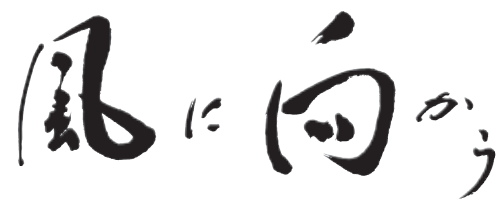


**TECHNO HORIZON CO., LTD.**  
[www.technohorizon.co.jp](http://www.technohorizon.co.jp)

## Group Motto



### To Be a Master of the Changing Winds

Soft breeze in the shade of the trees, invoking calmness and serenity.

The approaching storm, perfect waves for surfing.

Butterfly, elegantly riding the ascending thermals.

Striving to make the par-three hole.

There is no such thing as "safe."

Everything in a state of flux.

Everyone has the same chance.

Blessed with hope.

Grasping the winds of the future.

# Technology, linking us to the future beyond the horizon

## Management Philosophy

The Techno Horizon Group's business mission is to contribute to the global "people and society" by providing various products and services centered on "Imaging & IT Business" and "Robotics Business". The markets targeted by the Techno Horizon Group cover various fields such as Education, Safety / Lifestyle, Medical, and FA. The Techno Horizon Group has been working in those fields with the keywords of "utilizing technology," "helping everyone," and "realizing a prosperous society." The Techno Horizon Group will continue to make steady progress toward the "shining horizon".

## Management Policy

The Techno Horizon Group will work on further "globalization" toward its business mission of "contributing to the global people and society" by strengthening "Imaging & IT Business" and "Robotics Business" that are our core businesses, and strengthening "marketing power" and "product development" to expand it. In addition, as the basic principles of corporate management, the Techno Horizon Group will ensure "complete compliance," "total customer satisfaction," and "fair and transparent business activities."



## Corporate Profile

Trade Name	: TECHN0 HORIZON CO., LTD.
Established	: April 1, 2010
Business Description	: Development, manufacture and sale of products related to Imaging & IT Business and Robotics Business
Address	: 2-13-1 Chikama-tori, Minami-ku, Nagoya, Aichi Prefecture, Japan 457-0071 Tel. +81-52-823-8551
Representative	: Hironobu Nomura, President
Capital	: 2.5 billion JPY
Board Members	: President Hironobu Nomura Director Tatsuya Kuchino, Yasuhiro Kato External Directors Kazuya Terazawa, Anis Uzzaman Statutory Auditor Tetsuya Watanabe External Auditors Akiyoshi Harada, Hiroyuki Iida, Tatsuya Inoue



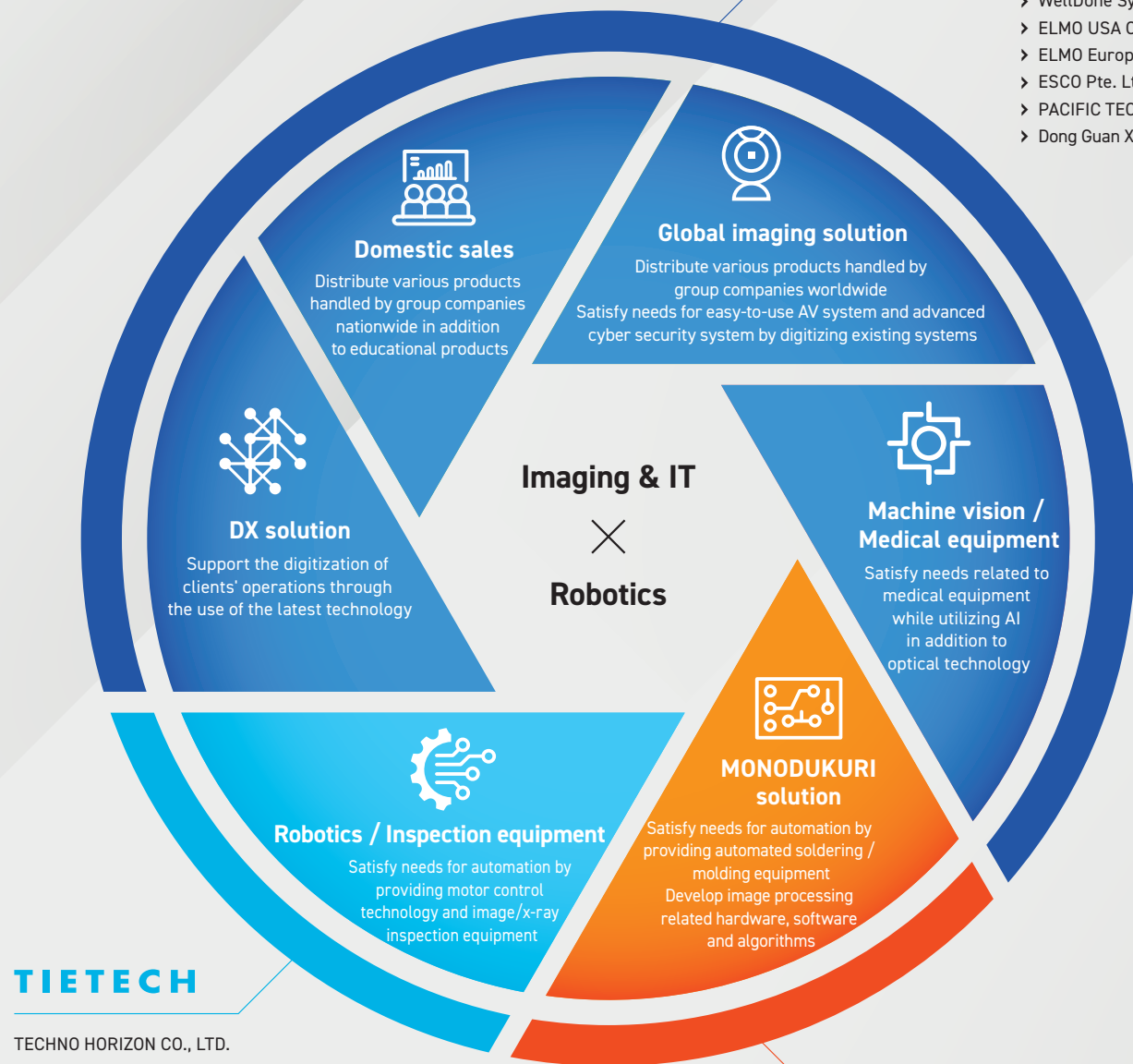
# A wide variety of business operations, both nationally and internationally

The Techno Horizon Group is engaged in various businesses with a focus on "Imaging & IT Business" and "Robotics Business". The Techno Horizon Group creates new value by sharing the knowledge and technologies accumulated among the divisions and businesses within the group, both domestically and internationally, and by linking them to each other.



TECHNO HORIZON CO., LTD.

