variety of I/O modules for combinations of electrical and mechanical sensor signal measurements to meet the needs of any medium channel count application.

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

## Flexible Input Modules

A variety of plug-in modules are available for isolated voltage, temperature, acceleration, strain measurement, and more. Benefit from high-speed sample rates up to 200 MS/s and observe waveform detail at 12-bit, 14-bit or 16-bit resolution. Up to 160 channels of synchronized measure-ments are supported. Choose and combine from 22 types of plug-in modules and find the ideal fit to the application.

- Voltage and current
- Temperature, vibration/acceleration, strain, frequency
- Logic signals & CAN/CAN FD/LIN and SENT

## DL950 ScopeCorder

The DL950 ScopeCorder captures and analyzes diverse electrical, physical sensor signals, and serial buses. Offering high sampling rates for detailed views and long recording times for trend monitoring, it serves various applications. From precision watch electric drives to large power generating facility turbines, as well as modern electric vehicles and household appliances, its features and flexibility cater to a broad spectrum of needs, providing value across industries.

- High-speed sample rates up to 200 MS/s
- Up to 160 synchronized channels
- Isolated inputs up to 1000 V

## DL350 Portable ScopeCorder

Great value also comes in small packages. For "quick and easy" troubleshooting, such as power line monitoring or sophisticated mixed-signal datalogging with built-in analysis, the DL350 is a portable, powerful, and user-friendly engineering tool. The light weight, battery operation and compact size makes the DL350 the all-round instrument-of-choice in the vehicle and in the field.

- Light weight and A4-sized compact chassis
- Isolated inputs up to 100 MS/s
- AC/DC/Battery operated




Discover more about our ScopeCorders


# OSCILLOSCOPES

## More channels, more possibilities, more insight

Test&Measurement

YOKOGAWA

# Capture, display, analyze, save and export

Alongside ‘ease-of-use’, these are the principal duties required from any oscilloscope. Using high speed waveform acquisition, large history memory and reliable triggering, Yokogawa’s scopes are renowned for their channel count combined with optional Power Math and serial bus analysis features including major automotive buses.

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. All together, Yokogawa scopes are ideally suited for test and debugging applications in the power electronics, mechatronics, and automotive sectors.

## DLM3000HD & DLM5000HD High-definition Oscilloscope

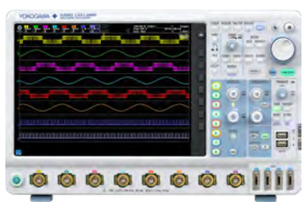
The DLM3000HD and DLM5000HD are designed for precision and adaptability, making them suitable for R&D engineers and automotive experts. They offer high-resolution waveform analysis with 12-bit (Hi-Res 16-bit) resolution, extended recording, and a touch interface. Available in four- or eight-channel models, they integrate with high-precision power analyzers via IEEE1588 for accurate data synchronization.

- 12 bit A/D converter
- 350 MHz and 500 MHz bandwidths
- Up to 2.5 GS/s sample rate
- Up to 1 GPoints memory
- 4 or 8 analog inputs channels
- DLMsync – up to 16 analog channels 64 bit logic
- IEEE1588 time synchronization
- Serial Bus auto setup functions

## DLM3000 Mixed Signal Oscilloscope

Integrating the latest in touchscreen operation, solid-state storage, and highspeed signal processing, the DLM3000 mixed signal oscilloscope enhances productivity by providing clean signals, extensive processing, and ease of operation.

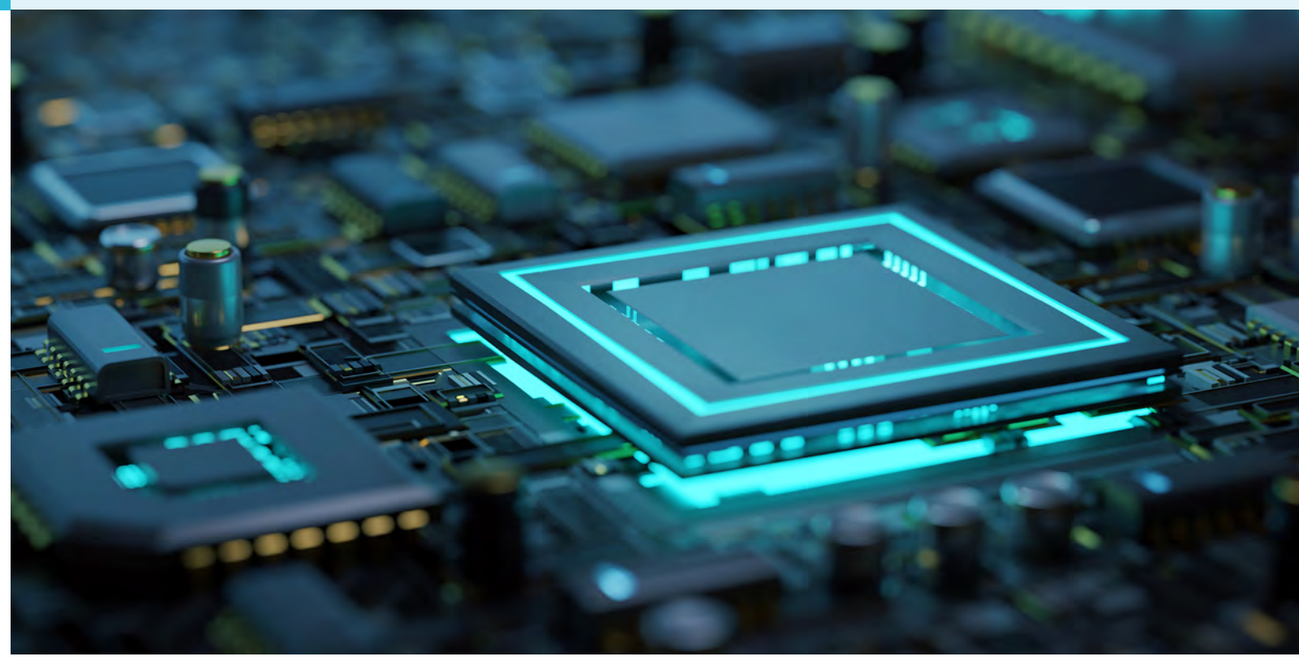
- 8 bit A/D converter
- 200, 350 MHz and 500 MHz bandwidth models
- Up to 2.5 GS/s sample rate with all 4 channels used
- Up to 500 Mpoints memory
- Sensitivity from 500 uV/div to 10 V/div
- Up to 8-bit logic input



