Website

Catalog

CanTops

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CanTops

Core Solution Provider for AMHS

Rev. CTS-2601-EN | **English** |

Entering Gate for Physical AI

CanTops leads industry technology standards based on the technologies and know-how accumulated in the logistics control field, and continuously researches and develops advanced products to meet various needs of customer and deliver the highest value.
In addition, the company is striving to develop a wide range of solutions related to cognitive technologies, which are essential elements of **Physical AI**.

CanTops

Go to the CanTops testbed video

Core Solution Provider for AMHS

To provide core solutions essential to the AMHS (Automated Material Handling System) field, CanTops has established a testbed capable of simulating AMHS operations in semiconductor manufacturing environments.
By validating product performance and functionality based on various on-site scenarios, the company ensures optimal stability and reliability.

INDEX

About us

Part 01

Solutions by Application

Part 02

Specification of Products

Leading IoT and Wireless Technology for Physical AI

Starting with AGV development in the AMHS field in 2002,
we have grown into a global company specializing in wireless, control,
and sensor technologies.
Moving forward, we will continue to uphold and advance
our development philosophy focused on customer value and
environmental protection, fulfilling our social responsibility as a company.

2002
Established

+120
Employee

+500
Local Customer

+200
Global Customer

+40%
R&D Engineer Portion

5
Overseas Distributors

Core Solution Provider for AMHS

CanTops

Wireless Solutions

- E84/E23 PIO and related products
- LF/HF RFID Reader
- RFID and N_2 Control System for STB (OHB)
- Industrial Handy TP(Teaching Pendant)

IoT Hub Solutions

- Wireless IoT Hub
- OHT Position Sensor, Vibration Noise Sensor
- Compact High-Speed Camera and Thermal Imaging Camera
- Vibration & Tilt Sensor, Noise Sensor, Light (Illuminance) Sensor
- Energy Pick Up, Smart Tag

Contoller & Sensor Solutions

- EtherCAT based N_2 Gas controller
- Controllers for OHT and Stocker
- Interlock control system for anti-collision of OHT at OHT junctions
- I/O module : Motion + DIO + Industrial Fieldbus + Precision Sensor
- FOUP detecting sensor
- Colorimeter for LCD/OLED inspection

Powering Physical AI by Solutions of CanTops

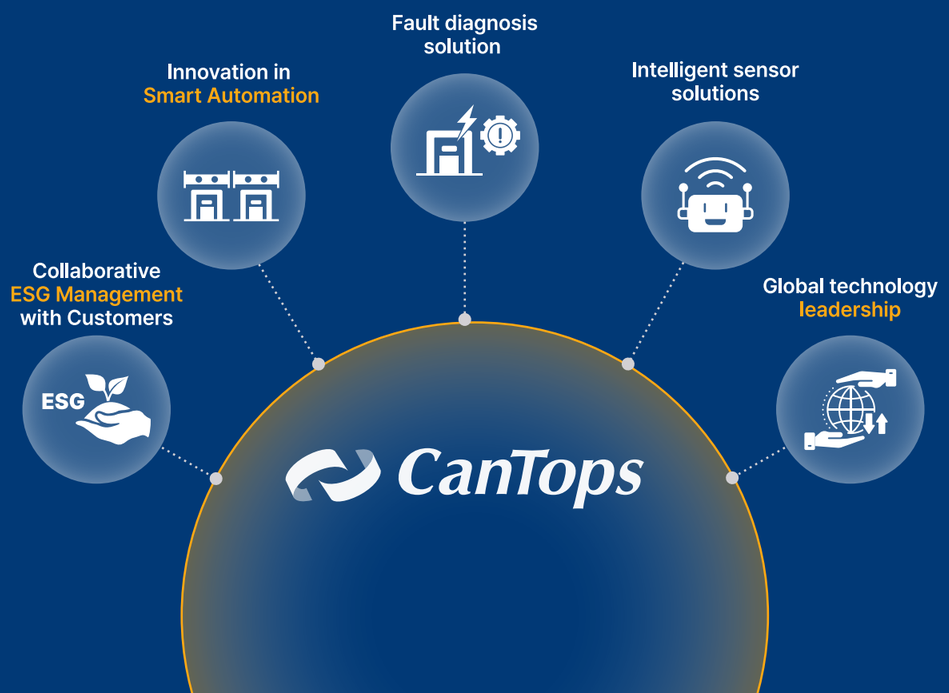
Mission

Prioritizes benefit of the customers and environmental protection through R&D

As a company committed to sustainable development, CanTops strives to enhance energy efficiency through wireless communication and IoT technology, utilize eco-friendly components, and design resource-efficient products.

Vision

Global leader providing the total solution for AMHS



CanTops

Identity

CanTops pursues strives for customer growth through mutual trust and strong bonds.

The design symbolizes people holding hands, representing cooperation and strong bonds between the company and its employees, as well as between the company and its customers.

