A 100-year History of Yokogawa’s Measurement Business

Yokogawa celebrates its centennial anniversary this year. Dr. Tamisuke Yokogawa, the founder of Yokogawa, was a prominent architect who helped establish Japan’s modern style of architecture. He designed various buildings that are representative of Japan’s modern architecture, including the former Imperial Theater, the main building of the former Tokyo Stock Exchange, and the existing main department store of Mitsukoshi at Nihonbashi, Tokyo. After he lived through the Mino-Owari earthquake in 1891, he began studying quake-resistant buildings and became involved in the construction of Japan’s first steel frame building. Yokogawa was a pioneer of research into quake-absorbing structures.

His enthusiasm for anti-earthquake measures was underlined by his decision to go to the US, where many earthquakes occur, to learn advanced technology instead of to Europe, where many Japanese intellectuals in those days hoped to visit if they had the chance to study abroad. The Great East Japan Earthquake in 2011 caused tremendous damage and reminded us to re-consider the progress of the past 100 years as well as areas now in need of development while pondering what Yokogawa would have thought had he observed the disaster.

Why did Tamisuke, an architect, found a company producing electrical measuring instruments? In those days, driving apparatuses used in modern industry were shifting from steam engines to electrical motors, and there was an increasing demand for electrical equipment such as that used for lighting and heating of buildings. It is said that as he was a scholar who had a spirit of entrepreneurship, such trends made him realize the importance of domestically manufacturing electrical measuring instruments and spawning business opportunities. Another event that encouraged him was the enactment of the electrical measurement law. In an age where electricity was becoming the main source of energy and starting to be commercialized, Yokogawa took on pioneering challenges by seizing opportunities for innovation as and when they arose.

In 1915, he founded an electric meter research institute with Ichiro Yokogawa, his nephew, and Shin Aoki, an engineer invited from the Electrotechnical Laboratory of the Ministry of Communications. We know that upon the institute’s foundation, Tamisuke encouraged his staff by saying, “You don’t need to worry about profits. Just learn and improve your technology. You must make products that earn us the respect of our customers.” He believed that excellent, reliable technology and quality were keys to business success. This mindset is reflected in the founding principles through phrases such as “quality first” and “pioneering spirit,” and remains a cornerstone of our company.

The staff of the research institute created a number of prototypes that received very positive responses from various universities and laboratories. Backed by this, in 1917, two years after founding the institute, they released a series of ammeters, voltmeters and power meters, all of which were Japan’s first electric indicating meters. When the organization was listed on the stock market under the name Yokogawa Electric Works (YEW), its brand, YEW, earned a high reputation both in and outside Japan over 70 years for its precision electric meters (this brand was changed to YOKOGAWA in 1986 via a corporate rebranding project).

In the last 100 years, people around the world experienced many hardships caused by war, natural disasters, environmental pollution and diseases. Nevertheless, remarkable technological progress has led to a radical change in industry, society, and people’s daily lives. In particular, the technological progress behind integrated semiconductors, computers, software and communication since the 1970s has led to some of the wildest ideas and dreams portrayed in science fiction films becoming true and ubiquitous in people’s daily lives. Electronic and optical measuring instruments have been supporting basic research, product development and manufacturing technology that have helped realize such dreams. This is why measuring instruments are considered fundamental tools in many industries.

Currently, the major domains of Yokogawa’s businesses are control and measurement.
The control business triggered the spread of automated plant operation in Japan after World War II. Yokogawa’s CENTUM control system contributes to the development of many industries, particularly in plants used to develop oil, gas, petrochemicals, electric power and pharmaceuticals. The CENTUM is a production control system combining industrial measurement functions for temperature, pressure, flow rate, etc., and computers that perform feedback control based on the measurement results, in order to help ensure safe and efficient automated production. The control business has become the main pillar of Yokogawa and is growing globally.

Meanwhile, the latter measurement business primarily deals with electric/electronic and optical measuring instruments, which were also part of the business at its founding. Main users are engineers engaged in research, development and design of products in the fields of electronics, mechatronics, and optical communication, and also engineers working in and with production, maintenance and communication infrastructure where various high-tech or electronic products that have already been developed are tested and/or inspected. Because competition in the areas of new product development in those fields is fierce, our measurement technology, performance and accuracy of the instruments must be kept ahead of the cutting-edge specifications that our customers are trying to achieve in their products. The measuring instruments provided by Yokogawa have evolved from simple indicating meters, computerized and digitized instruments, into advanced tools equipped with analysis functions utilizing MPUs, digital signal processors (DSPs), and software.

At present, an increase in global economic growth and mass consumption based on drastic advances in technology, including in emerging countries, has spawned an entirely new problem involving global environmental issues. Against this background, investment aimed at developing energy-saving technologies are becoming increasingly active.

The power measurement technology developed when the company was founded has been evolving. One hundred years later, Yokogawa has developed a novel power measuring instrument combining world-class measurement accuracy and advanced analysis functions to respond to ever-advancing technological innovations in inverters, batteries, renewable energy, electric vehicles, and so on. Ultimately, Yokogawa has created a new market for power measuring instruments.

Yokogawa’s measurement technology covers various fields, including the technology used to measure physical quantities such as temperature and pressure, that for measuring physical phenomena such as electricity, electrons and light, and furthermore, that for visualizing life phenomena in life science research.

As a consequence of the fact that these technologies enable objects to be accurately measured, precise reference signals to be generated, objects to be analyzed to clarify their characteristics, and what otherwise cannot be seen to be visualized, the above are critical for technology and industry to move forward. As our founder started the business after recognizing the changes occurring in industry and society in those days as an opportunity, we are also moving forward in the field of measurement while recognizing that the various changes and challenges occurring around us present business opportunities.

In April 2015, in order to boost the measurement business again while combining its proprietary measurement technologies in a coordinated manner, Yokogawa set up the Measurement Business Headquarters in order to comprehensively manage the two organizations, namely Yokogawa Meters & Instruments Corporation (YMI), which primarily deals with electronic measuring instruments, and the Life Science Center, which deals with confocal microscopes, drug discovery solutions, and others.

While reviewing the founding principles laid out 100 years ago and imagining future advances in technology and society over the next 100 years, we are determined to contribute more to society through the new organization and to use it as a basis for renewing our ambitions and technology to grow our measurement business.