## DLM5000 Mixed Signal Oscilloscope

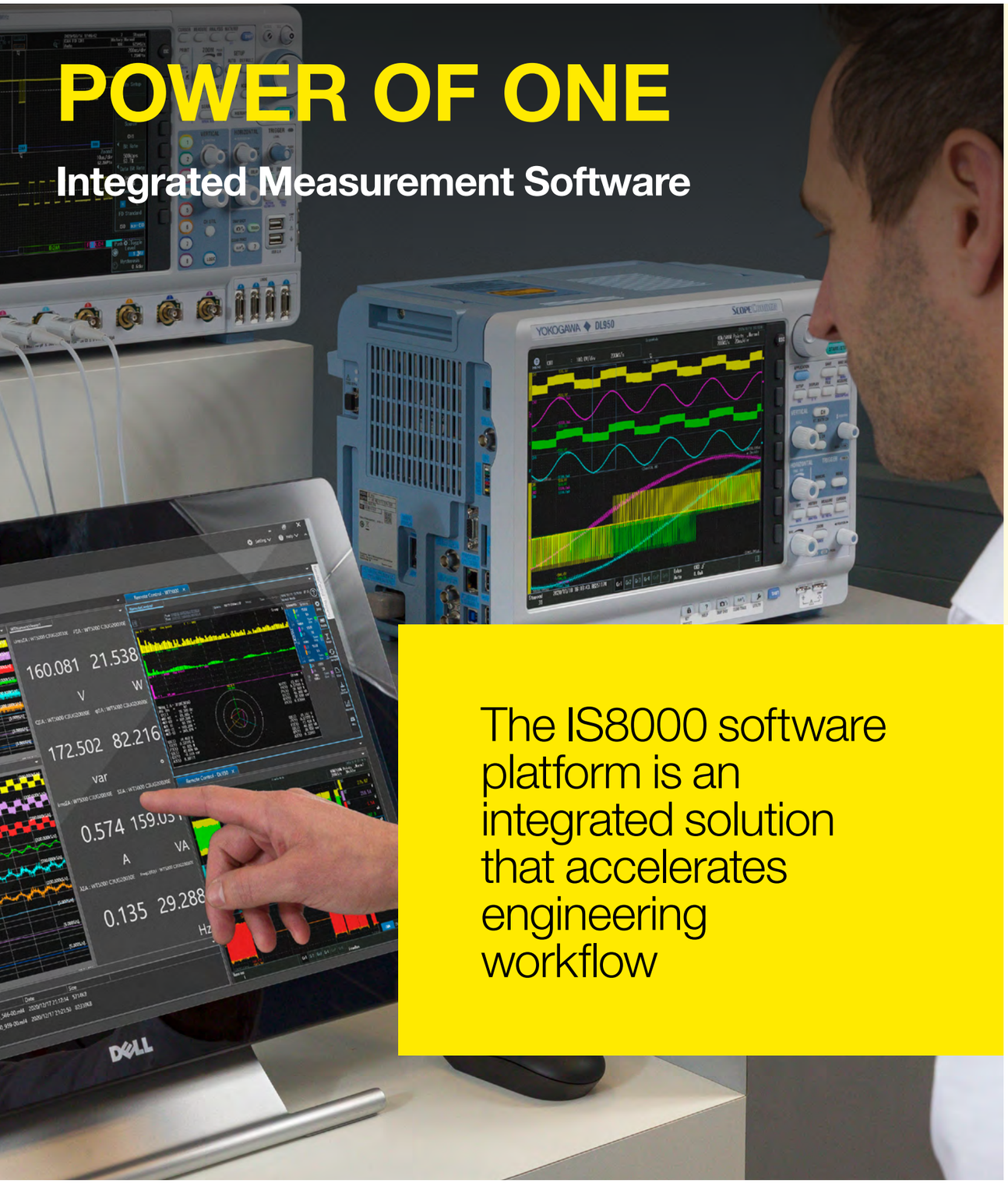
Combining a large, highly responsive touchscreen and a traditional oscilloscope panel, the 4 to 8 channel DLM5000 mixed signal oscilloscope allows users to easily navigate through a wealth of analysis features at the touch of their fingertips.

- 8  bit A/D converter
- 350 MHz and 500 MHz bandwidth models
- Up to 2.5 GS/s sample rate
- Up to 500 MPoints memory
- 4 or 8 analog inputs channels
- 16 analog inputs using DLMsync on two DLM5000’s
- Up to 32-bit logic input



# POWER OF ONE

## Integrated Measurement Software




The IS8000 software platform is an integrated solution that accelerates engineering workflow


### IS8000 Integrated Measurement Software

Yokogawa's IS8000 Integrated Measurement Software allows for remote monitoring and operation of instruments, evolving with user needs. It offers add-ons for multi-instrument connectivity and precise data synchronization. The software ensures <10µs error using IEEE1588 PTP technology with devices like WT5000, DL950 and DLM5000HD. It supports high-speed data capture via 10-Gigabit Ethernet and features advanced FFT and math functionalities.
A trial version is available for you to explore.

