


**TOKYO KEIKI INC.**

[www.tokyokeiki.jp](http://www.tokyokeiki.jp)



Corporate Profile





Building the foundation for a better life and society with advanced technology.

## **TOKYO KEIKI, your partner for a better society**

TOKYO KEIKI employs cutting edge technologies that transform human sensory functions of measurement, cognition, and control in products and systems that serve and benefit society. As Japan's first manufacturer of precision instruments, we have contributed to enhancing the community and the safety and quality of life of people for over a century. We will continue to strive with unwavering principle, dedication, and a diversity of technologies in supporting the foundation of a safe and secure optimal society.

**+** *with TOKYO KEIKI*

Leveraging a myriad of leading edge technologies and our collective strengths, we strive toward realization of a higher quality of life and society for everyone.

List of Major Products



**Marine Systems Company**

**Marine Systems equipment**

- Integrated Bridge Systems
- Autopilots
- Gyrocompasses / FOG compasses
- Magnetic Compasses / GPS compasses
- Marine radars
- Electronic chart display and information systems (ECDIS)
- Doppler speed logs
- Radio communication equipment (GMDSS)
- Automatic identification systems (AIS)
- INMARSAT
- Electro-hydraulic steering systems



**Measurement Systems Company**

**Flowmeters and related systems/equipment**

- Ultrasonic flowmeters
- Open-channel ultrasonic flowmeters
- Thermal mass flowmeters
- Ultrasonic gas flowmeters
- Non-contacting radar level gauges
- Laser docking systems
- Controlling and monitoring systems

**Fire-extinguishing facilities**

- Carbon dioxide fire-extinguishing facilities
- Nitrogen fire-extinguishing facilities
- Halon 1301 fire-extinguishing facilities



**Fluid Power & Control Systems Company**

**Hydraulic equipment and systems**

- Pumps
- Motors
- Pressure control valves
- Flow control valves
- Directional control valves
- Stack valves
- Cartridge valves
- Proportional control valves
- Servo valves
- Digital valve control systems
- Electronic pressure switches and sensors
- Cylinders
- Compact power packages
- Other control systems and units
- Accessories
- Direct drive pump units

**Construction equipment and vehicles systems**

- Radio remote control systems
- Rotary brushes
- Stroke sensors
- Construction equipment monitors / controllers
- Construction equipment controllers
- Work vehicle controllers
- RFID entry systems

**Dynamically reconfigurable processor and systems**

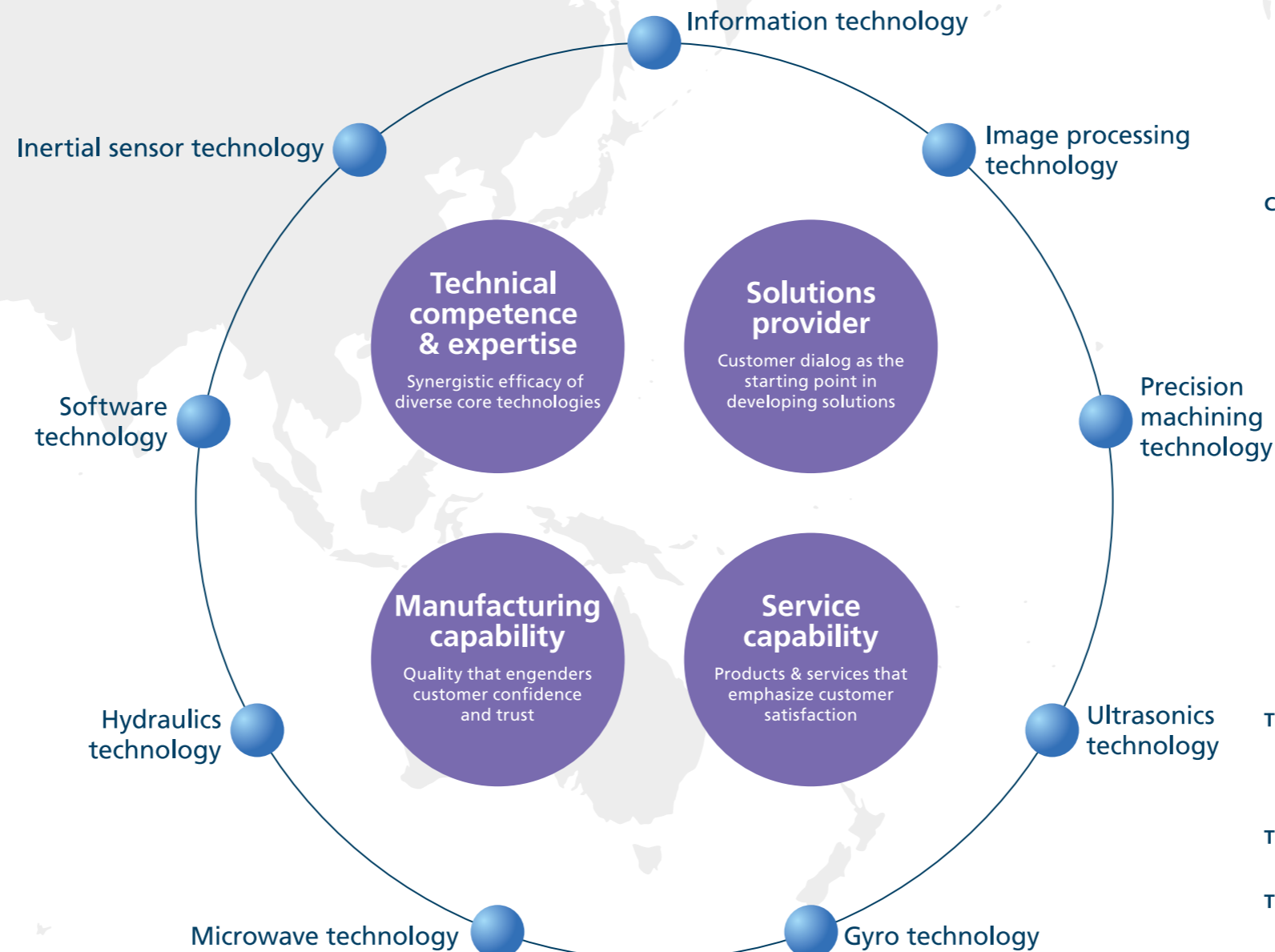
- Dynamically reconfigurable processor
- Integrated development environment
- Evaluation Kit
- In-circuit emulator



