COMPANY OVERVIEW

SAFETY
SENSORS
INTELLIGENT SENSORS
CODE READERS / STATIC
HIGH PRECISION MEASUREMENT
MACHINE VISION SYSTEMS
LASER MARKERS
MICROSCOPES
History

1974  Incorporated as Lead Electric Co., Ltd.
1975  Developed high accuracy proximity sensor
1983  Developed optical fiber photoelectric sensor
1985  First international subsidiary established in the United States
1986  Developed the first photoelectric sensor to utilize a laser diode as the light source
1986  Changed name to KEYENCE Corporation
1989  Developed ultra compact barcode reader
1990  Developed microscope with built-in monitor
1995  Developed world’s smallest machine vision system
1999  Developed world’s first auto focus color laser microscope
2002  Developed high speed and high accuracy machine vision system
2005  Developed next generation 3D real surface digital microscope
2006  Developed world’s first 3-Axis laser marker
2007  Developed world’s first CMOS laser sensor
2008  Developed industry’s first microscope with high-speed magnified video capture capabilities
2009  Developed industry’s fastest laser triangulation sensor
2010  Developed fastest static elimination blower in its class
2011  Developed world’s smallest micro-head with 1 nm resolution
2012  Released world’s fastest 2D/3D laser displacement sensor
2013  Created world’s first macroscope with one-shot 3D measurement
Who We Are

KEYENCE has steadily grown since 1974 to become an innovative leader in the development and manufacturing of automation equipment worldwide. Our products consist of automation sensors, measuring instruments, vision systems, laser markers, and digital microscopes.

Our innovative products not only meet current needs but also future customer requirements in many manufacturing and research industries. We strive to anticipate the market's future needs to provide tomorrow's solution today.

At KEYENCE, we are not content to only have the best products on the market, we also strive to provide our customers with the most knowledgeable and trained sales professionals in the industry. We are dedicated to supporting our customers and working with them to achieve their goals.

KEYENCE has been named one of Business Week's “1,000 Best Valued Companies” and has ranked on Forbes’ “World’s Most Innovative Companies” list. We are also in the top 50 of Newsweek’s electronic industry ranking and are consistently ranked in Japan’s Nikkei Newspaper’s yearly list of the “Top Ten Excellent Companies in Japan.” Today, KEYENCE serves over 200,000 customers in some 70 countries around the world, where its name stands for innovation and excellence.

Direct Approach

KEYENCE employs a large number of sales engineers throughout the world enabling invaluable direct on-site support. With this direct approach, we are able to meet the customer’s needs at every level of their business, from the design and research stage to the production line and beyond.

These highly trained sales engineers are problem solvers who can provide real solutions to our customers’ applications with existing products or potential new solutions.

Superior Technology

KEYENCE is a worldwide leader in developing and supplying cutting-edge automation and manufacturing technologies of the highest quality. New product sales consistently account for 30% of KEYENCE’s total sales, illustrating our ability to quickly respond to industry trends and add value to our customers.

Versatile Products

KEYENCE manufactures a broad range of products used in both manufacturing environments and research facilities. These products are designed with versatility in mind and can be used across all industry sectors. We know quick delivery is important, which is why our products are shipped on the same day the order is received from warehouse centers located in over 40 countries throughout the world.
Developing Industry Leading Products through Intense In-House Research and Development

KEYENCE products are designed to add value to the manufacturing and research practices of our customers. We are constantly looking to improve our product offerings to better meet and exceed customers’ expectations. Our products are engineered to be versatile, so they can be used in every industry and a wide variety of applications. KEYENCE offers the world’s best products for today and tomorrow’s application needs. At KEYENCE, terms like “World’s First,” “World’s Fastest,” “Industry First,” and “Best in Class” come standard with our products. With over 30 years of direct, on-site problem solving experience, we know the industries we serve better than other companies enabling us to provide optimal solutions.

CLEAN Energy Policy

KEYENCE recognizes that protecting our environment is of paramount importance to the entire planet. We strive to contribute to the protection and improvement of the global environment. Our value added solutions enable a wide range of industries to produce goods efficiently by minimizing waste and the impact to the environment.

RoHS

Since April 2005, KEYENCE has been progressively eliminating hazardous substances from our products and implementing the switch to RoHS compliant products.

Corporate Information

FACTS

Global Headquarters: Osaka, Japan
Founded: May 1974

2012 Global Sales: $2,269,062,000 USD
Worldwide Employees: 3,800

Note: Dollar amounts are translated from Japanese yen, for convenience only, at ¥96 = US$1, the approximate exchange rate on March 20, 2013.