Discover the IS8000 Integrated Measurement Software

### LabVIEW Drivers

LabVIEW is a graphical programming environment used by millions of engineers and scientists to develop sophisticated measurement, test, and control systems using intuitive graphical icons and wires that resemble a flowchart.
By utilizing the LabVIEW driver, available on the instrument's webpage, a developer can dramatically reduce the amount of work required to enable a PC to control the instrument from within the LabVIEW environment.

### TMCTL - Control Libraries

TMTCL is a DLL (Dynamic Link Library) which enables you to easily develop Microsoft Visual C++, C# and Microsoft Visual Basic programs to communicate between the PC and our instruments. It supports GPIB, RS232, USB, USBTMC, Ethernet and VXI-11 interfaces. This is accessible through the Yokogawa customer portal.

### IS8011/IS8012 Harmonic/flicker Analysis Software

IS8011/IS8012 Harmonic/Flicker Analysis Software, compatible with the WT5000 precision power analyzer, facilitates harmonic and flicker tests following IEC61000-3-2, 3-3, 3-11, and 3-12 standards. Users can effortlessly set conditions, produce reports, and make pass/fail judgments based on class A, B, C, and D of the harmonic current measurements without needing specialized knowledge.

### IS8002CDV Classic Data Viewer

The IS8002CDV is waveform viewer for YOKOGAWA oscilloscopes and ScopeCorders. It delivers easy and swift processing and enables you to remotely control a measuring instrument, transfer data, view files, and perform math analysis (optional).

# OPTICAL SPECTRUM ANALYZERS

## World-class optical performance

Test&Measurement

YOKOGAWA


# Expanding horizons in optical analysis

Photonics, once mainly used in telecommunications, is now vital in many fields like manufacturing, biology, healthcare, and environmental control. This change has increased the need for tools that can measure a wide range of light wavelengths with high accuracy. Yokogawa has over 40 years of experience in creating optical spectrum analyzers. These devices are essential for measuring light in various photonics applications. Our analyzers are known for being reliable and versatile, designed to meet different needs in both research and manufacturing.

We offer eight models of optical spectrum analyzers. They can measure wavelengths from 350 nm up to 5500 nm, showing our commitment to serve a wide range of industries.

## AQ6370 Viewer Software

The AQ6370 Viewer is a versatile PC software suite compatible with the AQ6380, AQ6370 series, and AQ6360 Optical Spectrum Analyzers. It offers remote control, file transfer, and waveform analysis with a user-friendly interface. The package includes both model-specific and universal OSA Viewers. A 30-day full-feature trial version is available.

- Wide compatibility with AQ6380, AQ6370 series, and AQ6360
- Offers remote control and file transfer capabilities
- Detailed waveform analysis for precise data evaluation
- User-friendly interface, mirroring mainframe functionalities

Discover more about our Viewer Software

## AQ6380 Optical Spectrum Analyzer

The AQ6380 OSA is the highest performance optical spectrum analyzer from Yokogawa Test&Measurement. Its excellent optical wavelength resolution, accuracy, and close-in dynamic range specifications allow optical signals in close proximity to be clearly separated and precisely measured.

- Measurable wavelength range: 1200 – 1650 nm
- High wavelength  resolution: 5 pm
- High wavelength accuracy: ±5 pm
- Wide close-in dynamic range: 65 dB

## AQ6370E Optical Spectrum Analyzer

The AQ6370E, succeeding the acclaimed AQ6370D, sets the telecom industry standard with its free space input, superior sensitivity, resolution, and dynamic range. Its intuitive touch panel and DUT-specific APP mode streamline user experience from configuration to result output, simplifying OSA settings.

- Measurable wavelength range: 600 – 1700 nm
- Resolution setting: 7 choices from 20 pm to 2 nm
- Max. measurement speed: 0.2 sec for 100 nm span
- Max. sensitivity: -90 dBm

## AQ6360 Optical Spectrum Analyzer

Designed for precision, engineered for cost-effectiveness. The new AQ6360 optical spectrum is optimized for testing telecom devices during and after production. It offers high speed measurements, a compact and robust design and low capital and operational costs.

- Measurable wavelength range: 1200 – 1650 nm
- Max. measurement speed: 0.2 sec for 100 nm span
- Resolution setting: 5 choices from 0.1 to 2 nm
- Max. sensitivity: -80 dBm

## AQ6150 Optical Wavelength Meter

The AQ6150B/AQ6151B are optical wavelength meters based on the Michelson interferometric technology and characterized by extreme precision in wavelength measurements. The optimized optical design and data processing routine significantly reduces the measurement time, improves the manufacturing throughput and reduces the lifetime cost of ownership.

- Measurable wavelength range: 900 – 1700 nm
- Max. number of detectable signals: 1024
- Max. wavelength accuracy: ± 0.2 ppm
- Max. measurement speed: 10 measurements/sec.

Discover more about our Optical Spectrum Analyzers

Test&Measurement

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# Unmatched Optical Precision for Telecommunications, Health, Biomedical, and Environmental Monitoring Applications

## AQ7420 High-Resolution Reflectometer

The AQ7420 accurately detects the quantity and location of reflections within optical connectors and modules. It reveals microcracks that standard loss measurements might miss, helping to avoid unpredictable and potentially failures.

- Measurement distance: 100 mm
- Spatial resolution: 40 µm
- Spurious noise: -100 dB or less
- Simultaneous measurement of multiple reflections and insertion loss

## AQ6377E Optical Spectrum Analyzer

AQ6377 offering extended wavelength coverage into the MWIR region from 1900 - 5500 nm. Its long wavelength range makes the AQ6377 ideal for environmental sensing and medical applications. Also this model is equipped with the closed-loop circuit for air purging from water vapor, intuitive touch panel and the application mode (APP).