**Inspection Systems Company**

**Printing inspection equipment and systems**

- Web inspection systems
- Material surface inspection systems



**Electronics Systems Company**

**Defense systems**

**Avionic systems and equipment**

- Radar warning receivers
- Electronic support measures
- Digital Receivers
- Air data computers
- Attitude and heading reference systems
- Accelerometers
- Radar indicators
- Hydraulic equipment

**Ground equipment**

- Avionics testing equipment
- Radar systems
- Decoy

**Naval systems and equipment**

- Gyrocompasses
- Inertial navigation systems
- Radar displays
- Dead reckoning equipment
- Electronic chart display and information systems
- Navigation data interface equipment
- Tactical data display systems
- Helicopter landing indicators
- Integrated navigation systems

**Motor vehicle equipment**

- Panel control system
- Operating panel equipment
- Position-determining systems

**Other products**

- Measurement system
- Microwave devices



**Maritime traffic systems**

- Radar Systems
- AIS Base Station Systems
- Maritime Traffic Information Processing Systems
- Marine VHF Radio systems



**Communication & Control Systems Company**

**Information and Communications Equipment**

**Microwave Devices**

- GaN X-Band High Power Amplifier
- ISM Band Solid State Power Oscillator / Amplifier
- Various types composite RF modules for telecommunications
- High output, low distortion factor amplifiers
- Low noise amplifiers
- Frequency converters

**Communications control systems**

- Antenna directioning systems
- Satellite communication antenna systems
- Anti-vibration system for helicopter-mounted cameras
- Anti-vibration system for vehicle-mounted cameras



**Construction equipment and systems**

**Road construction equipment and systems**

- Road roughness profilometer and analysis system
- Road lateral profilometer and analysis system
- Asphalt paver ultrasonic grade control system
- Asphalt paver ultrasonic auger control system

**Tunnel construction equipment and systems**

- Fiber optic gyrocompass
- Level sensing system
- Guidance systems for pipe jacking "PN"

**Inertial sensor and applied equipment**

- Servo Accelerometers
- Velocity type strong motion seismometer
- Position and Attitude sensors
- Guidance and automatic steering systems for agricultural machinery



**TOKYO KEIKI AVIATION INC.**

**Electronics parts for installation in aircraft, space devices**

**Noise-resisting wireless intercoms**

**EMC prevention equipment**

- Shielded enclosure
- Shield Box
- EMC parts

**TOKYO KEIKI POWER SYSTEMS INC.**

**Hydraulic and applied systems**

**TOKYO KEIKI RAIL TECHNO INC.**

**Track Maintenance Equipment**

- Ultrasonic Rail Inspection Car
- Ultrasonic Rail Flaw Detector
- Portable Ultrasonic Rail Flaw Imager
- Transverse Fissure Measuring Device
- Switch Profile Gauge
- Portable Rail Section Measuring Device
- Expansion Gap Gauge
- "Data Depot" System
- Management System Development

**Inspection and Testing Services**

**MOCOS JAPAN CO., LTD.**

- Accounting Service for charge of Radio Communication between ship and shore
- Licensing Service for Maritime Mobile Radio Station
- Maintenance Service for Radio Apparatus and Navigational Equipments
- Radio Communication Systems / GMDSS Equipments
- Inmarsat Equipments
- Indium Satellite Phone

# Ships and Ports

+ with TOKYO KEIKI

## Bolstering navigational safety with TOKYO KEIKI navigation and communication technology.

As a pioneering manufacturer of navigational products for the marine industry for over a century, TOKYO KEIKI provides total communication equipment solutions such as navigational equipment and satellite connections that link ships with land base stations to enable precise and safe guidance of ships to their destinations. Our reliable and proven technology helps bolster safety on the seas and enhances the efficiency of ship operation.



## Navigational Equipment and Systems



### ◀ Integrated Bridge Systems

Our integrated bridge system consolidates and centralizes all functions required to steer and navigate a vessel. It greatly aids in relieving the burden on operators and enhances navigational safety.

### ▶ Gyrocompasses

The gyrocompass generates highly accurate heading reference data that is essential in determining the course of a vessel and aids the autopilot in maintaining course.



### ◀ Autopilots

The autopilot automatically steers the vessel along a predetermined course. It can maintain precise course without being affected by the actions of waves and currents.

### ▶ Electronic Chart Display Systems

This computerized system provides electronic displays of charts and related data on a screen to aid such crew tasks as course checking and chart plotting. ECDIS can also share functions with an autopilot as well as overlay radar images over electronic charts.



### ◀ Marine Radars

Marine radars are the "eyes" of marine vessels and are indispensable in determining ship position as well as in detecting and avoiding collisions with other ships or obstacles. The radar captures and displays the location of other ships, coastlines, navigational aids as well as other objects.

## Communications Equipment



### ◀ INMARSAT-FB

This system facilitates land-to-vessel communications by means of satellites. The INMARSAT-FB (Fleet Broadband) is a new communications system that provides continuous internet and e-mail connection between land and ships and contributes significantly in the strategic application of navigational and ship control information.

### ▶ GMDSS Radio Communications Equipment

TOKYO KEIKI's global specification Global Maritime Distress and Safety System radio communications equipment enable rapid and unerring response to marine accidents no matter where in the world they may occur.