AN EXCEPTIONAL COMPANY

Newsweek Electronics Industry Ranking

1 IBM
2 HP 16 Xerox
3 CANON INC.
4 Panasonic 26 Seagate
5 Apple INC.
6 ABB 39 KEYENCE
7 DELL
8 Schneider Electric 42 Rockwell Automation
9 Emerson Electric 43 Cooper Industries
10 Sony

Nikkei Newspaper (Recent Top 10)

1 Nintendo
2 FANUC LTD.
3 Astellas Pharma Inc.
4 Takeda Pharmaceutical
5 KEYENCE
6 ROHM CO., LTD.
7 CANON INC.
8 Trend Micro Inc.
9 TOYOTA Motor Corp
10 NTT DOCOMO, INC.

- Maintains its ranking in top 30 (for 20 years)
- Ranked in the top 10 from 2005 to 2008
SAFETY PRODUCTS

SAFETY LIGHT CURTAIN

Built-in guarding, all-in-one functionality, and innovative wiring options make the GL-R Series a perfect solution for countless safety applications.

GL Series

SAFETY SCANNER

Safety laser scanners allow users to protect and monitor complex hazardous zones with ease.

SZ Series

• Max Protection Zone: 4.2 m 13.8’
• Max Warning Zone: 10 m 32.8’
• Simple PC Configuration

• Up to 48 Configurable Zones
• Built-in Muting Function
• Measurement output data available
SENSORS

FIBEROPTIC

High function amplifiers and a vast array of sensor head options provide reliable solutions for the most challenging detection conditions.

PHOTOEYE

Appropriate for applications involving presence/absence detection, including part presence on a vibratory feeder bowl.

The combination of a durable housing and stable detection capabilities enables reliable presence/absence detection in harsh environments.

LASER

Perfect for detecting targets that are either multi-colored or have mirrored/glossy surfaces, regardless of the background.

Lasers are ideal for difficult applications, since they provide a small visible beam spot over long distances.
SENSORS

SPECIALTY

- PX Series: Ensure reliable detection, even under harsh washdown conditions.
- CZ Series: Solve tough applications involving color, luster, and UV detection.

PRESSURE

- AP Series: The AP Series high resolution digital technology ensures stable pressure detection.
- GP Series: With a variety of self-contained models, these sensors are ideal for both hydraulic and pneumatic applications.

FLOW

- FD Series: NO OBSTRUCTIONS. No pressure losses. Reduces the load on pumps and saves energy.
- Flow control for injection mold cooling
- NO PADDLE WHEEL. No moving parts. Maintenance free.
- NO ELECTRODES. No errors due to buildup. Maintains accurate flow control from outside the pipe.

PROXIMITY

- ES Series: Compact and durable design for easy metal detection.

POWER SUPPLY

- MS2 Series: Digital display provides instant power consumption feedback.
  - Available output: 24 VDC: 2.1 A to 12.5 A
  - Also available: 5 VDC/12 VDC
  - Power consumption: 1.6 A 24 VDC
  - Power consumption monitor
  - Peak hold function
  - Load factor: 35%
  - Output voltage monitor
  - Output voltage: 24 VDC
INTELLIGENT SENSORS

VISION SENSOR

Difficult applications that formerly required multiple conventional photoelectric or proximity sensors can now be tackled easily with a vision sensor. Automatic focus, color imaging models, and high intensity illumination set the IV Series apart.

IV Series

Multiple detections in one field of view

Color detection tool in packaging

DIGITAL CONTACT SENSOR

The GT Series is a digital contact sensor and is the first to employ a quartz glass scale shot system. Customers have the option of either a standard model or air push model.

GT Series

Thickness measurement of a liquid crystal substrate

Packing insertion check

CCD LASER SENSOR

The IG Series is a thrubeam CCD laser sensor that can perform a variety of measurements with high repeatability and stability. This sensor is also able to detect transparent targets.

IG Series

• Edge Control
• Outer Diameter Measurement
• Inner Diameter & Gap Measurement
• Edge Detection of Transparent Targets

Gap measurement between rollers

Edge control of a glass substrate
KEYENCE offers a wide variety of models to meet the needs of a new era of improved productivity and quality in the workplace.

**BARCODE READER**

- High Scan Speed: 1300 scans/sec
- High Resolution: 0.08 mm \(0.0031"\)
- Unmatched reading ability on poor quality codes

**BL Series**

Verification of test tubes

**2D CODE READER**

- Reliable, Moving Object Code Detection
- Advanced Reading Flexibility
- Easy Setup & Maintenance

**SR Series**

ECU: Traceability

**STATIC ELIMINATION**

- Spot, Bar, & Blower Types
- Built-In Display
- Low Voltage Wiring
- Calibration-Free Setup
- Low Maintenance Operation

**SJ Series**

Static elimination of films

Prevent workpieces from sticking to the cutting machine during the cutting process

Static elimination of parts feeders
The IM Series is a one step solution to conventional quality control inspection problems. With the press of a button, KEYENCE’s patented pattern analysis tools provide traceable 2D analysis of any part placed on the measurement stage. With an industry leading 100 nm resolution, the IM Series provides unprecedented solid state measurement in a low cost, green, and space saving package.

