



Hitachi High-Tech Group Website



Hitachi High-Tech Recruit Information Page
Information Page

Hitachi High-Tech Solutions

## **Top Message**



Hitachi High-Tech Solutions is a technology and solutions company that aims to harness the capabilities of sensing and control to solve issues faced by its customers and society at large

Hitachi High-Tech Solutions is a technology and solutions company that strives to solve a range of issues faced by its customers and society at large through the capabilities of sensing (measurement and inspection technologies) and control (process control and operational technology) that we have cultivated over more than half a century, as well as the capabilities of "observation, measurement and analysis," which are core of the Hitachi High-Tech Group.

With many years of experience and a proven track record in dealing with a wide range of issues faced by its customers and society at large, we will continue to work with our customers to explore and understand on-site issues, and formulate and implement solutions.

By proposing and providing total, seamless solutions that combine sensing and control, we contribute to improvements in efficiency and energy savings through digitalization of manufacturing, production and process innovations, as well as increased resilience through decarbonization.

In addition, we will continue contributing to the development of a digital society, the realization of a decarbonized society and creating a sustainable global environment, centered around the capabilities of sensing and control.

President Masao Haritaya

## **Board of Directors and Auditors**



President Masao Haritaya



Board Director Tetsuji Takada



Board Director Naohiro Kasuya



Board Director Hironobu Hiramatsu



Board Director Toshio Mikan



Board Director Kazunobu Morita



Board Director Naohiko Yamagami Koichiro Kurokawa



Supervisory Board Member Kenii Makabe



Supervisory Board Member Hiroshi Omura

# **Advantage & Solution**

#### Contributing to customer success by moving with the times on capital investment/IT investment

Manufacturing × DX Environment × DX Transportation × DX What we can do for you Thorough quality control Optimization of manufacturing process Thorough security measures

Improvement of productivity and yield rate

Achieving data-driven decision-making

Stablizing plant operation and preventing operational errorsoperational errors



#### **Examples of Solutions**











Plant Monitoring & Manufacturing Execution

Predictive Diagnostic

Al Control Systems









Measurement Systems

in harsh conditions

Measuring Equipment

Analytical Instruments

Inspection Systems

#### Capabilities of sensing and control

Hitachi High-Tech Group's Core (Observation, Measurement, and Analysis)

Component technologies Understanding the customer's perspective Control Number of customers: proven track record with over 600 companies and sales thanks to our on on-site Measurement technologies Control technologies knowledge and understanding Operations technologies Inspection technologies Proficiency in making proposals and forming Optical technologies Data utilization technologies Control security technologies Consultation skills Image processing technologies Introduction and system operation Adaptability

Hitachi High-Tech Group's IT Infrastructure Private company cloud

Hitachi High-Tech Group's Common Infrastructure

IoT platform Security Network construction Large-scale network construction and operation

# **Products & Solution**

Manufacturing × DX

Environment × DX

# **OT Solution**

We bring together our functions as a manufacturer and trading company to provide OT solutions

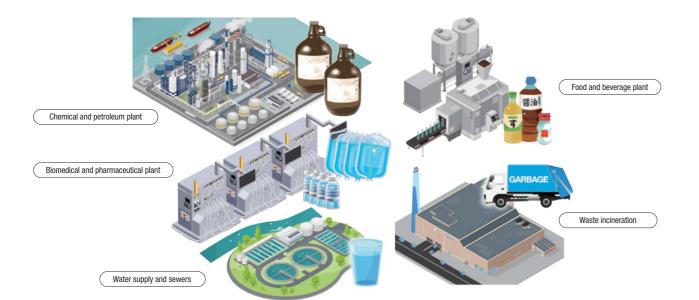
OT: Operational Technology

Measurement/Control/Analysis

Data utilization and control optimization

Control and Operational Technology (OT) has contributed to Japan's economic development since the period of rapid economic growth (around 1954-1973) by collecting plant control and operational data.