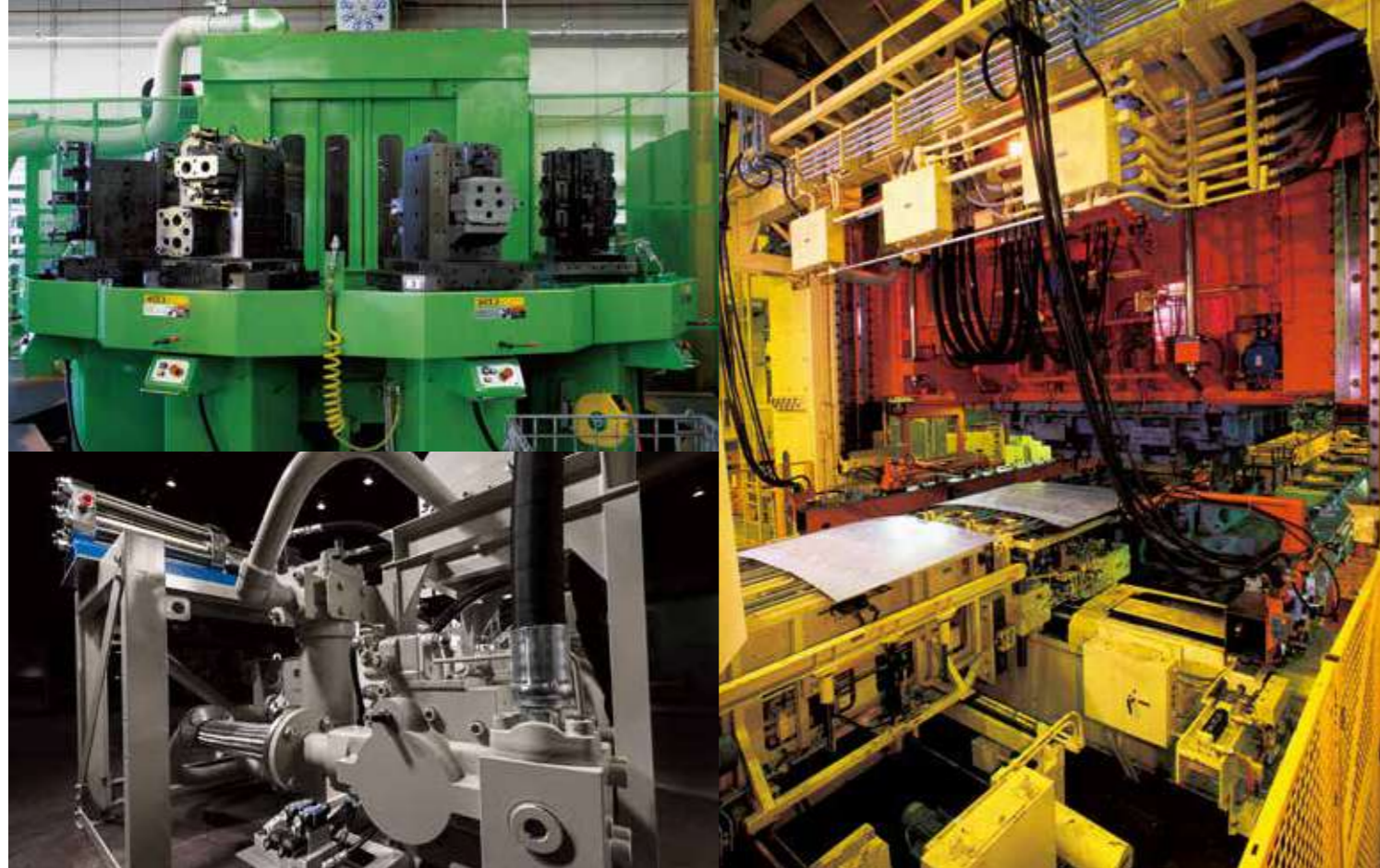


# Hydraulic Control Systems

+ with TOKYO KEIKI

**TOKYO KEIKI's hydraulic control systems emphasize high energy savings and controllability and play a vital role in supporting the modern foundations of our society.**

They provide important functions in the drive and control systems of various types of machinery, such as injection molding machines, machine tools, construction equipment and dam gates. Our efforts are focused on the development of high pressure, large displacement, and low noise hydraulic products that incorporate exceptional control characteristics and systems that boast unmatched environmental compatibility.



### Manifold Blocks (TMCD) ▶

Our TMCD (TOKYO KEIKI Manifold Block CAD Designed) manifold block systems integrate and consolidate fluid pathways within blocks of aluminum, greatly eliminating piping and reducing the footprint. This enable the construction of more compact and light weight hydraulic systems which are especially important for mobile construction equipment, special vehicles, etc.



### Proportional Solenoid Valves and Digital Valves ▶

Our proportional solenoid valves offer unmatched controllability of speeds and pressures and outstanding repeatability, attributes that are critical to precision machinery control. Our stepping motor-driven digital valves provide exceptional repetitive controllability in open loop systems that enable high cycle, shockless operation.



### Direct Drive Pump Control Systems ▶

This hybrid direct drive control system integrates the world's first bi-directional rotation fixed vane pump (SQPR Series) with AC servomotor control to provide exceptional low noise and energy saving performance.



### Energy Saving Compact Power Packages ▶

These compact power units incorporate high efficiency electric motors and are widely utilized in machine tools and general industrial machinery. The unique design of the reservoirs of these power packages maximize heat dissipation, reduce required fluid volumes and lower noise.



### Radio Control Systems ▶

Hydraulic power drives construction equipment and special vehicles. Leveraging TOKYO KEIKI's broad expertise and knowhow in hydraulics and electronics, we provide radio control systems that can remotely control the hydraulics of such equipment.



### Ultrasonic Thickness Gauges (for nondestructive testing) ▶

Our ultrasonic thickness gauges accurately measure the thickness of a material simply by pressing the transducer (probe) against the material's surface. It is a practical service and maintenance tool used to measure wall thicknesses and check the integrity of pipes, concrete pump vehicles, crane booms and the like.