- AD Science Inc.
- BlueVision Co., Ltd.
- Adwaa Co., Ltd.
- CYBER DREAM Inc.
- WellDone System Inc.
- ELMO USA Corp.
- ELMO Europe SAS
- ESCO Pte. Ltd.
- PACIFIC TECH PTE. LTD.
- Dong Guan Xujin Optical Co., Ltd.



TIETECH

TECHNO HORIZON CO., LTD.

- TIETECH (SUZHOU) CO.,LTD.



Apollo Seiko Ltd.

- Nakajima Doko Co., Ltd.

## TECHNO HORIZON GROUP

TECHNO HORIZON CO., LTD.

AD Science Inc.	Industrial imaging inspection (semiconductors, food, agriculture and forestry, security, nuclear power), analytical instruments, biochemistry, medical care, chemical research applications
BlueVision Co., Ltd.	Planning, design, manufacturing and sale of optical equipment and related equipment
Adwaa Co., Ltd.	Contract development and sale of software, dispatch of software engineers
	Consulting for various system construction and implementation, system and network design, construction, operation, and maintenance, etc.
	Development, import and sale of camera surveillance systems and video management systems
CYBER DREAM Inc.	Sale, installation and maintenance of other related equipment
	Development, sale and support of ICT English learning materials for children
WellDone System Inc.	Planning, development, sale and operation and maintenance of School Master "Zeus"
	Classroom management consultancy for schools
ELMO USA Corp.	Provision of services and technology to schools
	Development, sale and implementation support of Educational ICT equipment and Pro-AV solutions
ELMO Europe SAS	Sale, implementation support and maintenance of Educational ICT equipment and Pro-AV solutions
ESCO Pte. Ltd.	Sale and installation of AV equipment and systems
PACIFIC TECH PTE. LTD.	Sale, installation, maintenance and support of cyber security equipment and software
Dong Guan Xujin Optical Co., Ltd.	Manufacture and assembly of optical units for digital cameras and projectors, lens manufacturing, plastic product manufacturing
Apollo Seiko Ltd.	Manufacture and sale of automatic soldering equipment and related equipment, manufacture and sale of laser-related products
	Design, manufacture and sale of various manufacturing and inspection equipment
	Development of image processing related hardware, software and algorithms
Nakajima Doko Co., Ltd.	Development, manufacture and sale of factory digital transformation (DX) solutions
	Manufacture and sale of gas-type cordless heat tools and soldering iron tips
TIETECH (SUZHOU) CO.,LTD.	Development, production, sale and after-sales service of industrial automation system products / OEM and EMS business of industrial automation products

## History

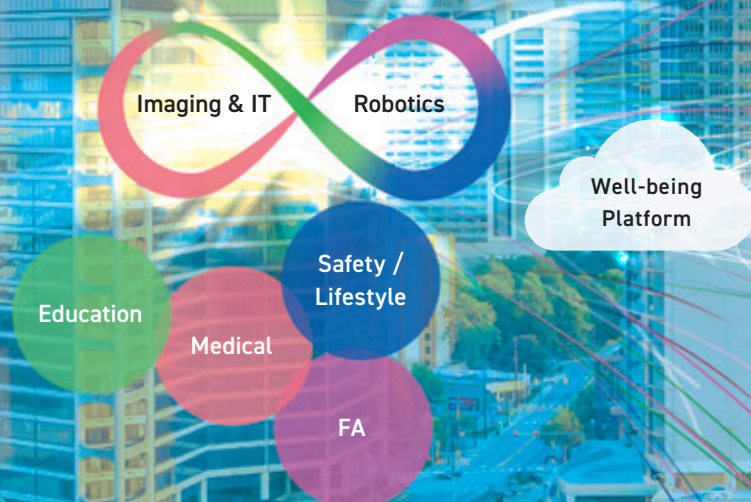
1921	April	Founded as Sakaki Shokai to manufacture photo supplies (the former ELMO Co., Ltd.)	2016	April	ELMO Co., Ltd. merged with Finefit Design Co., Ltd. TIETECH Co., Ltd. merged with Graphin Co., Ltd. Suwa Optronics changed name to Chunichi Suwa Optoelectronics Co., Ltd.
1975	May	Established TIETECH Co., Ltd. for the purpose of developing, manufacturing and selling various electronic control devices and electronic application equipment			
	October	ELMO Co., Ltd. and TIETECH Co., Ltd. have agreed to establish a joint holding company through a stock transfer, subject to the approval of the shareholders' meeting of both companies. The two companies have prepared a "Stock Transfer Plan" for the share transfer, and the board of directors of both companies have signed a "Contract for the establishment of a joint holding company" for the business integration.	2017	October	Liquidated Suzhou Chinontec Industries Inc., an optical unit manufacturing company.
				November	TIETECH Co., Ltd. acquired shares of K.I.Technology Co., Ltd.
2009				December	TIETECH Co., Ltd. merged with Chunichi Denshi Co., Ltd. TIETECH Co., Ltd. merged with ELMO Solution Chubu Co., Ltd.
	December	At the general meeting of shareholders of both companies, it was resolved that both companies would jointly establish Techno Horizon Holdings Co., Ltd. by a stock transfer method, and both companies would become their wholly owned subsidiaries.		May	TIETECH Co., Ltd. acquired shares of AD Science Inc.
			2018	August	ELMO Co., Ltd. acquired shares of K-Grande Corporation (the former ELMO K-Grande).
				December	ELMO Co., Ltd. took over the electronic blackboard service business of V-cube Inc.
			2019	April	Made a non-consolidated subsidiary K.I.Technology Co., Ltd. a consolidated subsidiary.
				June	TIETECH Co., Ltd. acquired shares of MDtechnos Co., Ltd.
2010	April	Both companies established Techno Horizon Holdings Co., Ltd. by a stock transfer method. Listed on the JASDAQ stock market of the Osaka Securities Exchange Co., Ltd.		March	TIETECH Co., Ltd. acquired shares of Shinkoh Giken Co., Ltd. TIETECH Co., Ltd. acquired shares of Innovative Technology Lab Co., Ltd.
	July	Established ELMO Europe SAS in France (currently a consolidated subsidiary) for the purpose of selling optical equipment.	2020	May	TIETECH Co., Ltd. acquired shares of BlueVision Co., Ltd.
				June	ELMO Co., Ltd. acquired shares of ESCO Pte. Ltd.
	December	Established ELMO i-tech CO., LTD. (cleared in October 2015) for the purpose of technical planning of optical equipment.		July	TIETECH Co., Ltd. acquired shares of Fine System.
		Established ELMO (Beijing) Co., Ltd. in China for the purpose of selling optical equipment.		October	Changed the trade name from Techno Horizon Holdings Co., Ltd. to Techno Horizon Co., Ltd.
2011	January	Established Tietech (Suzhou) Co., Ltd. in China (currently a consolidated subsidiary) for the purpose of developing, manufacturing and selling electronic devices.	2021	April	Techno Horizon Co., Ltd. merged with ELMO Co., Ltd., TIETECH Co., Ltd. and Chunichi Suwa Opto Electronics Co., Ltd., and changed from a holding company to an operating company.
	July	Established Finefit Design Co., Ltd. by separating the Information and Communication equipment division of TIETECH Co., Ltd.		May	Acquired shares of PACIFIC TECH Group
2012	June	ELMO Co., Ltd. merged with ELMO Solution Sales Co., Ltd.		June	Acquired shares of Ichikawa Soft Laboratory Co.,Ltd.
	July	Liquidated ELMO (Europe) G.m.b.H. an optical equipment sales company.		September	MDtechnos Co., Ltd. changed name to AIND CO.,LTD. Acquired shares of Apollo Seiko Ltd.
2013	July	Listed on the JASDAQ (Standard) stock market of the Tokyo Stock Exchange due to the integration of the Tokyo Stock Exchange and the Osaka Securities Exchange.	2022	March	Acquired shares of ASIA Co.,Ltd.
2015	June	ELMO Co., Ltd. merged with ELMO Solution Sapporo Co., Ltd., ELMO Solution Kinki Co., Ltd., ELMO Solution Shikoku Co., Ltd. and ELMO Solution Kyushu Co., Ltd.		October	Took over the inspection equipment business of NAGOYA ELECTRIC WORKS CO., LTD.
			2023	March	Acquired shares of CYBER DREAM Inc. Apollo Seiko Ltd. merged with K.I.Technology Co., Ltd. and AIND CO.,LTD.
				April	Innovative Technology Lab Co., Ltd. merged with ELMO K-Grande Corporation, Fine System, Ichikawa Soft Laboratory Co., Ltd., and ASIA Co.,Ltd. and changed its name to Adwaa Co., Ltd. Acquired shares of WellDone System Inc.
				September	Acquired shares of Nakajima Doko Co., Ltd.