The harnessing of data to achieve improved productivity, energy savings and labor savings requires expertise in the three fields of measurement equipment, control systems and data analytics. We work with our customers to solve issues and provide optimal solutions based on our own expertise and the knowledge we have gained from different industries, including manufacturing industries such as chemicals, food and beverages, and pharmaceuticals, as well as environmental fields such as water, gas, electricity and waste incineration.



#### **Monitoring and Control Systems**













These systems are used in various types of social infrastructure facilities such as chemical, pharmaceutical and food and beverage manufacturing plants, or water, environment-related and power plants. Our monitoring and control systems are for facilities that require complex controls, such as long-term stable operation of process automation, as well as high-mix and variable-volume production. Since 1975 we have a track record of providing comfortable operating environments with operation software that provides great operability and highly reliable controllers. These systems work with a variety of data-driven IoT solutions, including secure remote monitoring, manufacturing control, forecasting and diagnostics, as well as Al control, and contribute to the improvement of customer productivity.









#### Manufacturing Execution Systems (MES)





Our Manufacturing Execution Systems (MES) help with the prevention of operational errors, the streamlining of work and the centralized management of information, at chemical and food manufacturing sites. We provide packages that integrate various instructions and performance management functions at the manufacturing site, extending from the receipt of raw materials through to inventory management, weighing work, and input work.



#### **Quality Control Systems (LIMS)**











The inspection data management system LabDAMS is a Laboratory Information Management System (LIMS) that centrally manages the information handled in analysis and quality inspection operations through the use of a database to improve operational efficiency and reliability.



### Products & Solution OT Solution

#### **Predictive Diagnostic Systems**













These systems detect "unusual conditions" with high a level of accuracy, while contributing to the early detection of process abnormalities and improving the efficiency of factor analysis. The BD-CUBE predictive diagnostic system is a process data analysis software that utilizes machine learning It quickly and accurately detects signs of abnormalities in equipment and quality, and shows which areas should be



Predictive Diagnostic System BD-CUBE

#### Control optimization (quality improvement/yield improvem

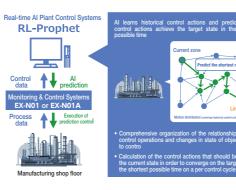








The new reinforcement learning technology developed by Hitachi builds training models based on historical operational data output from monitoring and control systems, and performs process control using Al. This combination of monitoring & control systems and the RI -Prophet AI control system can lead to further improvements in production quality and yield.

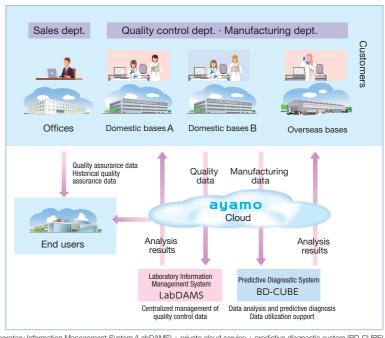


Real-time Al Plant Control Systems

#### **Data-driven solutions**

We utilize data and the latest technologies (such as AI) to provide new solutions to customers' issues. For example, the customer's product quality data is acquired and centrally managed by the LabDAMS quality management system on a high-security private cloud, where it is shared across the customer's multiple locations and departments in order to prevent quality fraud.

In addition, we assist the customer in using their data using our predictive diagnostic system BD-CUBE. It analyzes the acquired data to detect and notify the customer of signs of drops in quality or equipment failures.



Laboratory Information Management System (LabDAMS) + private cloud service + predictive diagnostic system (BD-CUBE)

CyberPlant-ChemiFact: Manufacturing Execution System

#### Field Instruments/Analyzers











We operate in various fields, building on our many years of experience. We strive to ensure stability and reliability that can withstand harsh operating environments.



Multi-parameter water quality meter







Large diameter type







Online PCB monitor

#### **Environment/Process Analysis Equipment**

























Stack gas analyzer





Total phosphorus/ nitrogen analyzer

#### involved in high-mix small-lot production. In addition, the company also planned to use the data it had acquired to review its production processes.

• Many of the generic functions such as weighing and inventory management are included as standard, making system design easy.