### Variable Piston Pumps ▶

The PHC Series variable displacement piston pumps offer highest-in-class durability and light weight with high, 35MPa, pressure capability in addition to superior low noise and contamination resistance features.



### COMNICA Valves ▶

This unique solenoid directional valve with onboard microprocessor can also control flow, making possible sophisticated hydraulics control without the need for complex control circuitry.



### Pneumatics ▶ (Parker Lucifer solenoid valves)

Parker Lucifer pneumatic solenoid valves provide outstanding control of a wide range of fluids including air, oil, and gas. The valves feature unmatched fast response, durability and high, 10MPa, maximum controllable operating pressure.



### Custom-Designed Hydraulic Systems TOKYO KEIKI POWER SYSTEMS (TPS) ▶

TPS supplies a wide range of customized hydraulic systems such as hydraulic power units for hydrogen stations, submerged pump systems for large-sized marine tankers, and dam gate systems, to name a few. With its long experience and comprehensive capabilities and knowhow encompassing the entire process from design through fabrication, TPS is a one stop total solutions provider.



# Measurement

+ with TOKYO KEIKI

## Bolstering river disaster prevention and water resource management with accurate flow and level measurement technology.

Accurate measurement and management of water flows and level are essential not only for the effective utilization of limited water resources but are critical in the prevention of disasters such as river flooding caused by localized heavy rains and other emergencies. This technology is also a critical component in process control of aqueous chemical storage tanks and other applications that are vital to maintaining an optimal social infrastructure. TOKYO KEIKI provides a wide range of proven reliable and accurate flow and fluid level measurement products which meet the needs of society's infrastructure.



Ultrasonic Flowmeters



Portable Ultrasonic Flowmeters



Non-contact Radar Level Gauges

Microwave Level Gauges

### Ultrasonic Flowmeters ▲

TOKYO KEIKI's ultrasonic flowmeters incorporate sensors that can be easily mounted on the outside of existing pipes to provide accurate measurement of flow volumes. Our flow measurement devices have a broad and enviable track record in centralized monitoring system installations that manage the flow in water treatment and water distribution networks. Our portable type ultrasonic flowmeter is widely used in preventative maintenance work involving the monitoring of flow through pipes.

### Microwave Level Gauges ▲

Our microwave level meters can function in harsh environments such as in storage tanks for corrosive chemicals and outdoor open water installations exposed to wind and rain to provide precise level measurements. We offer a full lineup of products that match the needs of a wide range of process control applications, from chemical plants to river and dam management.

### Water flow calibration facility ▶

This is one of Japan's largest water flow calibration facilities that conducts actual flow calibration. The facility incorporates 11 types of pipeline and open channel test lines that can handle a wide range of diameters from large to small. As a JCSS calibration service provider (international MRA-certified provider) we offer traceable calibration services that meet customer needs.



# Information and Communications



## Empowering the information-driven society with leading edge telecommunication control technology.

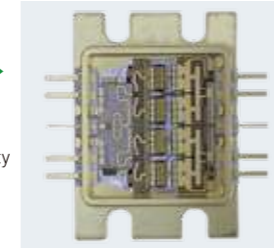
Innovations in information and communications technology are transforming our lives. In the field of TV broadcasting, TOKYO KEIKI contributes to the construction of relay systems with various types of communication control products centering on automatic antenna directioning systems. High efficiency microwave oscillators and high output amplifiers developed for mobile communications are being used to expand the market for electron wave energy applications.



## Information and Communications

### GaN FET High Output Amplifiers ▶

Our high output amplifiers incorporate GaN FET for high dielectric breakdown resistance, high output, and high efficiency in a compact package.



### ISM Band Integrated Semiconductor High Output Oscillators & Systems ▶

We provide dedicated ISM band high output semiconductor oscillators and solid state high output semiconductor oscillators customized to meet specific customer requirements as well as various types of systems that incorporate these devices.

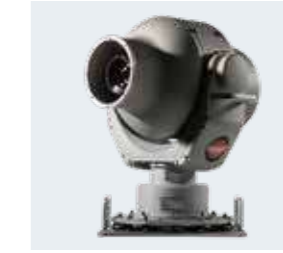


## Communications Control

### ◀ Antenna Directioning Systems



The frequent attitude changes of a broadcasting helicopter may cause signal transmission instability or failures. The TOKYO KEIKI antenna directioning system, installed on TV station news reporting helicopters, incorporates state-of-the-art inertial sensor technology. The system insures constant alignment of relay antennas with receiving stations to maintain flawless communication links.



### ◀ Anti-vibration system for vehicle-mounted cameras

This camera axis control system eliminates the effects of vibration and shaking while the vehicle is in motion. The system provides clear and stable broadcast imagery of televised marathons, Ekiden and other activities.

### ▶ Anti-vibration system for helicopter-mounted cameras

Our gyro stabilized camera system incorporates an automatic compensation system that corrects for helicopter attitude changes and aircraft vibration. The gyro stabilized camera system also integrates a tracking function and an ideal composite system for aerial filming and communications relay can be structured when the system is used in conjunction with the antenna directioning system and direction finding receiving system.



### ▶ Satellite communication antenna system

This system precisely controls broadcast vehicle relay antennas that transmit radio waves to communication satellites. Equipped with a radome that provides protection from wind, rain and snow, the system's automatic tracking function incorporates vehicle-motion compensation that ensures accurate transmission of relay signals to satellites.



# Automating Construction Work Inertial Sensors

+ with TOKYO KEIKI

## Achieving labor savings at construction sites with precision measurement technology and automatic systems

Construction equipment requirements include higher functionality and higher efficiencies in addition to a high degree of safety. TOKYO KEIKI provides a wide range of products and systems for the automation of construction machinery that have earned high marks from industry and customers. Our profilometers and analysis systems promote rationalization of roadbed construction and paving work and our tunnel excavation attitude-sensing systems for shield machines greatly enhances work efficiencies and safety.