# Imaging & IT × Robotics = Innovative Technology

## Techno Horizon Group's 4Key Markets

The Techno Horizon Group, a manufacturing expert, creates valuable products based on the Imaging & IT business and Robotics business. Its four key markets are: **Education** market where IT-based teaching and learning is becoming more and more popular, **Safety / Lifestyle** market where security and automobile-related markets are further evolving, **Medical** market where demand for advanced medical technology is growing, and **FA** market where automation needs are increasing, especially in China. By taking advantage of the synergy that we have as a group, the Techno Horizon Group creates products and systems to open up a new world.



## Work environment optimization



Store

Image capture  
technology /  
Image projection  
technology



School / Education



Healthcare



Factory

Control  
technology



Traffic

Production  
technology

TIETECH

ELMO

## Smart digital transformation (DX) created by Techno Horizon Techno Horizon Ucity

The Techno Horizon Group creates comfortable and efficient smart lifestyles under its three brands by utilizing technologies it owns and those it will create in the future.

Communication  
technology

APOLLO  
APOLLO SEIKO



Office

Imaging  
technology



# School / Education

In the 21st century, in which new knowledge, information, and technology are the foundation of activities in all areas of global society, changes in the view of human resources, academic performance, and teaching methods in the educational field are required. ELMO coordinates a learning environment that meets the lifelong educational needs of each individual using imaging technology and IT technology. ELMO offers a variety of educational products that enable everyone to learn independently and interactively, such as collaborative learning tools that foster proactive people in a knowledge-based society, large presentation devices and camera products dedicated for education that foster the ability to create new value through dialogue with others, and learning support systems that develop the academic skills needed in this era. ELMO brings smiles and wellbeing to children around the world by providing these educational products.



## Technology

- **Optical control technology** — Document camera  
(AF control technology/Optical compensation technology)
- **4K Image processing technology** — Document camera  
(Real-time high-speed image processing technology/  
AE & AWB image processing technology)
- **Wireless image distribution technology** — Document camera  
(Miracast distribution technology)
- **Network control technology** — Classroom support software  
(Wi-Fi control technology/Cloud server-related technology)
- **High-speed drawing processing technology** — Electronic blackboard  
(High-speed drawing technology)
- **Universal design** — Interactive flat panel and Document camera  
(Housing design/User interface)

## Solutions

### First step to incorporate ICT technologies

As introductory ICT equipment for various people involved in education, ELMO proposes that each classroom be equipped with one document camera and one electronic blackboard. ELMO has a rich lineup of document cameras and electronic blackboards to suit various application and requirements. For the document camera, a variety of models are available from desktop types for permanent installation in the classroom to compact types that can be carried around. For the electronic blackboard, different models ranging from 55-inch to 86-inch are available.



Interactive document camera



Compact document camera



Interactive flat panel ELMO Board  
High performance model



Interactive Flat Panel ELMO Board  
Standard model



Unit-type electronic blackboard that can convert any projected image into a touchscreen



Wireless Miracast receiver

### Collaborative learning using a tablet given to each student

ELMO's classroom support software, designed to be used in the classroom, has useful features such as a content distribution feature that allows teachers to distribute digital teaching materials and worksheets created by the teacher to students' devices with a single touch, and a content comparison feature that encourages students' awareness in the classroom. It greatly assists teachers in the classroom with one tablet per student. ELMO also offers programming learning tools and content creation software tailored to developmental stages.



Classroom support software  
xSync Classroom / xSync Classroom Cloud



Painting and presentation software for children  
Picture Kids Cloud



Classroom content creation software  
Daisy Pix Cloud



Programming robot Root



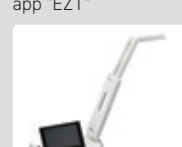
Programming learning tool  
Scottie Go !

### Distance education / Online classroom

ELMO offers easy-to-use remote solutions for schools where teachers and students are accustomed to using a document camera and an electronic blackboard to show actual objects. ELMO's remote solutions are suitable for school-to-school exchanges, classroom-to-classroom exchanges, and interactive classes between teachers and students. The EZT app can be installed on electronic blackboards and document cameras, allowing them to be used during Zoom meetings.



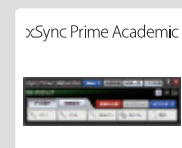
Interactive flat panel with remote meeting app "EZT"



Document camera with remote meeting app "EZT"



Document camera for online class



Distance education support service  
xSync Prime Academic



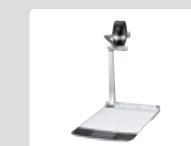
Interactive flat panel ELMO Board for online class

### University solution

Various AV / ICT devices are used in schools. ELMO provides AV system solutions such as CVAS, which collectively controls the document camera and other devices in university lecture rooms. ELMO also provides discussion tools to facilitate active learning.