(1) The issue: Optimizing a factory that handles high-mix small-lot

DKS Co. Ltd. manufactures and sells industrial chemicals and other products. When introducing a manufacturing execution system (MES), they were faced with the challenge of preventing human error and stabilizing quality in the diverse range of manual processes

for Chemical Plants

- The company went as far as proposing changes to on-site operations in order to ensure the system could be implemented as effectively as possible and to keep their investment
- They were able to plan quality and productivity improvements thanks to being able to collect various manufacturing-related data on things like raw materials, products and work

#### (3)What we could solve

(2)Main reasons for introduction

Success Stories

production

DKS Co. Ltd.

Standardizing work through systematization has reduced workers' psychological burden and contributed to stabilizing product quality. The system has also made it possible to gather previously unavailable data, pinpoint problems in production processes and manage raw materials' traceability.

#### (4) Customer feedback

"From the design phase on through the post-installation support phase, they helped us solve issues from our perspective. We're now looking forward to working with them on our company's adoption of DX, which is a pressing issue for us." (DX: Digital Transformation)



Our company's MES has been adopted at the Yokkaichi Plant of DKS Co. Ltd., where it is realizing quality stabilization through standardization and systemization. With the experience and results gained from using the acquired data to improve productivity, they are also considering rolling out the MES across their other plants.

In order to optimize the factory, which handles nigh-mix small-lot production, it was necessary to standardize operations and visualize production



Being able to standardize generic operation has stabilized quality. The company was also able to use data to visualize production

# **Products & Solution**

Transportation  $\times$  DX

# IS Solution

Contributing to society by providing data solutions through rail-related products.

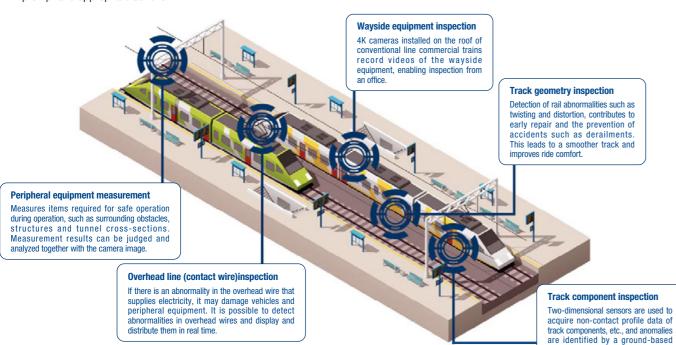
**IS: Inspection Systems** 

Transportation

Use of laser optics, high-precision control, image processing and data

Public transportation is essential as the "legs" of a nation on the move.

Our mission is to support the safety and reliability of the railways, which is indispensable to society, from people's day-to-day activities through to business and leisure. For railway operators who require efficient and high-precision inspection equipment, and for all railway users, we have been developing advanced technologies, including for track and overhead line inspections, as well as for making equipment more compact and making use of data. We support safe and reliable operations 24 hours a day, 365 days a year in every region in Japan by providing inspection and measurement technologies that quickly detect risks which may result in accidents, leading to prompt and appropriate actions.



#### Railway track inspection









When deviations in longitudinal level or twisting of the railway track occur, the ride comfort of trains diminishes and could result in serious accidents such as derailment, so they must be repaired. Our company's railway track inspection equipment is capable of inspecting the condition of the rail while in motion, measuring longitudinal level, alignment and gauge, etc. and can also feature various optional functions. The use of a non-contact method enables fast and stable inspection while also accelerating data processing speed. Waveforms can even be output in real time at the speed of a bullet train.

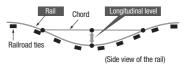


Alignment (horizontal curvature)

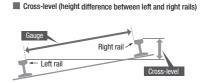
#### Measurement items

Railway tracks are exposed to heavy loads and shock as trains travel along them, requiring them to be regularly inspected and repaired to ensure safe operation. For this reason, our inspection equipment is designed to measure longitudinal level, alignment (horizontal track irregularities), gauge (distance between left and right rails), cross-level (height difference between left and right rails) and twist (change of cross-level).