### Road construction equipment and systems

#### ◀ Road roughness profilometer and analysis system



Our laser systems measure road flatness, a factor that directly impacts riding comfort and safety. The systems provide non-contact, precise measurements under various types of roads conditions, including roads with sharp curves as well as those with special paved surfaces such as drainage road surfaces and the like.

#### ▶ Road lateral profilometer and analysis system

Measurements of rutted or other uneven road surfaces can be made in a split second from the roadside with our laser profile measurement equipment. Based on the measured data and by using a special software, a work plan can be created which outputs precise calculations of required paving material volumes, pavement heights, etc.



#### ▶ Automatic Control Systems for Construction

Our automatic machine control system utilizes ultrasonic distance measurements as references to precisely control the position of the screed of asphalt pavers. The system contributes greatly to labor savings, finished work of the highest quality, and to a high degree of safety with significant reduction in project times.



### Tunnel construction equipment and systems

#### ▶ Fiber optic gyrocompass

This high precision gyrocompass inertial guidance system consists of a 3-axis fiber optic gyro and accelerometers which provide realtime display of azimuth, pitch angle and roll angle. The system greatly enhances tunneling accuracies over long distances and curves.



## Supporting the development of leading edge products with inertial sensor technology

Inertial sensor technology is applied by TOKYO KEIKI in vibration gyro attitude sensors to provide highly precise motion measurements of high velocity moving objects and accelerometers that are at the heart of earthquake seismometers and other products.

### Inertial Sensors



#### ▶ Servo Accelerometers

Our high precision servo accelerometers are widely applied in earthquake information systems that warn of impending strong quakes before they occur. These sensors are also utilized in the seismic intensity measurement systems of earthquake observation networks.

#### ▶ Velocity Type Strong-Motion Seismometer

The wide dynamic range capability can detect the full spectrum of seismic disturbances, from microtremors to large earthquakes. The data acquired is widely applied in analysis of earthquake mechanisms, observation of structural sway relative to long-period ground motion, as well as in earthquake measurement, monitoring, and warning.



#### ▶ Position and Attitude sensors

This compact sensor integrates vibration gyro and accelerometers and provides three attitude angular output (azimuth, pitch, roll). The sensor incorporates GPS and a magnetic azimuth sensor which enables output of GPS information (position, speed, etc.) and magnetic heading. It can be used to measure the motion of automobiles, motorcycles, trains, ships, fixed wing aircraft, helicopters and other moving objects.

#### ▶ Guidance and Automatic Steering System for Agricultural Machinery

This system incorporates inertial sensors and GPS to detect position and movement to provide guidance and control of the direction of travel of tractors and other types of farm equipment. The system is a valuable aid which enhances the quality and efficiency of agricultural work.





# Printing Inspection Equipment

+ with TOKYO KEIKI

## Improving the quality of print media with precision image processing technology.

With the increasing importance of information transmitted via print media, defects and other problems in the printing process may have huge consequences. TOKYO KEIKI employs "pattern matching", an advanced image processing technology that enables high precision detection of printing problems and defects. This feature contributes greatly to enhancing the reliability and insuring the quality of printed information.

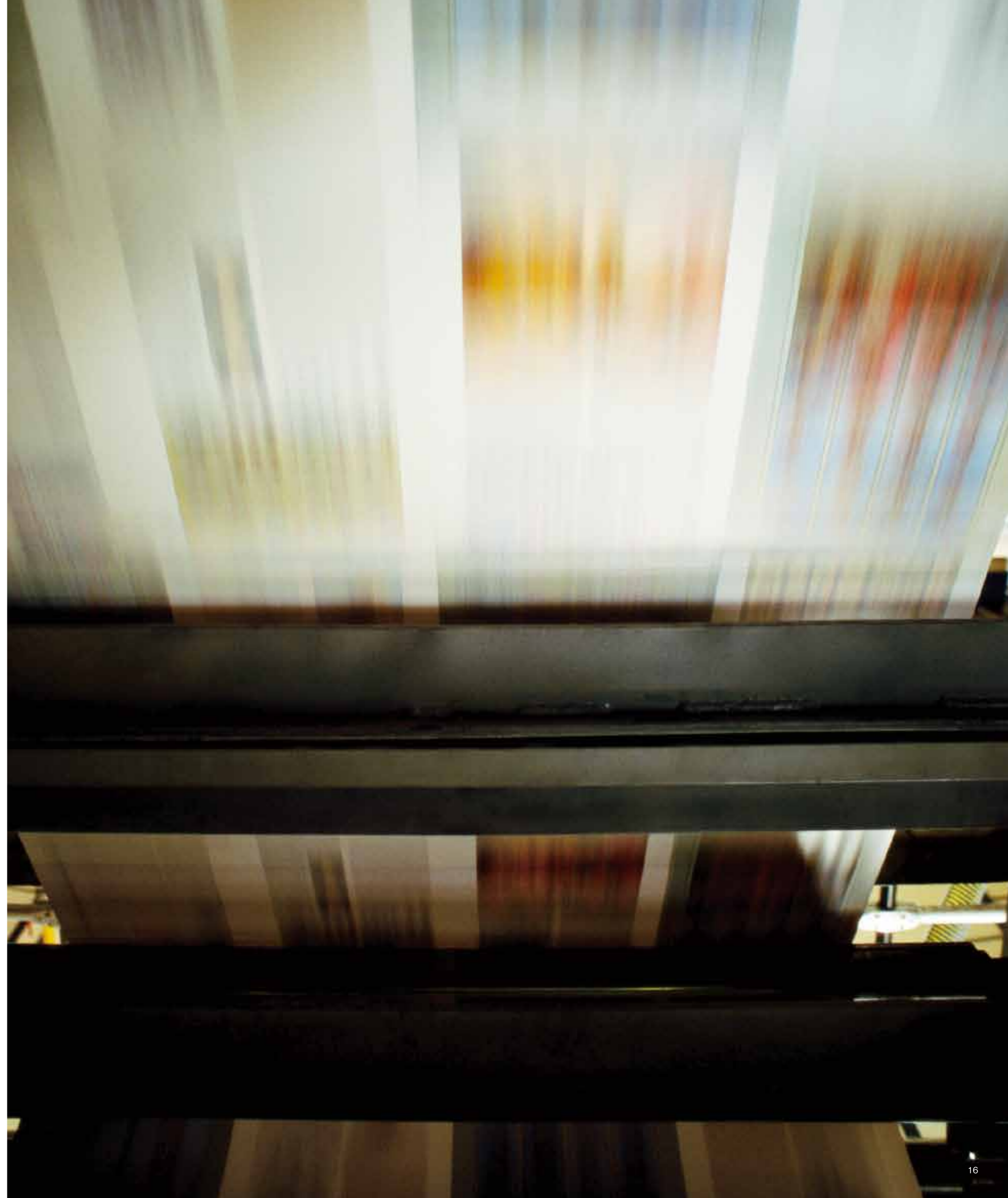
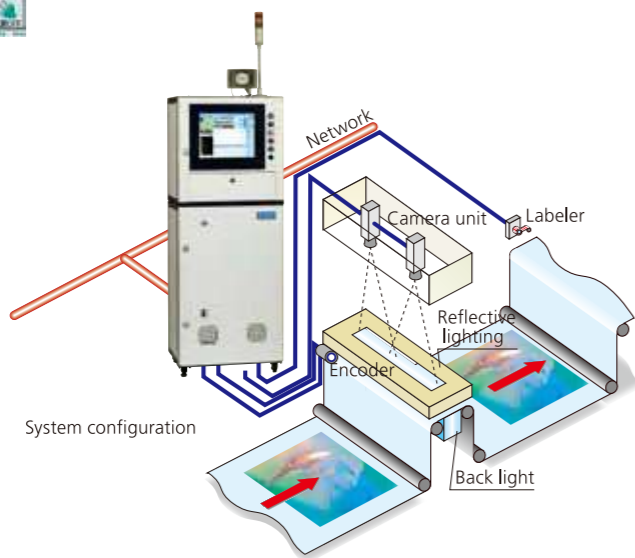