AV system solution



Document camera for lecture rooms



Smart switcher

### Classroom management solution

ELMO provides a school administration support system that allows you to manage all student information in the school, from recruitment to post-graduation career paths, in a single system. ELMO also provides image editing software and bulletin board creation software that facilitate teachers' classroom duties, such as writing newsletters, preparing teaching materials, and creating websites.



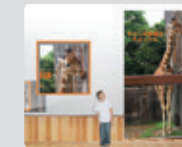
Classroom management system for private junior and senior high schools  
School Master "Zeus"



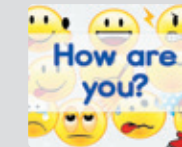
Image editing and content creation software for schools  
Daisy Pix Cloud



Image editing software for schools  
Daisy Pix



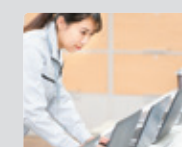
Poster design and large display material creation software  
Zoom Print



English learning system for children  
Cyber Dream

### ICT implementation solution

ELMO provides comprehensive ICT support services from implementation to operation, such as device installation service, kitting service, training service, call center construction service, device warranty service, device annual renewal service, ICT support staff dispatch service, and zero-trust network construction service.



Device installation service, Device annual renewal service  
Kitting service



Interactive workshop



Call center



ICT support staff



Extended warranty service  
Extra warranty service



Building a zero-trust network



# Office

ELMO has supported the development of children's "zest for living" by providing educational ICT products, and has brought smiles to children all over the world. Now ELMO is also focusing on supporting the employees who continue to learn. Every environment surrounding an individual, including the economy and organization, is becoming more complex and difficult to predict the future of his or her career development. In order to generate inspiration, creativity, change and growth for the employees in such an unpredictable era, ELMO provides enterprise ICT solutions such as a solution centered on the Digital whiteboard (IFP) that can help employees to interact and collaborate with each other and a management support software that can help the user to detect and solve business problems.



## Technology

- ❑ High-speed drawing processing technology
- ❑ AV equipment control technology
- ❑ Network control technology
- ❑ Process mining
- ❑ Cloud solution
- ❑ Sensing technology
- ❑ Imaging technology
- ❑ Web solution



## Solutions

### Digitization of the office / Hybridization of digital and analog

Users can write on the large screen of an interactive flat panel, present data from any device such as a computer, present the real thing or paper, and share them remotely. Communications such as "projecting", "writing", and "sharing" can be done as if using paper materials while using digital devices. ELMO provides communication solutions combining digital technology and analog technology so that users can digitally communicate while showing paper materials and the real thing as before.



Advanced and creative meeting room



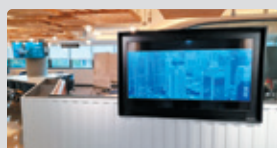
Calm and creative meeting room



Large conference room



Collaboration space for conferences



Signage solutions that facilitate the communication of information to customers and employees



Customer experience center for an immersive experience

### Management solution

ELMO provides software that supports the effective improvement and sophistication of corporate management through budget management and process improvement. ELMO also provides support services for the introduction of ERP (Enterprise Resource Planning). By utilizing ELMO's software and services, budgets and actual performance can be managed in various segments, enabling visualization of business management.



BzPLAN WE



QPR Process Analyzer (Process mining tool)  
QPR Metrics (KPI management tool)



ERP implementation support service



Cloud-based service

### Security / Communication Infrastructure service

Cyber attacks are increasing year by year. ELMO utilizes the latest technology to ensure secure device operations through advanced cyber security system and zero-trust network access.



Cyber security



Zero-trust network

### Cloud service for site management / Remote presence / Remote work support system

ELMO provides a cloud service for site management that contains all the functions required at construction sites, from construction management, to labor and business management. Remote work and remote support with video can be realized using a wearable cloud camera, which supports "remote presence".



Wearable camera



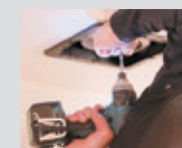
Digital whiteboard (IFP) management screen



Digitization of KY activities (hazard prediction)



Remote operational support



Improvement of work efficiency by real-time remote support



Prompt and timely work report from the worksite

### Unmanned store / Facial recognition / Cashless payment

Cashless payment through facial recognition and unmanned operation utilizing the latest AI technology save manpower and optimize store operations. ELMO also offers a wide range of development services for apps, such as point management apps, prepaid apps, and e-money apps.



Cashless and non-contact solution Multi-payment terminal



Commercial handy terminal



Cloud camera with high image quality

### Service robot (ELMO Disaster prevention package)

ELMO's non-contact service robot can be used not only in restaurants, but also in offices, nursing homes, medical facilities, production lines, and many other situations. With many features such as innovative communication language by bionic design, AI voice function, and multimodal interaction, ELMO's service robot helps improve the quality of service operations.



### Image processing software

This image processing software allows you to create beautiful photos and edit photos in high quality suitable for social networking services and other applications. This software has been favored by many professional photographers.

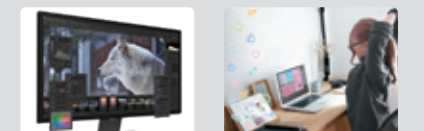


Image quality revolution/RAW developer software SILKPIX series



Easy creation of images for social network services Nak@Me



# Imaging Solution (Store / Traffic)

## Store

With a declining and aging workforce and increasing diversity, it is becoming increasingly difficult to provide services by conventional, manual means. The Techno Horizon's store solutions make full use of optical/IT/AI technologies centered on cameras.

These include non-contact remote work support, AI-based identity authentication, non-contact cashless payment, and security systems using its own cloud servers. The Techno Horizon Co provides the best solutions for every aspect of life in response to changes in society. ELMO not only provide services under its own brand, but also provide an OEM services utilizing its core technologies. ELMO also provides consulting services from the development stage by utilizing its optical/IT/AI technologies.



## Traffic

In response to changes in transportation infrastructure and the increasing need for carbon neutral, ELMO has been engaged in research and development of devices and solutions to realize a safe society and decarbonized lifestyles. Based on the technologies and know-how it has cultivated over the years, ELMO develops and provides technologies, devices, and solution services in the fields of "communication equipment", "in-vehicle equipment", and "optical solution", focusing on the use of networks and cloud computing, to contribute to the realization of a better society.

## Technology

- Web solution
- Cloud solution
- Imaging technology
- Image processing technology  
(High quality optical lenses/MPEG/Audio compression)
- Communication technology  
(LTE/Wi-Fi/GPS/LAN/USB/UART/Bluetooth/IrDA/Contact IF)
- Software technology (Linux apps/RTOS apps/Windows apps/  
iOS Android apps/Linux server database/Web server)
- Sensing technology (QR code/NFC reader/Temperature detection/  
Acceleration sensing/Impact detection/Image recognition)

## Solutions

### Non-contact remote solution

The use of cloud cameras enables non-contact remote site management/monitoring. ELMO has a wide range of cloud cameras, including Wi-Fi type cloud cameras for indoor use, LTE type cloud cameras for outdoor use, wearable cloud cameras for remote work support, and AI-equipped cloud cameras. ELMO also provides services using cloud servers.