- Measurable wavelength range: 1900 – 5500 nm
- Resolution setting: 5 choices from 0.2 to 5 nm
- Dynamic range: 50 dB
- Optical input in free space

## AQ6373E Optical Spectrum Analyzer

The AQ6373E, engineered for optimal performance invisible light measurement, features an advanced input accommodating large-core fibers of up to 800 µm. It also boasts a sophisticated color analysis function, ensuring precise chromatic coordination. The device has a user-friendly touch panel and an intuitive application mode, simplifying operations and improving efficiency.

- Measurable wavelength range: 350 – 1200 nm
- Resolution setting: 10 pm to 10 nm
- Max. sensitivity: -80 dBm
- Optical input in free space

## AQ6374E Optical Spectrum Analyzer

The AQ6374E covers wavelengths from 350 to 1750 nm, including visible light (380 - 780 nm) and telecommunication wavelengths. It is equipped with a closed-loop circuit for air purging which is very effective in cleaning up the detected spectrum from the water vapor absorptions which may affect the accuracy of the measurement. It also features the intuitive touchpanel and the application mode (APP).

- Measurable wavelength range: 350 – 1750 nm
- Resolution setting: 8 choices from 50 pm to 10 nm
- Max. sensitivity: -80 dBm
- Optical input in free space

## AQ6375E Optical Spectrum Analyzer

The AQ6375E is an optical spectrum analyzer covering the communication wavelength to the short-wavelength infrared (SWIR) of more than 2µm. It includes a closed-loop air purging circuit, highly effective in removing water vapor absorptions that can impact measurement accuracy. Additionally, it boasts an intuitive touch panel and an application mode (APP), enhancing user experience and efficiency.

- Measurable wavelength range: 1200 to 2400 nm (Extended version - 1000 to 2500 nm]
- Resolution setting: 6 choices from 50 pm to 2 nm
- Max. sensitivity: -70 dBm
- Optical input in free space

## AQ6376E Optical Spectrum Analyzer

The AQ6376E is used for testing and characterization of devices and systems working in the MWIR region for environmental sensing and medical applications. It is equipped with the closed-loop circuit for air purging from water vapor, which causes a great absorption of light especially around 2700 nm. The AQ6376E features also the intuitive touchpanel and the application mode (APP).

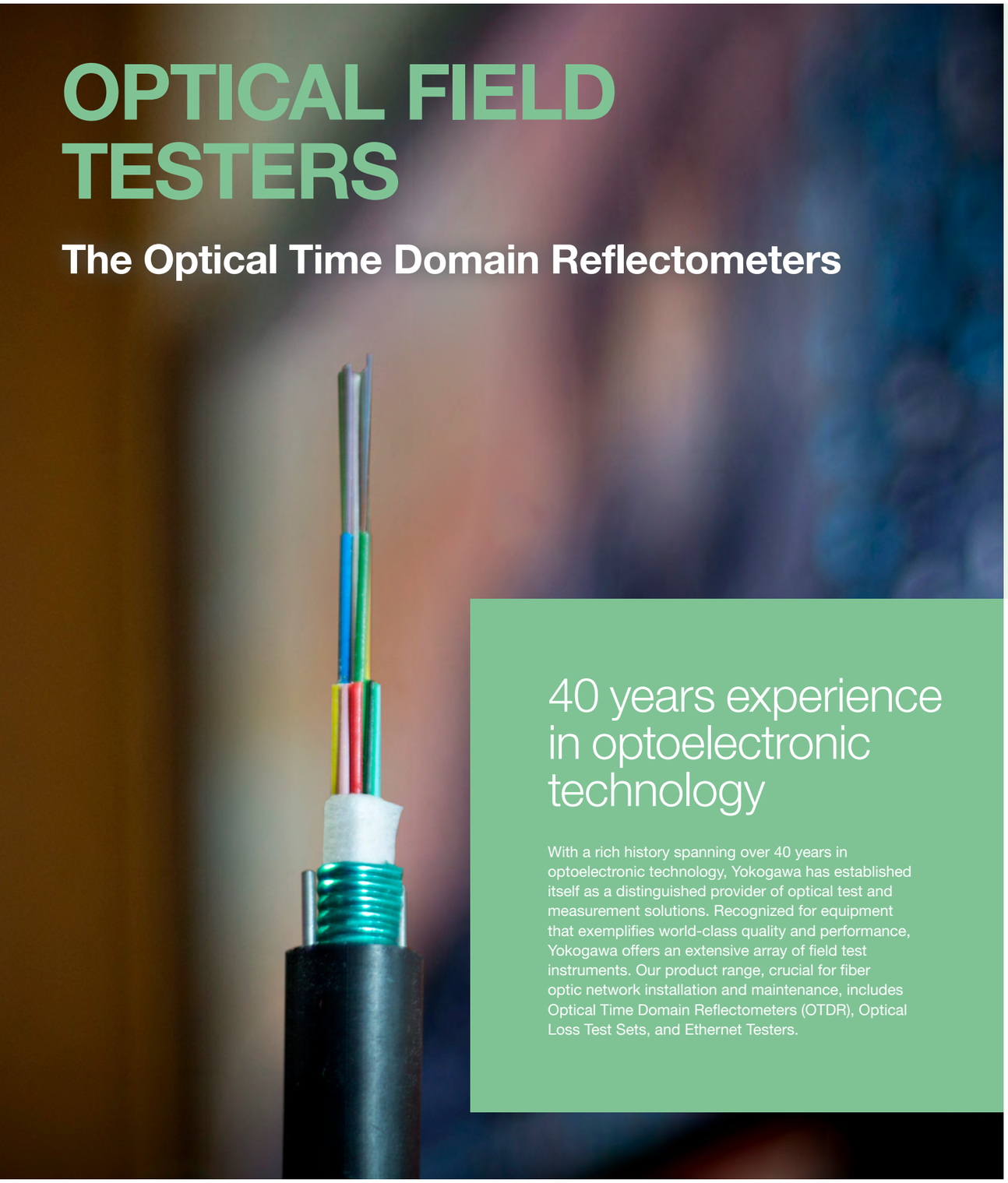
- Measurable wavelength range: 1500 – 3400 nm
- Resolution setting: 5 choices from 0.1 to 2 nm
- Max. sensitivity: -65 dBm
- Optical input in free space