### ◀ Web inspection systems and Material surface systems

The technology of this system involves an advanced image-processing technique known as pattern matching. Pattern matching enables the detection of irregularities in printing and impurities in print batches. The process determines problems by comparing current information collected by CCD cameras incorporated on the printing machinery against previously stored data. This system is also used in quality control programs in the reproduction of film, non-woven fabrics, aluminum foil and other materials.



Example of flaw history screen



# Railway Maintenance

+ with TOKYO KEIKI

## Railway maintenance enhanced with ultrasonics and other advanced technologies.

Japan's railways pride themselves on their on time service and high safety records. Impeccable railway track maintenance is a key factor which supports this critical lifeline. TOKYO KEIKI RAIL TECHNO products and systems draw upon ultrasonic flaw detection, image processing, information communication, and mechanical control technologies and support the rail maintenance task by enabling the detection and measurement of flaws inside of rails, deviations in railway tracks and rail wear profiles.

### Ultrasonic Rail Inspection Car ▶

The Ultrasonic Rail Inspection Car system conducts running automatic inspection and recording of internal flaws and defects in rails. Ultrasonic pulses are propagated into the rail and reflected echoes are examined to automatically determine the existence of and type of defects. Image processing technology is also utilized in measurement of rail cross-sectional profiles and track expansion gaps to provide comprehensive rail inspection.



### Portable Ultrasonic Rail Flow Imager ▶

This hand held ultrasonic flaw imager is used to detect flaws in rails. Onsite rail inspection is easy with this device which is designed specifically for rail inspection.



### Ultrasonic Rail Flow Detector

This manually pushed ultrasonic rail flow detector utilizes five probes that inspect for internal rail flaws and defects as well as rail bottom corrosion.



### Switch Profile Gauge

Maintenance of complicated switch mechanisms once required specialized know-how and experience, a process which has been automated with TOKYO KEIKI RAIL TECHNO's Switch Profile Gauge. This product greatly shortens inspection times and reduces manpower requirements.



### Portable Rail Section Measuring Device ▶

This device employs laser beams and laser light sectioning to provide highly precise, fast, non-contact measurement of rail cross sectional profiles. Use of the camera function of the standard accessory tablet PC makes operation simple.



### "Data Depot"™ System ▶

The "Data Depot"™ system is a unique, non-contact system that enables the reading and processing of stored distance data from RFID tags which are fixed on sleepers by a vehicular-mounted interrogator unit consisting of antenna and signal processor. Among its capabilities, the system provides accurate distance data from starting points, for example. It can also automatically control the actuators of actuator-equipped maintenance vehicles, issue appropriate warnings when "no work" zones are entered, etc.



### Inspection and Testing Services ▶

In addition to development and manufacture of track maintenance equipment, TOKYO KEIKI RAIL TECHNO also provides measurement, survey, testing and maintenance inspection contractual services.



# Defense

+ with TOKYO KEIKI

**TOKYO KEIKI advanced technologies, fostered by the defense industry, are now being actively and widely deployed in support of industry and society.**

The ability to instantly detect and alert the pilot of a fighter aircraft of the frequency which poses immediate danger from among multiple scrambled microwave signals and the ability to navigate a submerged submarine safely and precisely in ocean where there are no reference points requires the absolute high reliability and cutting edge technology in defense-related equipment that TOKYO KEIKI provides.



### ▲ Radar Warning Receivers

The ultra-high reliability fighter aircraft radar warning system developed by TOKYO KEIKI detects radar signals emitted by enemy fighters and alerts the pilot via a display that provides information on the opposing aircraft's direction, distance, type, and other data. TOKYO KEIKI is now incorporating its expertise in advanced microwave technology in meeting the increasingly sophisticated needs of telecommunications.



photos courtesy of Ministry of Defense

### ► Inertial Navigation Systems

Inertial navigation systems are indispensable for submarines due to the difficulty and inability in obtaining astronomical or land observation-based bearing and positional information. TOKYO KEIKI inertial navigation systems employ high precision ring laser gyros and accelerometers and high order inertial navigation computation and processing to determine a vessel's position and speed with extreme precision.