Wearable camera



Indoor cloud camera



Dome camera



Network camera



Outdoor palette-type camera



Outdoor LTE compatible camera

Cloud service  
QBIC CLOUD

Box-type camera



Digital video recorder



Network video recorder

### Surveillance camera system

ELMO works with several overseas partner manufacturers from the product development stage to customize products for the Japanese market. This enables ELMO to provide optimal, high-quality, and low-cost video surveillance systems.

### In-vehicle equipment solution

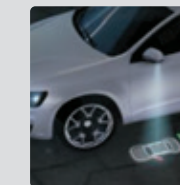
ELMO develops and provides equipment for vehicles, including automobiles, under its own brand and OEM/ODM. ELMO's in-vehicle solutions can be managed and operated remotely. ELMO also provides customization services to meet the needs of customers.

360-degree dashcam  
with communication  
capabilitiesExpandable smart  
tachographIn-vehicle IoT  
gatewayAdd-on in-vehicle  
cameraDrive recorder for  
commercial vehicles

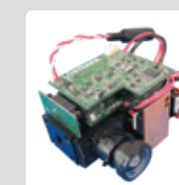
Driver monitor system



Imaging lenses



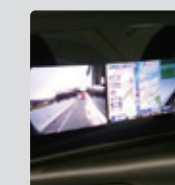
Safety lighting

In-vehicle lighting  
unit

In-vehicle projector



Head-up display unit



Decorative lighting

### In-vehicle optical solution

ELMO provides automotive optical solutions that are indispensable for the next generation of the automotive society. ELMO's solutions are tailored to the customers' needs in design, unit assembly, and production methods.



# Healthcare

What we can do to support people's health is to provide the solutions needed in the medical and long-term care settings by utilizing our technology. For the super-aging society that is about to come, it is important to extend healthy life expectancy so that people can live independently physically and mentally. In order to help extend healthy life expectancy and contribute to reducing the burden on medical staff and long-term care workers in the field where labor is becoming scarce, ELMO creates advanced medical equipment, preventive equipment, and services that monitor the elderly and encourage their independence. ELMO commits to continue to help people stay healthy and live a lively life.

## Solutions

### Healthcare



**Smile, Step, Support**  
Toward a hopeful future  
with three "S"s.

With the desire to make the long-term care staff and elderly people smile, ELMO continues to support the long-term care staff and elderly people in every moment. As the Japanese population gets older, the shortage of long-term care staff is expected to become even more serious in the future. ELMO creates a future where everyone can live with peace of mind by providing products that make elderly people and long-term care workers smile in various scenes of long-term care facilities and home.

By linking the monitoring system with various devices and systems such as a nurse call system, a nursing care system, and cloud cameras, ELMO supports care workers to improve their work efficiency. ELMO also promotes the introduction of ICT equipment to nursing care sites by developing nursing care support robots and equipment that utilizes face recognition and AI technologies.



Sleep monitoring system  
MimamoLeaf



Transfer and mobility robot  
Keipu-Sb



Artificial solar lighting system  
EWINDOW



Indoor cloud camera



Wearable camera



Interactive flat panel  
ELMO Board

### Major ICT systems that can be linked

#### ■ Nursing care software



#### ■ Blue Ocean System

#### ■ Nurse call systems



#### ■ Intercoms



ELMO continues to increase the number of systems that can be linked to meet customers' needs.



## Technology

- Weak signal processing technology
- Stimulus signal generation technology
- Imaging technology
- Optical technology

### Support for development and manufacturing of medical devices

Medical devices are required to have high precision and high quality. ELMO's development process complies with medical safety standards and ISO13485. ELMO is capable of manufacturing medical devices classes I to III. Taking advantage of the experience cultivated in the development of various medical devices, ELMO provides comprehensive manufacturing services including electrical and FPGA design, optical design, software design, mechanical design, and evaluation and regulatory support. ELMO delivers safe and reliable products by procuring parts and materials from Japan and overseas, assembling, and inspecting them at its own factory, which holds a medical device manufacturing license.



### Research and Development

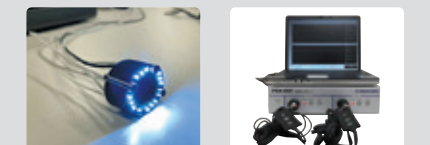
Through joint research with various research institutions, ELMO develops new medical equipment that meet the various needs of medical and nursing care facilities.



Vascular function examination device  
(not approved as a medical device)



Arteriosclerosis examination device  
(not approved as a medical device)



Support camera for endoscope  
Panorama Vision Link  
(not approved as a medical device)



Tissue metabolism monitor



Sleep monitoring system  
MimamoLeaf



# Optics

Today, products utilizing optical technology are widely used in various markets. Techno Horizon is focusing on the "Factory Automation (FA)", "Medical", and "Safety and Lifestyle" markets. ELMO Optics develops and provides optical products that are needed in those markets and that are useful to society, making full use of optical, imaging, and IT technologies. With the keyword of "optics", ELMO Optics is engaged in everything from technological development to the manufacture of lens components and lens units. ELMO Optics also develops, manufactures, and sells machine vision cameras, capture boards, industrial projectors, and other products necessary for production facilities that solve labor shortages and technology transfer problems. ELMO Optics provides a wide range of total machine vision solutions to meet its customers' needs.



## Technology

- Video • Image component (Area/Line/CIS/IR/ Polarization/Prism spectroscopy)
- Image processing (NVIDIA Image processing/ FPGA processing/IP processing)
- Edge computing (ARM/Linux/GPU/CUDA/Jetson)
- Optical components (Various optical equipment/ Medical equipment/Lenses/Molds)



## Solutions

### Machine vision cameras

Machine vision cameras are mainly used as a substitute for visual inspection and for image processing. Machine vision cameras are indispensable for applications in various industries such as semiconductor manufacturing, inspection equipment, medical equipment, logistics, and many others. ELMO offers a wide variety of line scan cameras and area scan cameras suitable to the customer's system.



- Line scan cameras/Area scan cameras
- TDI line scan cameras
- NIR/SWIR line scan cameras
- GigE/10GigE/25GigE/USB3.0/CameraLink/ CoaXPress/SDI
- Broad lineup of cameras with resolutions of 0.4MP to 151MP and cameras with high frame rates



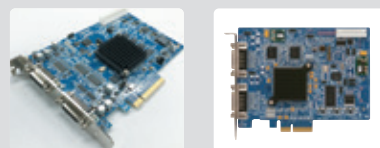
- Prism spectroscopic line scan cameras

### Image input board

ELMO offers a wide range of image input boards compatible to the latest interface standards for industrial cameras such as CoaXPress and Camera Link.