**IM Series**

- Sub-Pixel Measurement Accuracy
- Instantaneous Measurements at Hundreds of Points
- NO Positioning Necessary

**OPTICAL MEASUREMENT SYSTEM**

**SPECTRAL-INTERFERENCE LASER DISPLACEMENT METER**

Continuing the advance in optical displacement measurement, the SI Series represents the pinnacle of in-line optical measurement technology. KEYENCE’s revolutionary spectral interference operating principle and rugged IP-67 construction allow the SI to produce nanometer scale measurements in the harshest production environments.

1 nm resolution from a 2 mm 0.078” head
HIGH PRECISION MEASUREMENT

LASER DISPLACEMENT SENSOR

With a best-in-class sampling rate of 392 kHz, the LK Series can obtain reliable optical measurements of even the most rapidly moving processes. This series also has the highest accuracy and repeatability in its class.

LK Series

- Coarse Targets
- Transparent Targets
- Fine Targets
- Mirror Targets

Measuring the thickness/width of a steel plate
Active layer measurement of solar modules

2D/3D LASER DISPLACEMENT SENSOR

The LJ Series is ideal for high accuracy inline and offline measurements. High precision 3D measurement provides an accurate reproduction of surface profiles.

LJ Series

- Peak Height
- Average Height
- Gap
- Angle
- Bottom Height
- Width/Position
- Cross Sectional Area
- Profile Comparison

Measure Up to 8 Features at the Same Time

OPTICAL MICROMETER

Designed around an innovative, green LED optical system, the LS Series provides continuous diameter measurements with no gaps in detection.

LS Series

- Dual-head mode
- One-head with 2 independent measurements
KEYENCE was one of the first companies to develop the concept of using a camera for part inspection. Being involved in machine vision since the 1980’s, our current machine vision system is the result of KEYENCE’s immense industrial knowledge from solving countless applications in a wide variety of industries.

The dedicated hardware platform and wide range of accessories (cameras, lights, and lenses) enable KEYENCE to offer a high-power, yet versatile system, that can be easily adapted and utilized for a wide range of needs. In addition, KEYENCE provides consultation services, high-end technical support, reference material, and workshops to all of those interested in applying this form of technology to their processes.
MACHINE VISION SYSTEMS

AUTOMOTIVE MANUFACTURING

The inspection of components as part of a Poke Yoke process for part sorting, quality control, and part assembly are very common in the automotive industry. Machine vision systems also have the ability to hold multiple recipes for quick product changeovers.

ELECTRONIC & SEMICONDUCTOR PROCESS CONTROL

Machine vision can be used for a multitude of applications in the semiconductor and electronic industries. Common applications include wafer notch alignment, solar cell quality control, and IC package inspections.

FOOD, PACKAGING, AND PHARMACEUTICAL

Product control and management is very important in the food and pharmaceutical industries where the end-user is the general public. Machine vision systems enable the checking for contamination, and the reading of serial / date codes to help prevent human errors.
KEYENCE’s 3-Axis laser markers are equipped with the most advanced optical components for laser marking. Nearly any complex shape can be easily programmed and accurately marked. 3D profiles and CAD data can be used to program any target profile.
LASER MARKERS

AUTOMOTIVE
Common applications for the automotive industry include marking instrument panel buttons, 2D codes on metal components, and other data for traceability.

MEDICAL/PHARMACEUTICAL
Applications in the medical industry include lot number marking on blister packs, tracking information on devices, instruments, and many other products.

PACKAGING
In the packaging industry nearly every product needs information printed on it. From expiration dates on bottles and films to lot codes on product packaging, lasers can do it all.

PLASTICS
From gate and film cutting to marking labels on components, laser markers are used in a wide variety of applications on plastics.

SEMICONDUCTOR
Semiconductor applications for laser markers range from marking on IC’s to identification information on wafers and circuit boards.