### ► Attitude and Heading Reference Systems

TOKYO KEIKI's attitude and heading reference system for small observation helicopters is a high tech system featuring the newest fiber optic gyro. The system measures bearing, position, attitude, and other navigational data relative to the aircraft in order to insure a high degree of three dimensional flight precision and safety.



# Maritime Traffic

+ with TOKYO KEIKI

**TOKYO KEIKI technology & products – key components for navigational control in maritime traffic systems**

Robust and unerring navigation control and navigational aids are indispensable in preventing maritime accidents in the narrow and congested waterways of Tokyo Bay and the Seto Inland Sea. TOKYO KEIKI marine traffic systems play a major role in insuring the safety and efficiency of traffic management with equipment such as VTS (Vessel Traffic Service) and land-based AIS (Automatic Identification System).



### ◀ Solid State High Resolution Radar

The location and movement of numerous vessels is precisely captured and the data is provided in a high definition display. The advanced high output semiconductor-based solid state high resolution radar and state-of-the-art digital signal processing greatly improves clutter suppression and distance resolution compared to conventional radars.



### ◀ Maritime Traffic Information Processing Systems

Information of ship movements acquired by high resolution radar and AIS land base systems is centrally monitored, managed and presented in consolidated displays. We aid navigation by providing information and instructions pertaining to hazard avoidance under low visibility conditions, inbound schedules of ultra large ships, fishing vessel operation, and weather warnings.

### ► AIS Base Station Systems

TOKYO KEIKI AIS base station systems receive various types of information (e.g., name and type of vessel, position, course, speed) transmitted by AIS equipment onboard ships and provides the information to traffic controllers. This allows traffic controllers to provide precise instructions to individual vessels regarding weather conditions and differential GPS-based position correctional data and other information.



### ► Marine VHF Radio-Telephone

This equipment enables communication with ships on matters of port management and pilot communication services. Transmitting and receiving stations are installed on mountain tops with unobstructed vantage points and communications can be remotely controlled from communication centers. This method of information transmission between ships and land is indispensable for trouble-free ship operation and management.



# Disaster Prevention

+ with TOKYO KEIKI

Gas-Agent fire extinguishing systems developed by TOKYO KEIKI support the building of a society where people can go about their daily lives with a peace of mind.

TOKYO KEIKI was the first company in Japan to undertake development of Gas-Agent fire extinguishing systems. Over the years we have provided such systems for a wide range of applications including multi-story parking structures, industrial factories of various types, office buildings, hazardous material warehouses, art museums and the like, and in the process, are contributing unobtrusively to ensuring the safety and security of our communities.



## Gas-Agent Fire Extinguishing systems

Gas-Agent fire extinguishing systems are used in a wide range of settings and applications, from large open areas such as parking garages, to specific pieces of equipments such as printing machines. TOKYO KEIKI offers systems which employ gas fire suppression agents – such as carbon dioxide which is suitable for unmanned or localized areas; nitrogen, that provides oxygen concentrations safe for people; and Halon 1301, which prevents suffocation due to the negligible release of this gas during use.



Starting Switch Box

Control Panel

Starting Cylinder Unit

Nozzle

Gas Agent Discharge Lamp

# Corporate Data

## Company Outline

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 Established May 1, 1896  
 Paid-in capital ¥ 7,217 million  
 Stock listing Tokyo Stock Exchange, First Section  
 Employees 1,660(Group - approx)

\*ISO9001  
 Marine Systems Company  
 Measurement Systems Company  
 Fluid Power & Control Systems Company  
 Inspection Systems Company  
 Electronics Systems Company  
 Communication & Control Systems Company

\*ISO14001  
 Nasu Factory, Yaita Factory, Sano Factory



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●West Service Center  
 3-4-13 Mizukidori, Hyogo-ku, Kobe, Hyogo 652-0802  
 Tel: +81-78-577-6111 Fax: +81-78-577-5335

●Singapore Branch  
 No.2 Jalan Rajah #07-26/28,  
 Golden Wall Flatted Factory, Singapore 329134  
 Tel: +65-6254-1877 Fax: +65-6254-1745

●Taipei Branch  
 10F-8, No. 86, Section 1, Nanjing E Rd,  
 Zhongshan District, Taipei City, Taiwan 104  
 Tel: +886-2-2511-6101 Fax: +886-2-2511-2216

●The Representative Office of TOKYO KEIKI INC. in Ho Chi Minh City  
 Unit 38-39, 9th Floor, 180-192 Nguyen Cong Tru Street,  
 Nguyen Thai Binh Ward,  
 District 1, Ho Chi Minh City, Vietnam  
 Tel: +84-(0)28-6288-4698 Fax: +84-(0)28-6288-4692

## Factories and Plants



●Nasu Factory  
3-1 Takakukou, Nasu-machi, Nasu-gun,  
Tochigi 325-0001  
Tel: +81-287-63-3711 Fax: +81-287-63-2402



●Yaita Factory  
333-4 Azuma-cho, Yaita, Tochigi 329-2136  
Tel: +81-287-43-2121 Fax: +81-287-43-2457



●Sano Factory  
1-1 Sakae-cho, Sano, Tochigi 327-0816  
Tel: +81-283-23-3311 Fax: +81-283-23-0125

●Tanuma Plant  
168 Tada-cho, Sano, Tochigi 327-0311  
Tel: +81-283-62-7330 Fax: +81-283-62-7305

●Hanno Plant  
2-1-1 Misugidai, Hanno, Saitama 357-0041  
Tel: +81-42-971-0550 Fax: +81-42-971-0582