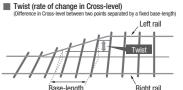
#### Longitudinal level (vertical curvature)







Track gauge (distance between left and right rails)



#### Inertial mid-chord offset inspection equipment

This inspection equipment uses the inertial measurement method with a gyro and laser displacement sensors to measure track geometry.



#### Inspection equipment with optical displacement detector

This equipment projects a band of laser light to wrap around the contours of an object and the diffuse reflected light forms an image on the sensor, enabling the detection of rail cross-sectional shapes and the identification



#### Inspection equipment with two-dimensional laser displacement sensors

Using an optical contouring method, rail displacement is measured by an imaging device perpendicular to the band of light. Its excellent real-time processing capability enables it to handle high-speed



#### Track component inspection

Two-dimensional sensors installed onto a train are used to measure the cross-sectional shape of structures surrounding the rail (track components, etc.) without contact, and a ground-based analysis system then immediately detects abnormalities such as loose or missing rail fastening







### Products & Solution Is Solution

#### Overhead line (contact wire) inspection









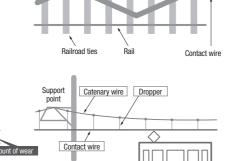


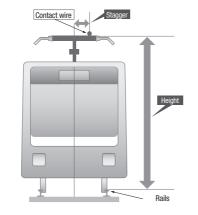
Any change in the condition of the overhead line (contact wire) supplying electricity to the train will cause abnormal wear as well as damage to the pantograph, which will impede reliable railway operations. Our overhead contact line inspection equipment performs fast and accurate measurements of the wear, stagger and height of the contact line. Our non-contact detection technology and proprietary optical system achieve highly accurate measurement regardless of whether it is daytime or nighttime. As the measurement results are processed in real time, the measurement data can be checked while the inspection run is still underway, so even if an abnormality is detected, countermeasures can be enacted immediately without leaving the abnormality as it is.



#### Measurement items

The fact that overhead contact lines are arranged in a zigzag pattern (stagger) to prevent pantograph wear means that measurements must be performed over a wide range. Our products allow overhead contact line wear (remaining wire diameter) and overhead contact line positions (stagger and height) to be measured while traveling. We also implement pantograph acceleration (impact) measurement, and peripheral equipment (abnormality) inspection. amongst other optional types of inspection.





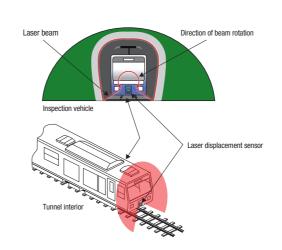
#### Peripheral equipment inspection

The safe operation of a train requires an unobstructed space around the train. Our peripheral equipment measuring device uses a rotary laser sensor that can measure the entire surroundings of the train at once and inspect for any obstructions. By using location information data, images and location information can be output as a set, which improves management efficiency.









#### Services and solutions

Our after-sales service offers a variety of support services to help customers use our equipment and systems with peace of mind. We are also in the process of developing IoT-based service solutions for securely performing remote monitoring online, for detecting failures using data analysis and for predicting failures.

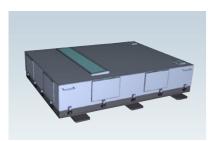


#### Non-contact inspection equipment

This equipment continuously measures overhead contact lines, day and night, to perform checks such as for contact line wear, stagger and height from the rail surface. Inspection data is displayed in real time during measurement and recorded simultaneously with image data on to storage media. It offers high vibration resistance and environmental resistance, and can also be installed on passenger trains.