Discover more about our Optical Spectrum Analyzers

# OPTICAL FIELD TESTERS

## The Optical Time Domain Reflectometers



### 40 years experience in optoelectronic technology

With a rich history spanning over 40 years in optoelectronic technology, Yokogawa has established itself as a distinguished provider of optical test and measurement solutions. Recognized for equipment that exemplifies world-class quality and performance, Yokogawa offers an extensive array of field test instruments. Our product range, crucial for fiber optic network installation and maintenance, includes Optical Time Domain Reflectometers (OTDR), Optical Loss Test Sets, and Ethernet Testers.

### AQ7290 Series OTDR

The AQ7290 is the successor of the AQ7280 and stands out as the premier OTDR in our collection. Whether configuring a fundamental unit or one with filtered ports, it seamlessly links real-time networks across long-haul, metro, core, and FTTH testing scenarios.

- All-in-one OTDR (Non-modular)
- Up to 47dB dynamic range
- Wired (USB) or wireless communication (using external wireless LAN adapter)
- Simplified OTDR operation for beginner

### AQ7280 Modular OTDR

The AQ7280 is our adaptable OTDR in the portfolio. Operating on a modular platform, it accommodates a spectrum of needs. The AQ7280 is appreciated for the 8.4 inch touchscreen for a clear view on the measurement results.

- 9 OTDR module variants: 2 WL, 3 WL, 4 WL,high dynamic range
- Power measurements up to +27dBm
- Maximum 15 hours battery operation
- Multi-fiber

### AQ1210 Series OTDR

This compact tester empowers field technicians to swiftly, dependably, and accurately conduct measurements. Its robust design guarantees high reliability even in challenging field conditions. The AQ1210 offers dual operation modes with a user-friendly 5.7” multi-touch display and keypad, alongside fully automated measurements, ensuring efficiency and ease of use.

- 6 models
- 10 hours battery operation
- Power measurements up to +27dBm
- Optional “Power Checker” and Visible Light source

### AQ1000 OTDR

The AQ1000 is tailored to enhance the efficiency of installation technicians working on optical access networks, particularly focusing on the final segment in FTTH (Fiber-to-the-Home) deployments.

- High quality capacitive 5” touchscreen
- 10 hours battery operation
- Stabilized light source for attenuation measurement
- Light source for fault location

Test&Measurement

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# Our compact testers empowers field technicians to swiftly, dependably, and accurately conduct measurements.

## Analyzing and Reporting OTDR measurements

### AQ7933 OTDR Emulation Software

The AQ7933 OTDR Emulation Software is a practical tool designed for detailed waveform data analysis and reporting on Yokogawa OTDRs. Tailored for PC use, it streamlines the reporting process for field engineers.

- Capability to load up to 1000 waveforms
- Simultaneous display of 24 waveforms
- Integrated OTDR remote controller functionality
- Trial Version Available: Full access to all functions for 60 days

Discover more about our OTDR Emulation Software


### AQ2170/80 Handheld Optical Power Meters

The AQ2170/80 series are highly compact handheld optical power meters, ideal for verifying the power budget in the optical network's last mile. They feature automatic pairing with the AQ4280 handheld light source.

- Standard models (AQ2170, AQ2180) with measurement capacity up to +10 dBm
- High-power models (AQ2170H, AQ2180H) for measurements up to +26 dBm
- Measurement wavelengths include 850/1300/1310/1490/1550/1625/1650 nm
- Compatibility with both CW and modulated light sources (270 Hz, 1 kHz, 2 kHz)


### AQ4280 Handheld Light Sources

The AQ4280 series handheld light sources are compact and efficient for verifying the power budget in the optical network's last mile. They are available in three models, each suited for testing a range of telecom services and maintenance channels.

- Automatic pairing with AQ2170/80 optical power meters
- AQ4280A model emitting at 1310/1550 nm wavelengths
- AQ4280B model emitting at 1310/1490/1550 nm wavelengths
- AQ4280C model offering a broader range at 1310/1550/1490/1625 nm


### AQ1100 Optical Loss Test Set

The AQ1100 Optical Loss Test Set, a versatile and portable device, integrates both a stabilized light source and an optical power meter. Its fanless design and large screen make it ideal for field operations.

- Light source options: 2WL SM, 3WL SM, and 4WL SM+MM
- Optical power meters: standard, high-power, and PON models
- Robust, fanless design for harsh environments
- 5.7" color LCD screen for clear display


### AQ1300 Series Ethernet Testers

The AQ1300 series, a compact and lightweight Ethernet tester, is designed for efficient and high-quality testing and maintenance of Ethernet networks up to 10GbE.

- Two model options supporting SFP+ and XFP transceivers up to 10Gbps
- Compatibility with ITU-T Y.1564 and RFC2544 test standards

Discover more about our Optical Field Testers

# MODULAR MANUFACTURING TEST SYSTEM

## The ideal solution for various measurements and evaluations

## Optimized for fast and cost-effective development

The AQ2200 Series is a multifunctional, scalable test and measurement system, making it ideal for various applications related to Optical Devices and Optical Transmission Systems.