- Image input board
- CoaXPress (CXP-6/CXP-12)
  - CameraLink (Base/Medium/Full)



- GRAPHIN (IPM series)
- CameraLink (Base/Medium/Full)
  - CoaXPress (CXP-6)

### Machine vision related products

Taking advantage of the experience as a manufacturer of distinctive in-house products and optical equipment, ELMO develops and manufactures projector modules. ELMO supports its customers in the development of machine vision systems and next-generation products.



- 3D pattern projector for FA applications
- High luminance projector for FA applications



- Compact projector for FA applications



- Image processing unit/Carrier board
- Uncompressed recording/playback device
- FPDLink3 camera capture board
- Long-time recording system

### Machine vision lenses

As a manufacturer and supplier of optical products, ELMO has accumulated advanced technologies for over 70 years. ELMO develops and manufactures various types of machine vision lenses by making full use of its solid development capabilities, high quality control, and manufacturing, processing, and assembly technologies.



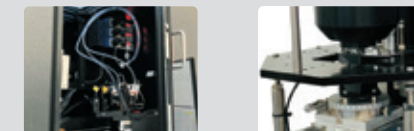
- Development and manufacturing of customized lenses
- Industrial lenses
  - Lenses for medical equipment
  - Lenses for projectors etc.



- Lenses for prism spectroscopic visible light camera
- Lenses for prism spectroscopic SWIR camera

### Optical devices

ELMO is always thinking about the needs of customers in the optical market. Adjustment processes that require high precision and inspection processes that require a high degree of proficiency are difficult processes that can only be performed by skilled workers. ELMO proposes the automation of these processes, as well as the automation of the storage of inspection histories and databases for these processes. Taking advantage of its optical and production technologies cultivated through the development and production of optical products, ELMO proposes equipment and construction methods to increase efficiency at production sites.



- Active alignment equipment
- Automatic alignment and assembly of optical components



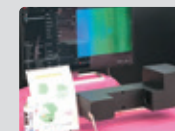
- Processing of optical components
- Gate cutting machine for plastic lenses



- Visual inspection equipment
- Plastic lens inspection
  - Glass filter inspection



- Development and manufacturing of customized lighting equipment



### Jetson Camera Partner

As a Jetson Camera Partner\*, Techno Horizon is able to integrate image sensors with Jetson platform at a high level. Techno Horizon will continue to further expand our machine vision solutions using the NVIDIA Jetson Edge AI platform.

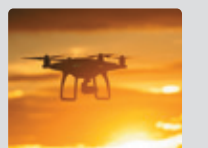
\*Vision sensors are a key element of autonomous machines and intelligent machines. NVIDIA® Jetson™ supports multiple camera interfaces including USB, Ethernet, and MIPI CSI. The Jetson Camera Partner is NVIDIA's partner ecosystem that builds camera modules and systems for these interfaces and provides drivers and files needed to run the NVIDIA JetPack SDK.



- Traffic monitoring
- Automatic license plate recognition



- Automatic driving technology development
- ADAS development

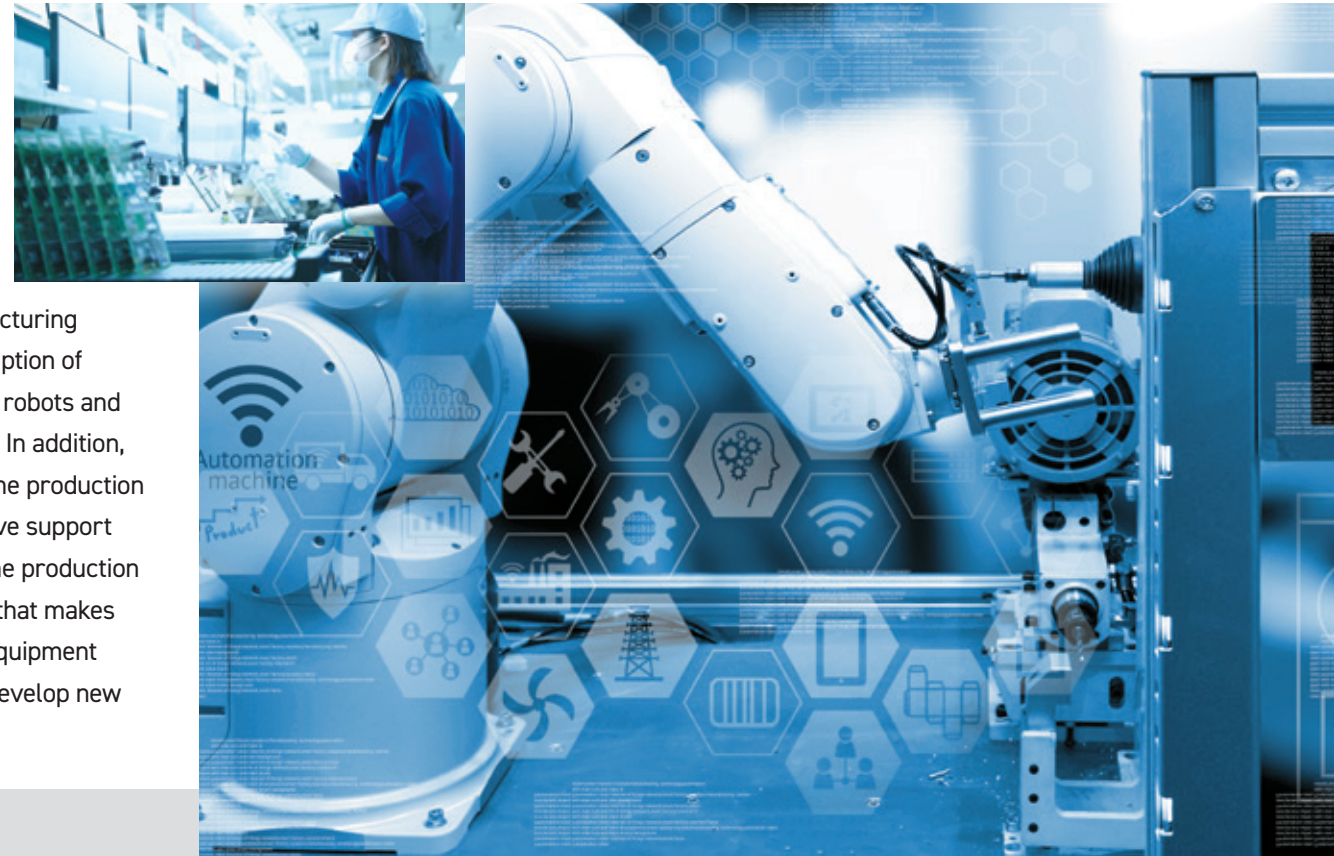


- Drone technology development
- Next generation drones



# Plant (Robotics / Inspection)

Demand for factory automation (FA) is increasing in the Japanese manufacturing industry, aiming to solve the labor shortage, aging of engineers, and disruption of technology succession. TIETECH's FA solutions provide optimal control of robots and automated machines to realize factory automation and manpower saving. In addition, by digitizing information on the production site, it is possible to visualize the production process. For the manufacturing process, TIETECH provides comprehensive support from the selection of the optimal soldering method to the automation of the production line. For the inspection process, TIETECH provides inspection equipment that makes full use of image processing technology and non-destructive inspection equipment that utilizes X-rays. TIETECH continues to provide various solutions and develop new products for the growth and development of the manufacturing industry.