Worn surface

(Contact wire cross-sectional view)





#### Wayside equipment inspection

Inspection of overhead catenary equipment needs close visual examination by foot patrols or using special-purpose inspection vehicles, with concerns about safety and efficiency. Our Wayside Equipment Monitoring System takes video footage of overhead equipment with roof-mounted 4K cameras on conventional passenger trains to enable inspection from an







#### System features

Control of the starting and stopping of recording through wireless communication Remote monitoring of the system's recording processing status

Automatic control of recording start and finish based on travel speed

 Screen display switching, playback speed selection and image enlargement are ree division (1 to 4 sides) and detailed enlargement function suited to each

 Screen display switching, playback speed selection and image enlargement are Pree division (1 to 4 sides) and detailed enlargement function suited to each

•Obtains latitude and longitude data through GNSS positioning information signals osition detection and distance pulse signals

#### Success Stories

JR Kyushu Railway Company

### **Wayside Equipment Monitoring System**

#### (1) The issue: Utilizing AI image analysis to enhance inspection efficiency

Because staff visually inspect equipment along the track on foot, the numerous pieces of equipment they must inspect makes the work very

This, coupled with the need to prepare for staff shortages as Japan's working population decreases, has made it necessary for us to enhance the efficiency of our inspection processes.

#### (2)Main reasons for introduction

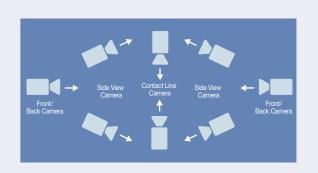
- This system can capture high-definition video and images that can be used for checks and inspection. Furthermore, geographic information can be acquired to provide the location of the equipment.
- An easy-to-operate application enables staff to quickly respond to requests to perform emergency checks and inspections, etc.

#### (3)What we could solve

Passenger train-mounted cameras capture video and images of the equipment and AI technology is used to analyze them. Visual inspections by foot patrols can now be performed by staff from the office.

#### (4)Customer feedback

From the design phase on through the post-installation support phase, they helped us solve issues from our perspective. We are now looking forward to them being our business partner in our company's promotion of DX, which is a pressing issue for us.



- 1.Reduced on-site foot patrol inspections. This results in the reduction of labor for foot patrols and their exposure to the risk of accident from walking the line.
- Inspection time has been shortened to 3/4 thanks to the inspection system's automatic inspection location extraction function.
- 3.Inspection performance has been improved thanks to high-resolution images of the equipment to be inspected and due to the clearness of images, not

# Sustainability

We are undertaking various initiatives aimed at establishing a sound management base.

#### Health and Productivity Management Initiatives

We recognize that the health of employees, who are ultimately the ones providing added value, is an important management resource that a company must protect in order to continue being considered necessary for society. For this reason, we enacted our Health and Productivity Management Declaration in 2021 and are undertaking various initiatives aimed at creating a work environment where our employees can work while maintaining good physical and mental health. Specifically, we are focusing on the three themes of "disease prevention," "mental health" and "work/life balance." These initiatives have received praise and have been certified for three consecutive years since 2022 under the Certified Health & Productivity Management Outstanding Organizations Recognition Program (large enterprise category) coordinated jointly by Japan's Ministry of Economy, Trade and Industry (METI) and Nippon Kenko Kaigi (Japan Health Council). While continuing to enhance our health promotion system, we will focus on our efforts toward creating a comfortable workplace for everyone.







#### **Working Style Reform Initiatives**

We are implementing various work style reforms and various systems to accommodate diversifying lifestyles and a changing social structure, and to ensure all employees can balance their family life with satisfying work. Specifically, we are promoting the 20-20 project (20 hours monthly average overtime and 20 days of annual leave) aimed at achieving a highly productive work style. In addition, we have set the three priority items of "diverse work styles," "communication," and "physical and mental health" with the aim of achieving employee happiness and well-being in both their work and home life.

In order to support the balance between work and family life, we are striving to develop and spread childcare and nursing care systems based on trends in changes to laws and regulations. All employees are eligible for working from home, satellite office work and spot remote work, flexible working hours can be individually selected within a fixed range (three days off each week is possible depending on how non-working days are set), and we are promoting hybrid work that increases flexibility in terms of work locations and times and allows employees to choose their work style individually. In addition, we are working to raise the percentage of male employees who take childcare leave to 100%, with the aim of promoting female participation in the workplace through the dispelling of the awareness of gender roles as well as improving engagement by achieving a balance between work and home life.