COMPLETE 3-AXIS LINEUP
High-power 30 Watt and 50 Watt Models
High-speed engraving and contrast marking
3-Axis Fiber Laser Marker
MD-F3100/5100 Series

Thin film processing and general purpose uses such as marking on resins, metals, etc.
3-Axis YVO4 Laser Marker
MD-V9900A Series

Marking on resins, paper/wood, glass, and film processing
3-Axis CO2 Laser Marker
ML-Z9500 Series
MICROSCOPES

DIGITAL MICROSCOPE

The VW High-speed Microscope incorporates many of the capabilities of our VHX Digital Microscope Series with a high-speed camera, allowing users to perform both macro- and micro-imaging at up to 230,000 frames per second. The integrated design allows users to set up and record in just a matter of minutes, while also functioning as a high-speed camera or microscope for general inspection work. Additionally, advanced measurement software provides tracking capabilities on moving objects.

REVOLUTIONIZING OPTICAL INSPECTION & ANALYSIS

The VHX Series Digital Microscope was designed to alleviate the shortcomings of traditional optical microscopes - shallow depth-of-field, short working distance, lack of portability and versatility, sample limitations, etc. By integrating advanced zoom optics with a CCD camera, 17" LCD monitor, light source, controller, and analysis/reporting software, the VHX streamlines testing and improves the speed and efficiency of the inspection process.

The VHX Series enables a wide range of microscopic observation, from macro-scale stereoscopic imaging to the detailed analysis of an SEM, with a magnification range from 0.1x - 5000x. Many lighting techniques are also supported including bright and dark field, transmitted, polarized, and differential interference observation.

VHX Series

HIGH-SPEED MICROSCOPE

The VW High-speed Microscope incorporates many of the capabilities of our VHX Digital Microscope Series with a high-speed camera, allowing users to perform both macro- and micro-imaging at up to 230,000 frames per second. The integrated design allows users to set up and record in just a matter of minutes, while also functioning as a high-speed camera or microscope for general inspection work. Additionally, advanced measurement software provides tracking capabilities on moving objects.

VW Series
MICROSCOPES

LASER SCANNING MICROSCOPE

Perform non-contact profile and roughness measurements on any material with the VK-X Series Laser Scanning Microscope. Capture high-resolution images, comparable to an SEM, with nanometer-level Z-axis measurements and the ease-of-use of an optical microscope. Unlike conventional metrology equipment, the VK-X will not damage samples and can even image and collect data on angled surfaces approaching 90 degrees.

One-shot 3D Measuring Microscope

The VR Series One-shot 3D Measuring Microscope combines the advanced optical design of our digital microscopes with the high-speed, high-accuracy measurement and 3D technology of our displacement gauges to complete instant 3D measurements. This new technology captures 3D data over a wide area with just a click of a button, eliminates measurement variation between users, and provides a variety of measurements such as profiling, volume, and roughness.

FLUORESCENCE MICROSCOPE

The BZ (BIOREVO) represents a revolutionary approach to conventional fluorescence microscopy - combining the functionality of a slide scanner, confocal, and live-cell imaging system. This fully-integrated microscope is capable of performing fluorescence, bright field, and phase-contrast imaging - without the need for a darkroom. This fully-motorized system dramatically reduces the time needed for both image capture and analysis, and it can be operated completely via an intuitive software interface.
CONSULTATIVE APPROACH
DEDICATED TO ADDING VALUE FOR OUR CUSTOMERS

Direct Approach

Our technically trained sales engineers have extensive experience with various applications and industries. Sales engineers specialize within a certain product group to become experts in their fields. This experience and specialization allows the most efficient solution to be recommended to customers.

In some cases, the application may require the design of a new product. KEYENCE is able to quickly incorporate input from customers into our new product designs since we manufacture the products as well. More than 1,500 sales engineers around the world are prepared to participate at every level of our customers’ business, from the design and research stage to the production line and beyond.

Comprehensive Support

KEYENCE supports customers with extensive on-site manufacturing and automation knowledge. Recommending the right solutions for our customers’ applications is only the beginning of how our sales engineers assist customers.

After purchasing a product, KEYENCE sales engineers ensure the products are functioning optimally, and they are able to go on-site if needed. If a customer ever has any questions, sales engineers and our technical support team are available to answer them quickly.
EXTENSIVE NETWORK

Worldwide Direct Sales Network
More than 200 offices in 44 countries

When working with KEYENCE, you’ll not only receive the industry’s most advanced products, but you can also count on a worldwide network of highly trained support engineers to guide you through the implementation of those products. Whether you’re working in the US, or shipping a machine to Eastern Europe, Asia, Mexico, or other remote locations, KEYENCE provides support you can count on.

Fast Delivery

KEYENCE’s fast delivery system will ensure that customers get their required products when they need them. Products are shipped from warehouse centers in Japan, Singapore, Malaysia, Thailand, China, Taiwan, South Korea, U.S. (Chicago), Canada, Mexico, the U.K., Germany, France and Italy or from 200 agents in 44 countries.