This scalable test and measurement system offers a range of interchangeable and hot-swapable measurement modules, like tunable laser sources and optical sensors, which can be mixed and matched

### AQ2200 Series and Modules

The system's frame controllers, the AQ2211 accommodates 3 modules whereas the AQ2212 has place for up to 9.
They both have an easy-to-view color display and USB port for data storage.

However, enhanced by the Remote Viewer Software and macro programming, the AQ2200 series are perfect for automated test environments.

- A broad lineup of measurement modules:
  - Light sources
  - Tunable laser sources
  - Optical power meters
  - Optical attenuator
  - Optical switches, etc.

### AQ2300 Test Platform

Like the AQ2200, the AQ2300 frame controller, can accommodate 3 to 9 modules.
The AQ2300 has an improved color touchscreen, enabling you to get the information you need without connecting an external controller PC.

- A broad lineup of measurement modules:
  - For automated test environments
  - Simultaneous measurement of voltage and current; essential for semiconductor devices
  - High-quality pulse generation resulting in fast rising speed and Flat on-level
  - Various trigger synchronization functions
- Macro programming Function:
  - Convenient solution for automated measurements eliminating the need for an external PC controller

# CALIBRATORS AND STANDARDS

## Superior Precision for Calibration Requirements


# Enhanced Standalone Solutions Offering Superior Precision for Calibration Requirements

Yokogawa provides a range of standalone electrical and process calibrators for calibrating clamp on testers, power meters, multimeters, current transformers, temperature controllers, and analogue and digital panel meters. The latest generation of high compliance bench top AC and DC calibrators are found in analogue meter laboratories and on production lines around the world.

## LS3300 AC Power Calibrator

A high precision AC Power Standard that is built upon Yokogawa's history of developing superior sourcing instruments. The LS3300 is an AC signal generator capable of outputting both current and voltage simultaneously, thus allowing it to calibrate power measurement instruments such as current clamps/transformers, panel meters, RMS multimeters, and power meters.

- Best-in-class power accuracy of 100 ppm
- Wide output current range 0.3 mA up to 62.5 A.
- Output voltage 10 mV to 1250 V
- Frequency: 40 to 1200 Hz

Note: Also look at our handheld calibrators in the test tools section of this catalogue.

## DM7560 Benchtop multimeter

With its high accuracy, high speed data logging (30 kS/s) and 100 kPoint internal memory, the DM7560 provides excellent stability and reliability. Featuring realtime statistical analysis in numeric, trendline, histogram or arc scale on a full color display, the DM7560 is ideal for monitoring battery current consumption, sensor testing, production testing, R&D and service.

- 6.5-digit digital multimeter with high-accuracy
- High-speed data logging with up to 30 k points per second
- Multiple PC interface options (USB, Ethernet, GP-IB, RS-232) enable automation

## 2558A AC Voltage Current Standard

The 2558A is a standalone solution for calibrating meters, clamps and CTs. With ranges up to 1200.0 V AC and 60.00 A AC mean that the 2558A is the instrument of choice for the cost-effective calibration of AC analogue meters. The unit can be intuitively operated via the front panel or controlled by an ATE system.

- Generate AC voltages from 1 mV to 1440 V AC
- Generate AC current from 1 mA to 72 A AC
- Sweep, output divider and deviation functions

## 2560A Precision DC Calibrator

With high voltage and high current capabilities, the 2560A is the solution for calibrating and testing a wide range of DC analogue meters. The high accuracy to 50 ppm and high stability ensure that measurements are repeatable. Versatility is offered by user configurable settings such as sweep, output divider and deviation functions.

- Generate DC voltages up to 1224 V
- Generate DC currents up to 36.72 A
- Sweep, output divider and deviation functions