#### **Education & Training Programs and Careers**

We believe that the growth of each employee is the growth of the company, and we are working to support career development and to create an environment where employees can think independently and take on challenges. The Hitachi Group is proud to offer several hundred types of educational and training programs, so employees can take courses that best suit their work experience and skills. We provide an environment where employees can learn the latest trends and highly specialized knowledge as needed, starting with introductory training after hiring, as well as training to improve skills, rank-based training according to job responsibility and age, the obtaining of qualifications, systems to support employees working on self-development, and on-demand learning.

In career development support, we are deploying measures that emphasize the meaning, significance and values of the work we do for each and every employee. We support the independence and autonomy of employees, who are key to our future, by creating a mechanism to utilize each individual's will and ambition in the organization, and by encouraging mutual understanding in order to foster a sense of unity and teamwork, thus improving organizational strength and performance.

We are also working to improve employees' career ambitions and to foster job satisfaction through career interviews, career guidance by age group, and the establishment of a career consultation office.





# Sustainability

#### Hitachi High-Tech Group Materiality

Hitachi High-Tech Group has identified five themes of Materiality, which are priority issues to address in order to resolve social issues. Our Materiality topics are based on the SDGs (\*), a set of international common rules and targets to be achieved in the 21st Century. Together with Hitachi High-Tech Group, Hitachi High-Tech Solutions sets specific action plans and goals to achieve these Materiality topics and develops its business activities.

(\*) SDGs: Sustainable Development Goals Adopted by a September 2015 summit of the United Nations, the SDGs comprise 17 goals in different areas and 169 targets, global objectives for solving social issues to be achieved by 2030.

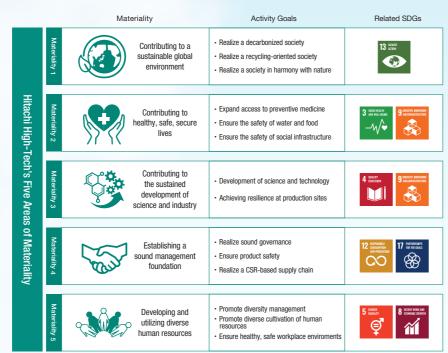
#### Sustainability 2023

We, the Hitachi High-Tech Group, will contribute to the realization of "a sustainable global environment", "healthy, safe, secure lives", and "sustained development of science and industry". We will keep growing with our customers and partners by utilizing our Observation, Measurement, and Analysis systems on the basis of a sound management foundation which enables diverse human resources to actively participate and

Note: Of the 17 goals and 169 targets of the SDGs, we have selected those to which the activity goals of Materiality can contribute directry. We will also contribute indirectry to other goals.



Use this QR code to view more information on the Hitachi High-Tech Group's Materiality



#### **Environmental activities**

#### Realizing a Decarbonized Society

In addition to our ongoing promotion of energy-saving investments, we have achieved carbon neutrality at our business sites by switching to renewable energy sources for the electricity we use. We also aim to achieve carbon neutrality throughout our entire value chain by FY2050, from procurement of raw materials to product disposal.

#### Realizing a Recycling-Oriented Society

We encourage recycling of resources by limiting the amount of waste product generated in manufacturing, and selecting highly resource-efficient partners for resource recycling. In addition, we are working to control water usage through the monitoring the amount of water used at our business sites as well as the early detection of water leaks.

#### Realizing a Society in Harmony with Nature

We are promoting biodiversity conservation efforts through participation in forest conservation programs and cleanups (Clean Strategy) in order to bring about a future in which humanity can live in harmony with nature.

#### Acquired ISO 14001 (EMS) environmental certification

We work to reduce our environmental impact and conserve the environment by establishing and promoting targets and objectives for environmental activities

#### Clean Strategy (local litter removal activities)



Our Mito Division removes litter along the road that connects Uchihara Station to our plant every year



Our Saitama Division removes litter in the Kodama Industrial Park along with other companies in the park twice a year.