## TOKYO KEIKI Group

●TOKYO KEIKI AVIATION INC.  
Installation and maintenance of avionics equipment  
2-1-1 Misugidai, Hanno, Saitama 357-0041  
Tel: +81-42-971-0550 Fax: +81-42-971-0582

●TOKYO KEIKI POWER SYSTEMS INC.  
Production and sales of large and mid-size hydraulicsystems  
168 Tada-cho, Sano, Tochigi 327-0311  
Tel: +81-283-62-7330 Fax: +81-283-62-7305

●TOKYO KEIKI INFORMATION SYSTEMS INC.  
Design and development of software and systems,  
calculating, leasing and factoring businesses  
2-16-46 Minami-Kamata, Ohta-ku, Tokyo 144-8551  
Tel: +81-3-3731-0511 Fax: +81-3-3731-0666

●TOKYO KEIKI TECHNOPORT INC.  
Packing services and shipping insurance  
2-16-46 Minami-Kamata, Ohta-ku, Tokyo 144-8551  
Tel: +81-3-3735-3731 Fax: +81-3-3736-0261

●TOKYO KEIKI RAIL TECHNO INC.  
Measurement, inspection and data analysis service for railroad track  
maintenance  
2-16-46 Minami-Kamata, Ohta-ku, Tokyo 144-8551  
Tel: +81-3-3732-7061 Fax: +81-3-3732-7050

●MOCOS JAPAN CO., LTD.  
Sales of marine radio devices and marine radio device-related services  
Yusen Bldg. 3-9, Kaigandori Naka-Ku, Yokohama 231-0002  
Tel: +81-45-671-8301 Fax: +81-45-671-8303

●TOKYO KEIKI U.S.A., INC.  
Sales & service of marine, hydraulics equipment and parts  
3452 E. Foothill Blvd. Suite 420 Pasadena, CA 91107 U.S.A.  
Tel: +1-626-403-1500 Fax: +1-626-403-7400

●TOKIMEC KOREA POWER CONTROL CO., LTD.  
Manufacture & sale of hydraulic equipment  
8th floor, Wooree venture town2, 70, Seonyu-ro,  
Yeongdeungpo-gu, Seoul, KOREA  
Tel: +82-2-2670-4632 Fax: +82-2-2672-5712

●TOKYO KEIKI (SHANGHAI) CO., LTD.  
Sales, service & sales intermediary for marine equipment  
C-1407, Orient International Plaza, No. 85 Lou Shan Guan Rd., Shanghai,  
CHINA  
Tel: +86-21-3223-1252 Fax: +86-21-6278-7667

●TOKYO KEIKI PRECISION TECHNOLOGY CO., LTD.  
Manufacture of hydraulic equipment for Asian region  
Lot A15, Central Road-Road No.5, Da Nang Hi-Tech Park,  
Hoa Vang District, Da Nang City VIETNAM  
Tel: +84-236-3733-833

## Global Partnerships

Eaton Corporation (U.S.A.) — Avionic devices  
Honeywell International Inc. (U.S.A.) — Avionic devices  
Emerson Automation Solutions  
Rosemount Tank Radar AB (SWEDEN) — Marine and measurement  
equipment  
Emerson Automation Solutions  
Damcos A/S (DENMARK) — Marine equipment



# Company History

Began manufacturing compasses, depth sounders and other navigation instruments and equipment



Compass installed in bridge of flagship "Mikasa"

Company emblem established



Began development of aeronautic instruments



Flight compass

Development of rail flaw detection vehicle utilizing ultrasonic flaw detection technology



Began manufacture of hydraulic equipment

Established TOKYO VICKERS CO., LTD (now TOKYO KEIKI Sano factory) for mass production of hydraulic equipment

Company name changed to TOKYO KEIKI CO., LTD.



Established DAIICHI TOKYO KEIKI CO., LTD. (now TOKYO KEIKI Nasu factory) as specialized factory for manufacture of aerospace and terrestrial electronic products

Established Maritime Traffic Dept. in Electronics Systems Division

- Commercial business spun off from Electronics Systems Company and established as Communication & Control Systems Company
- Singapore Representative Office reorganized as a branch office, TOKYO KEIKI INC. SINGAPORE BRANCH
- TOKYO KEIKI PRECISION TECHNOLOGY CO., LTD relocates to permanent facilities in Hi-Tech Park, Da Nang



Established Chinese subsidiary, TOKYO KEIKI(SHANGHAI) CO., LTD.

Introduced company-based organizational structure

1896 1901 1912 1917 1918 1923 1930 1948 1952 1954 1962 1963 1968 1969 1970 1971 1973 1990 1996 1999 2005 2007 2008 2010 2011 2012 2013 2015

- Company reorganized as TOKYO KEIKI CO., LTD.
- Optical instruments business spun off and established as Nippon Kogaku K.K. (now Nikon) with Mitsubishi joint-stock company

Began manufacturing Sperry gyrocompasses

Head Office moved to Kamata, Tokyo



Developed Japan's first marine radar system



MK-II Mod.0 radar display

Established NEW TOKYO KEIKI (now TOKYO KEIKI Yaita factory) for mass production of electronic and measurement products

Developed world's first commercial ultrasound flow meter



UF-100 ultrasonic flowmeter

Changed the company name from Tokyo Keiki Co., Ltd. to TOKIMEC INC.



Developed radar warning system used in the F-4EJ fighter plane



Established Pusan Liaison Office in South Korea

- Established TOKIMEC KOREA HYDRAULICS CO., LTD.(Present, TOKIMEC KOREA POWER CONTROL CO., LTD.)
- Sales launch of MRG-10 microwave level gauge



Electronic Systems Division establishes Sensing Control Systems Dept.

- Established Singapore Representative Office
- Established TOKYO KEIKI PRECISION TECHNOLOGY CO., LTD hydraulic equipment manufacturing base in Vietnam

Restored TOKYO KEIKI corporate name



Established in Koishikawa, Tokyo as Japan's first manufacturer of pressure gauges and other measuring devices



Company name changed to TOKYO KEIKI SEIZOSHO