## Technology

- **Motor control technology**  
(Servo drivers/Stepping motors/Direct motors)
- **Control technology** (Motion controller/PLC/Pendant)
- **Open network technology** (EtherCAT/Mechatrolink/Profinet/EthernetIP/OPC UA 5G/Wi-Fi/Bluetooth /USB)
- **Sensing technology** (Position/Speed/Acceleration/GPS/Torque/Distortion/Temperature)
- **Cloud computing technology** (IoT/Industry4.0/BI/DX)
- **Soldering technology** (Iron/Sleeve/IH/Laser/Selective)
- **Image inspection technology**  
(Area inspection/Line inspection)
- **Non-destructive inspection technology**  
(X-ray Inspection system)

## Solutions

### Robot control equipment

TIETECH provides distinctive, high value-added products by making full use of motor control technology and various control technologies accumulated over 40 years since its founding as TIETECH.



Ultra compact servo driver microD®



Large capacity, large servo driver macroD



Multi-axis servo driver with integrated power supply



Compact multi-axis servo driver



Multi controller



Intuitive touchscreen Teach pendant

### Factory digital transformation (DX) solutions

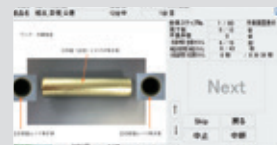
By digitizing all data on materials, people, and equipment at the manufacturing site in real time, it is possible to improve work efficiency, reduce waste, and realize more efficient cost management.



Real-time work monitoring system with AI and cameras



Work navigation system using projection mapping



Real-time collection and calculation of work time and results for each procedure



Real-time collection and calculation of work time and inspection results



Paperless inventory management system for material depot to improve efficiency of material management operations

### Soldering equipment

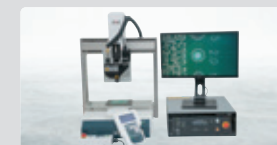
TIETECH provides various types of equipment that automate human work and reduce human workloads in accordance with customer requirements through integrated manufacturing from design to manufacturing, installation, and maintenance. TIETECH also provides soldering irons and tips that have long been favored by soldering specialists around the world.



Iron soldering robot



Sleeve soldering robot



Laser soldering unit



IH soldering robot



Energy saving selective flow soldering system with eco-friendly flow tank



Gas-type cordless soldering iron

### Inspection equipment / Image processing software

TIETECH has a diverse lineup of inspection products that include non-destructive inspection system that utilize X-rays, 3D inspection system, and inspection system that make full use of AI image processing technology. TIETECH provides products that meet customer needs.



X-ray inspection system



3D inspection unit



Solder paste inspection system



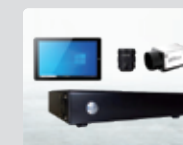
IC handler



High-speed area inspection system with stable inspection quality by AI



Line inspection system



Automatic mold residue detection system



Simple visual inspection system



Image processing software with an excellent balance of cost and functionality



# Research and Development

R&D system built by combining group technologies to anticipate customer's needs



## Research and Development

The Development and Design departments of each group company will conduct research activities based on the marketing activities of each group company with the aim of developing unique, high-quality products and services that anticipate customer needs.

## R&D system

Each company in the Techno Horizon Group has its own Development and Design department, which is responsible for research, design, and development of products. The Development and Design departments of each company are organized into divisions or groups by business category, and engineers are assigned to each division.

Based on the core technology that each group company has cultivated over many years, the Techno Horizon Group incorporates market demands and cutting-edge technologies of the times to develop products that meet the customer needs.

Taking advantage of recent management consolidation, the Techno Horizon Group creates new businesses backed by the broad spectrum of technologies held by the Techno Horizon Group in the field of "Imaging & IT" and "Robotics" and continues to improve R&D system to achieve further growth.

## Imaging & IT technology

By integrating optical development technology with IT technology, electronic design technology (software design and electronic circuit design), and mechanical design technology, the Techno Horizon Group is able to develop a wide variety of optical and imaging equipment with the latest and most appropriate specifications. The Techno Horizon Group continues to deepen and evolve its technologies to meet global optical needs with the latest and most advanced imaging and IT technologies.

Sensing	Imaging
Edge-AI/ML (Face recognition/ Congestion analysis)	Video compression (H.264/H.265/JPEG)
Vital sensing	High image quality (4K/8K)
ADAS, DMS	Optical lenses
OCR	Special lightings
and more...	and more...
Networking	Cloud, computing technology
4G/5G	SaaS
Wi-Fi6	Big data
WebRTC	Cloud ERP
Wireless cast	Web application
and more...	and more...

## Robotics technology

The Techno Horizon Group has been accumulating technologies focusing on the core fields of FA technology, information technology, and image and communication technology. Based on these technologies, the Techno Horizon Group works together with customers from the planning stage to commercialization. The Techno Horizon Group's strength lies in its ability to provide integrated services from development to production, including business plan development and business alliance.

Optimal control	Network
AI robotics & Motion control	Cloud computing & 5G network
Intelligent servo actuator	Smart manufacturing
Man machine interface	Industrial open network
Teaching pendant	Digital Twin (Virtual space)
and more...	and more...
Mechatronics and Automation	Next generation manufacturing
"KAIZEN" solution	Traceability
Optimal automation	SDGs
Auto inspection	(Environmental consideration)
Solution integration	Global sourcing and production
and more...	High quality & quick delivery
	and more...

# Corporate Social Responsibility

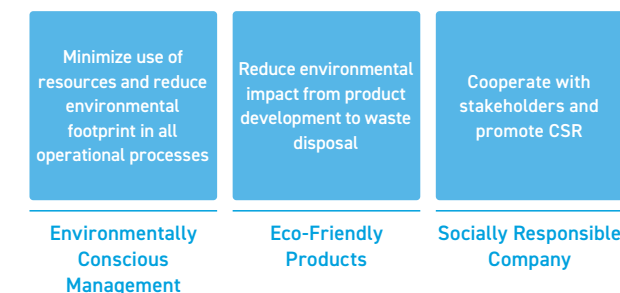
The Techno Horizon Group is considerate of the global environment and contributes to both local communities and society as a whole



The destruction of the global environment, including global warming, is the most important issue we must tackle. The Techno Horizon Group, a group of manufacturers, conducts business activities based on the policy of minimizing the use of global resources and the burden on the global environment, and the policy of not producing as much CO<sub>2</sub> and wastes as possible as a result of business activities. Based on these policies, the Techno Horizon Group reduces greenhouse gas emissions by reducing the environmental burden in our business activities such as development and production, and by providing its customers with manufacturing equipment that can produce products with less energy and materials.