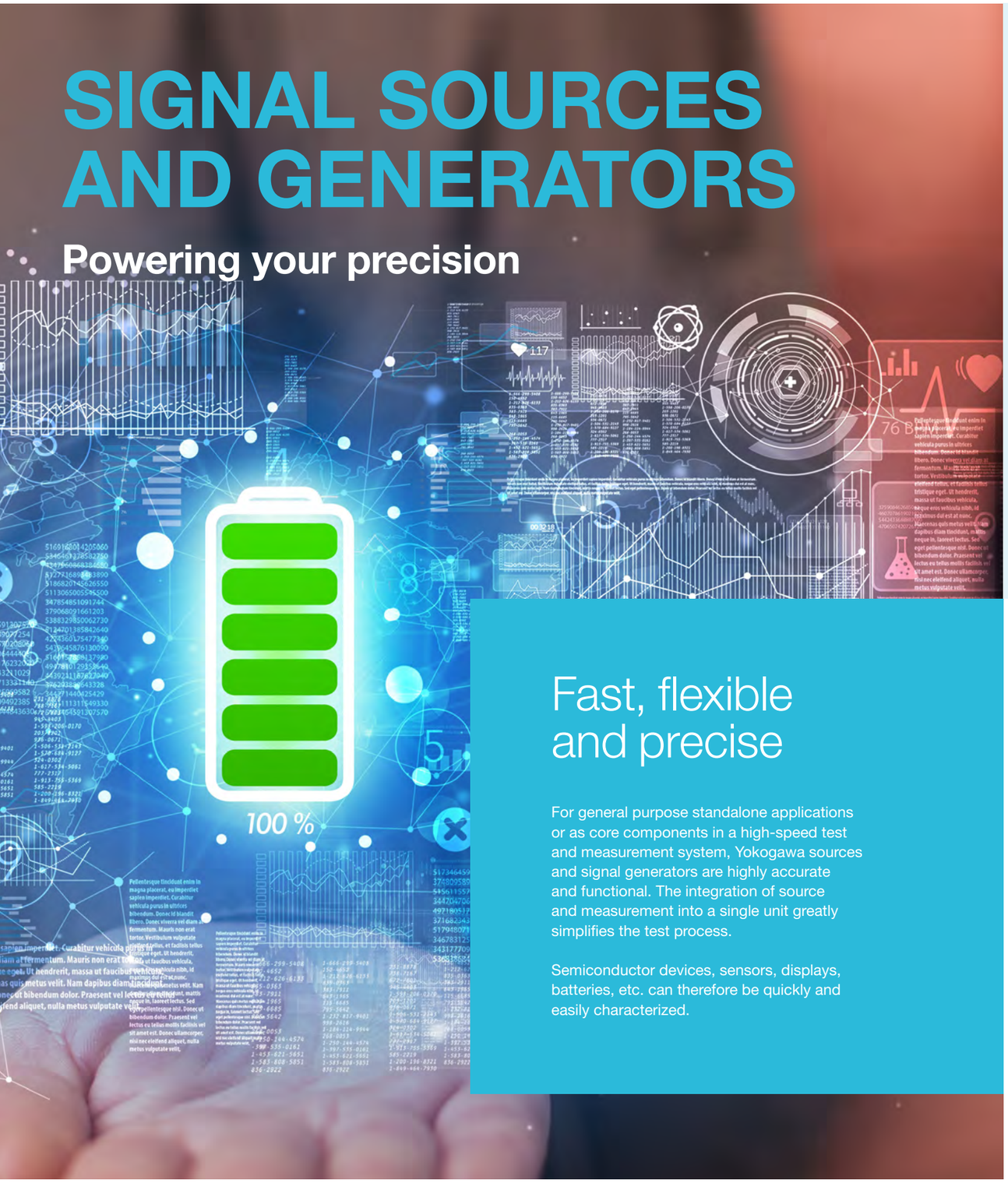
## 2553A Precision DC Calibrator

The 2553A combines precision performance and ease of use for the calibration of measuring instruments including analogue meters, thermometers, temperature transmitters and data loggers. The unit supports all commonly used thermocouple types and offers both high accuracy and high stability to provide long term confidence.

- Generate DC voltages up to 32.000 V
- Generate DC currents up to 120.000 mA
- 10 types of thermocouples and Pt100 + user defined

# SIGNAL SOURCES AND GENERATORS

## Powering your precision



## 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, batteries, etc. can therefore be quickly and easily characterized.


### GS200 DC Voltage / Current Source

The GS200 is a programmable DC voltage/current source that combines high accuracy, high stability, and 5 1/2-digit resolution. It can generate extremely low noise DC voltage and current signals that are required for a wide range of applications. It can also be used as a highly accurate constant current load and 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)
- Battery simulator version available

### GS820 Multi Channel Source Measure

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: 7 V and 3.2 A or 18 V and 1.2 A
- Precise pulse generation (down to 100 µsec width with 0.1 µsec resolution)
- 50 V version available, 50 V and 0.6 A or 20 V and 1.2 A

# DATA ACQUISITION AND RECORDERS

## Network-based data acquisition systems

## Latest generation of paperless recorders

Yokogawa's latest generation of paperless recorders and data acquisition systems can be used in a wide variety of applications to collect process data. Typical parameters such as temperature, pressure, flow, pH or conductivity provide information about the overall quality of the process whereas the additional measurement of consumed energy gives insight into the overall efficiency.

Standard Ethernet communication interfaces support fast and easy connection to LAN environments, enabling remote monitoring applications and centralized back up services. Standard software for the configuration of measurement devices and applications offer easy setup and minimizes preparation time. Advanced software packages are available for connection to other measuring equipment and offer a fully integrated PC-based data acquisition solution.

### SMARTDAC+ Paperless Recorders And Data Logging Systems

The portable GP and panel mount GX paperless recorders feature a unique touchscreen using swipe technology and pinch operations for fast and easy access to all recording and monitoring functions. The SMARTDAC GM data logging system feature a user-friendly web-based HMI and modular hardware architecture, which does not require base plates. Optional, all SMARTDAC+ devices facilitate full integration with WT power analyzers for continuous monitoring and recording of precision power, date and temperatures.

- Bright multi-touch color display (GX/GP only)
- Ethernet communication interface
- Bluetooth interface (option) for easy connection to laptops or Smart Devices (GM only)
- From 4 to 100 input channels on a single device
- Expandable up to 420 Input / output channels
- SD card memory support up to 32 GB
- USB interface for easy backup of memory storage
- Report and printer output functions

# ELECTRICAL TEST TOOLS AND HANDHELD CALIBRATORS

## Digital precision at your fingertips

## For daily electrical inspections, testing and calibration of field instrumentation

Portable and handheld test instruments are part of every field technician or engineer's toolkit. This is due to their flexibility, ruggedness in harsh environments, and varied functionality to handle anything from simple measurements to power quality analysis and pressure calibration. They are able to log data quickly to internal memory, as well as perform quick measurements for easy troubleshooting of industrial field equipment. Often, it is not only impractical but cost-ineffective to bring high-end instrumentation onto the field where such precision is not warranted or needed. Portable instruments are ideal for closing that needed gap.

### Digital Multimeters

Yokogawa's TY family of handheld Digital multimeters is packed with advanced functionality, such as frequency, pulse width, duty cycle, temperature, capacitance, low power resistance 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.