#### Organization chart



### Company Overview

#### (As of April 1, 2024)

Company Name	Hitachi High-Tech Solutions Corporation
Date Established	October 1, 1987
Head Office	Toranomon Hills Business Tower, 1-17-1 Toranomon, Minato-ku, Tokyo 105-6410, Japan
Capital	400 million yen
Accounting Period	March (once annually)
Number of Employees	577
Stockholder	Hitachi High-Tech Corporation 100%
Main Banks	Mizuho Bank, Ltd. MUFG Bank, Ltd.

### History

1967 Wilder Engineering inc. catabiland	1987 •	Nissei Engineering	Inc. establishe
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2004	<ul> <li>Merged with Nissei Electronics, Ltd. took over the instrumentation</li> <li>business of Hitachi High-Technologies Corporation (now Hitachi High</li> </ul>
	Tech Corporation) and changed the company name to Hitachi High
	Tech Trading Cornoration

Merged with Hitachi High-Tech Solutions Corporation and changed the company name from Hitachi High-Tech Trading Corporation to Hitachi High-Tech Solutions Corporation

Fused the hardware (instrumentation/installation) businesses of Hitachi High-Tech Trading Corporation with the software development capabilities of Hitachi High-Tech Solutions Corporation to form a new

Took over the instrumentation business of Hitachi High-Tech Control 2013 Systems Corporation

Took over the railway track inspection equipment, HDD/FPD manufacturing/inspection equipment and lab solutions businesses of 2022 Hitachi High-Tech Fine Systems Corporation

ICT business, HDD/FPD manufacturing and inspection equipment, 2023 🕈 and lab solutions business were transferred to Hitachi High-Tech

#### Network

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lead Office	Main Phone:+81-3-3504-7773
	OT Solution Div. FAX:+81-3-3504-6157
	Construction License (Specific) Electrical Construction/Telecommunications
	Construction/Plumbing Business
Mito Division	500 Miyu-cho, Mito-shi, Ibaraki 319-0316, Japan
	Phone:+81-29-257-5100 FAX:+81-29-257-5120
Saitama Division	1600 Kami, Kamisato-machi, Kodama-gun, Saitama 369-0395 Japan
	Phone:+81-495-32-2000 FAX:+81-495-32-2044
Hokkaido Sales	1-1-2 Kita 7 Jonishi, Kita-ku, Sapporo-shi, Hokkaido 060-0807, Japan
Office	Phone:+81-80-8860-1335
Tohoku Sales	2-9-27 Chuo, Aoba-ku, Sendai-shi, Miyagi 980-0021, Japan
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baraki Sales	500 Miyu-cho, Mito-shi, Ibaraki 319-0316, Japan
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Chiba Sales	2-6-1 Goichuo higashi, Ichihara-shi, Chiba 290-0054, Japan
Office	Phone:+81-80-8734-9603 FAX:+81-436-20-8177
21	2-13-19 Nishiki, Naka-ku, Nagoya-shi, Aichi 460-0003, Japan
Chubu Sales Office	Phone:+81-80-8119-2243 FAX:+81-52-219-1869
Опісе	Construction License (Specific) Electrical Construction/Plumbing Business
okkaichi Sales	1-2-25 Yasujima, Yokkaichi-shi, Mie 510-0075, Japan
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/: C-l	3-3-31 Miyahara, Yodogawa-ku, Osaka-shi, Osaka 532-0003, Japan
Kansai Sales	Phone:+81-80-8420-6927 FAX:+81-50-3153-0700
Office	PTIONE:+81-80-8420-8927 FAX:+81-30-3133-0700



Certification by office \*1: Head Office/Sales Office, \*2: Mito Division, \*3: Saitama Division

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Construction License No.: Specific-04 No. 19662. ISO14001 (EMS) Certificate No.: EC99J1062 \*1 ISO14001 (EMS) Certificate No.: EC99J2015 \*2. ISO14001 (EMS) Certificate No.: EC97J1146 \*3, ISO9001 (QMS) Certificate No.: 09 100 6804 \*2, ISO9001 (QMS) Certificate No.: QC09J0006 \*3

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