## Corporate Action Policy

Based on the strong belief that it is our responsibility to pass on the precious Earth in sound condition to the next generation, the Techno Horizon Group works hard to help create a truly sustainable society.



## Basic Environmental Policy

The Techno Horizon Group considers the preservation of the "irreplaceable global environment" as a social responsibility to be fulfilled by a company. In the optical and electronics businesses, which are the group's main businesses, the Techno Horizon Group develops, manufactures, and sells products with consideration for the global environment. The Techno Horizon Group promotes the provision of environmentally friendly products.

➡ Comply with environmental laws and regulations

➡ Reduce environmental footprint and prevent pollution

## CSR Activities

Techno Horizon has installed solar power generation facilities on the rooftops of its head office, head office factory, and Kasadera factory, and completed grid connection and started power generation on June 28, 2021. The total power generation capacity is 146.32 kW (34.72 kW, 63.24 kW, and 48.36 kW, respectively), which is estimated to reduce CO<sub>2</sub> emissions by approximately 92.7 tons per year. Techno Horizon continues to contribute to the realization of a decarbonized society and a resource circulating society.



Rooftop of the head office

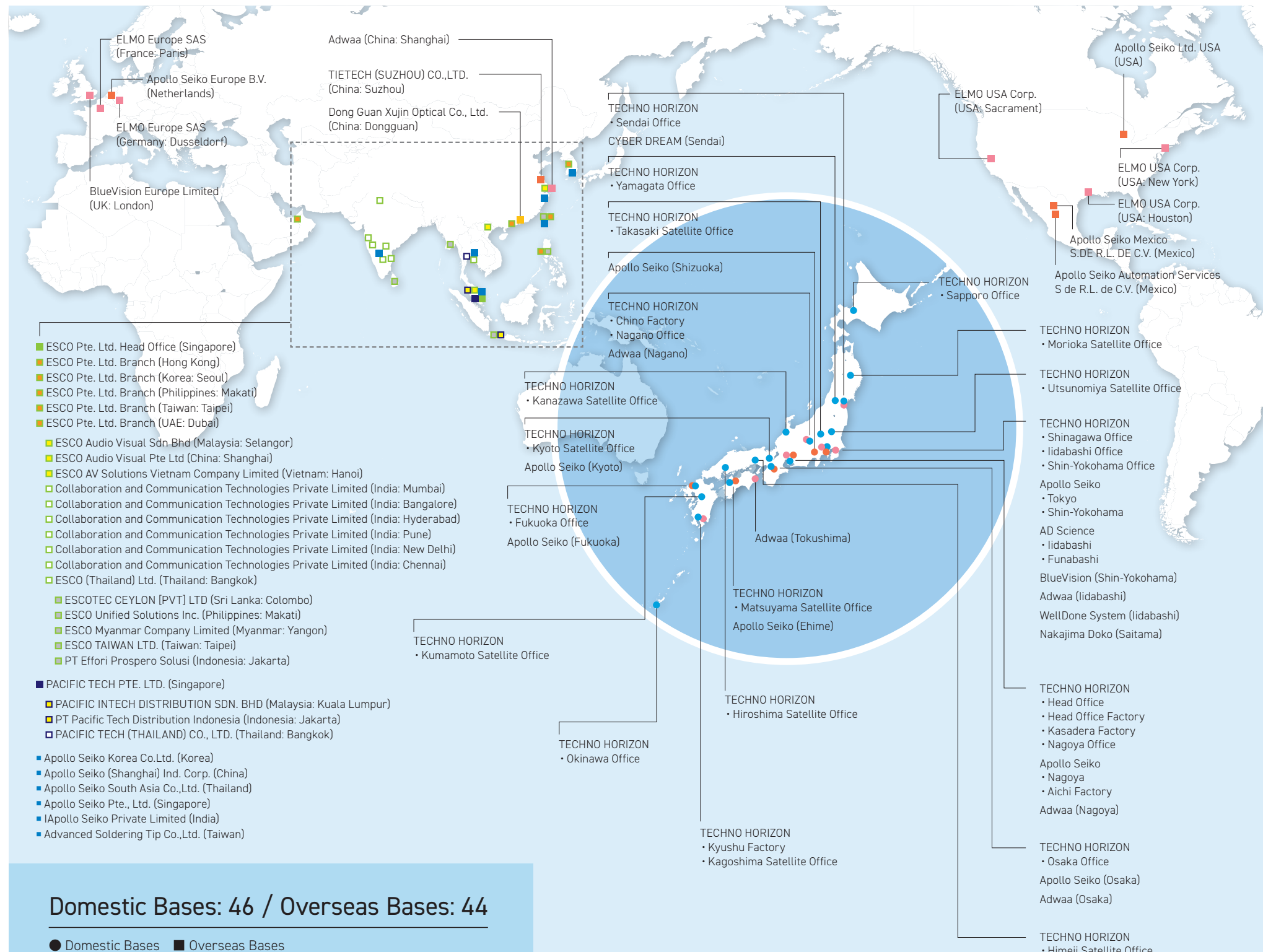


Rooftop of the head office factory



# Bases

Meeting worldwide needs through cutting-edge technologies



TECHNO HORIZON CO., LTD.  
• Head Office



TECHNO HORIZON CO., LTD.  
 ・ Head Office Factory    ・ Nagoya Office



ELMO USA Corp.  
(USA: New York)



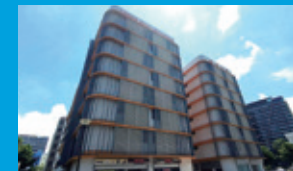
ELMO Europe SAS  
(France: Paris)



ELMO Europe SAS  
(Germany: Dusseldorf)



PACIFIC TECH PTE. LTD.  
(Singapore)



ESCO Pte. Ltd. Head Office  
(Singapore)



ESCO Pte. Ltd. Branch  
(UAE: Dubai)



Dong Guan Xujin Optical Co., Ltd.  
(China: Dongguan)



Adwaa Co., Ltd., AD Science Inc.,  
WellDone System Inc.  
(Iidabashi)



Adwaa Co., Ltd.  
(Tokushima)



Apollo Seiko Ltd.  
(Shizuoka)



Apollo Seiko Ltd.  
(Mexico)



Apollo Seiko Ltd.  
(Netherlands)



TIETECH (SUZHOU) CO.,LTD.  
(China: Suzhou)