### Process Multimeter And Handheld Calibrators

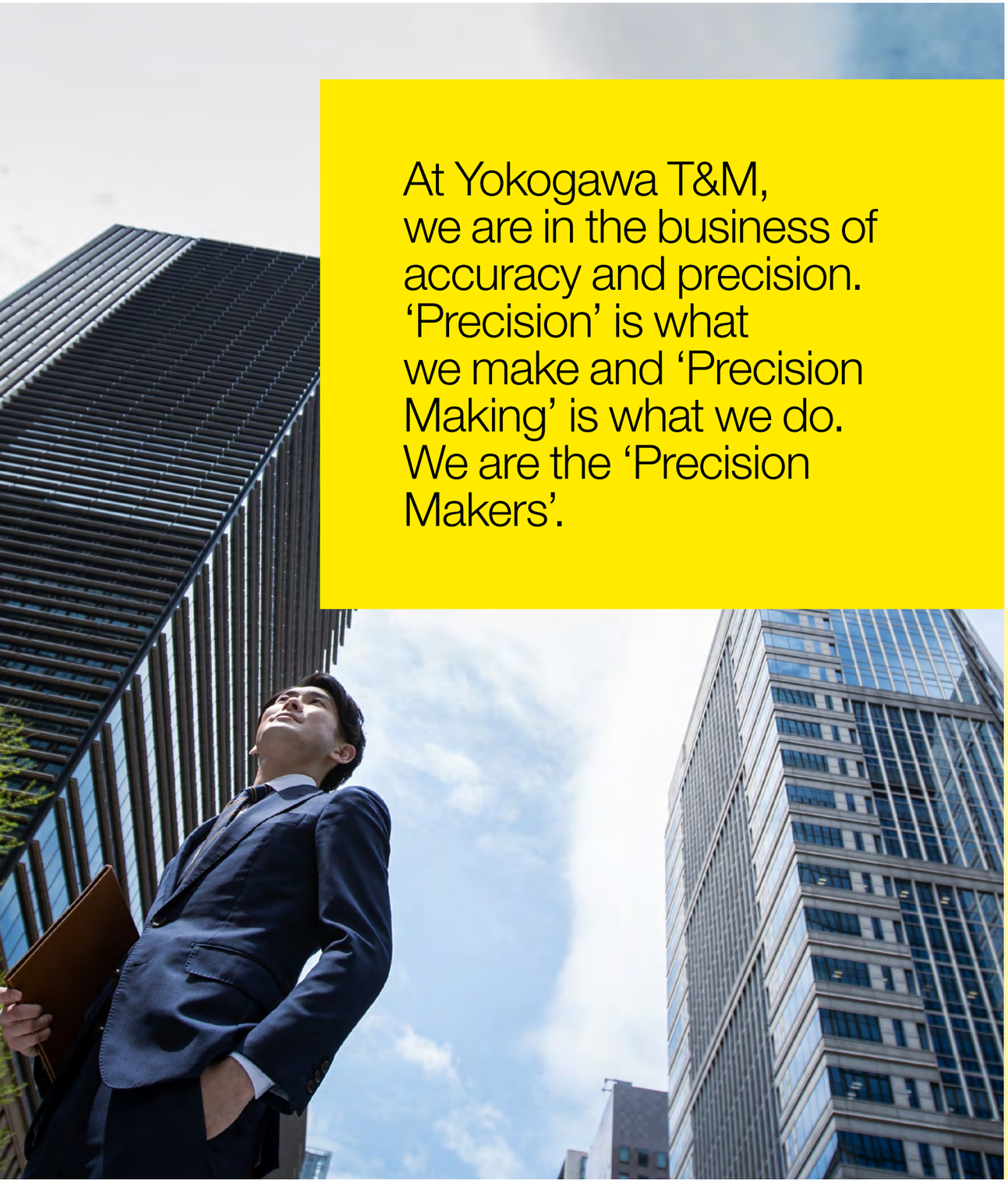
Yokogawa CA series of process multimeters and handheld calibrators are ideal tools for the installation and maintenance of process instrumentation such as transmitters, flow meters, signal conditioners and valve positioners. Calibrate a wide range of instruments from data loggers, temperature controllers, thermometers to multimeters, and pressure transmitters and validate the accuracy of these field instrumentation, which are subject to harsh environmental conditions and wear and tear.

### Power Quality Analyzer

The CW500 is both a portable power meter and a power quality analyzer with 3 AC voltage inputs, 4 AC current clamp inputs (selectable up to 3000 A) and 2 low voltage DC inputs. It conforms to IEC 6100-4-30 Class S for recording intermittent faults and can measure harmonics and flicker for long term fault analysis. The viewer software supports EN 50160: 2010 voltage characteristics reporting.

### 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 various features include RMS, mean, resistance and frequency measurements, and a recorder output.



At Yokogawa T&M, we are in the business of accuracy and precision. ‘Precision’ is what we make and ‘Precision Making’ is what we do. We are the ‘Precision Makers’.

# MEET THE PRECISION MAKERS

- Photonics Testing
- Precise Power Analysis
- Waveform & Data Acquisition

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# Precision is all around us. In everything we see, everything we touch.

# It means the difference between success and failure, safe and unsafe, sustainable and unsustainable.

# But Precision doesn’t just happen. It’s made.

# We are the Precision Makers.

Test&Measurement

YOKOGAWA

# CONTACT INFORMATION

## Europe

### Headquarters

**Yokogawa Europe B.V.**
Euroweg 2
3825 HD Amersfoort
The Netherlands
Tel. +31 (0)88 464 1830
PrecisionMaking.EU@yokogawa.com

### Sales network

**Benelux**
Yokogawa Europe Solutions B.V.
Euroweg 2
3825 HD Amersfoort
The Netherlands
Tel. +31 (0)88 464 1830

**Italy**
Via Assunta 61
20834 Nova Milanese (MB)
Italy
Tel. +39 02 66 055 1

**United Kingdom**
Yokogawa UK Ltd
Measurement Technologies Division
Stuart Road, Manor Park
Runcorn, Cheshire
WA7 1TR
United Kingdom
Tel. +44 1928 597200

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

**T&M distributor network**
To find the representative in your country or close to you, go to
tmi.yokogawa.com/contact
or call +31 (0) 88 464 1000
or email to
PrecisionMaking.EU@yokogawa.com

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**YOKOGAWA TEST & MEASUREMENT CORPORATION**
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