CanTops

Can + **Tops**

We can do it — No. 1, the Best

T	O	p	S
Technology A company with cutting-edge technology	**Optimization** Providing customer-focused, optimal solution	**Precision** High quality and reliability	**Sustainability** Constant innovation and development

Sustainable Value

We are leading eco-friendly technology innovation by complying with global environmental regulations and preparing for rapid introduction of ESG supply chain due diligence.
We prioritize coexistence with partners and customer satisfaction,
and create sustainable value through a corporate culture that complies with global standards.

Environment
Eco-friendly Management

Cooperation
Collaborative Growth with Partners

Standard
Building a corporate culture aligned with global standards

CanTops

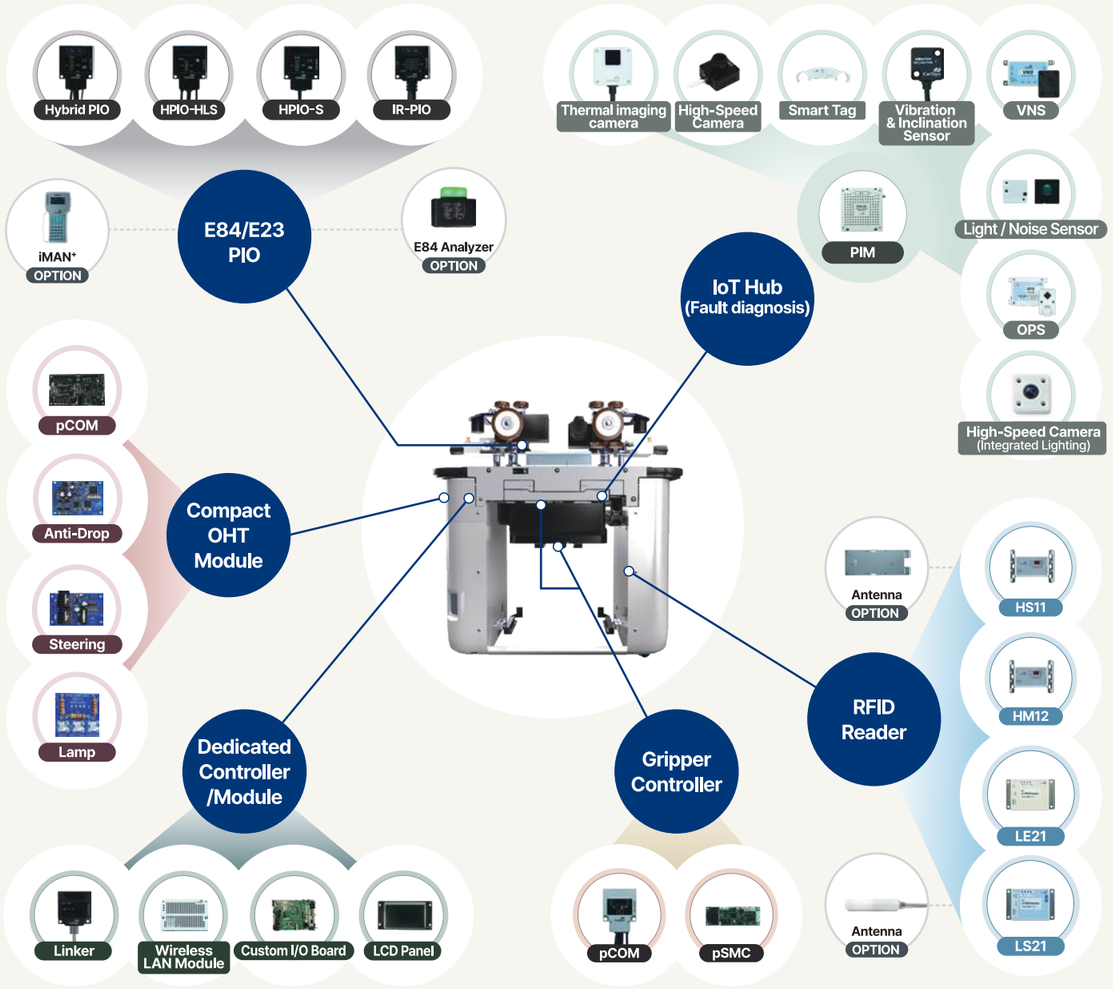
Part 01

Solution by Application

OHT Overhead Hoist Transport

Our OHT control solutions maximize productivity and efficiency in semiconductor manufacturing Processes though our own motion control and high reliability.

With over 40 years of manufacturing expertise, CanTops delivers process optimization and cost efficiency through flexible, innovative technology. Our products are proven for quality and reliability through deployment on thousands of OHTs in semiconductor fabs.



E84/E23 PIO

32p

The World's No.1 Product

Hybrid PIO(HPIO)
RF/IR communication, (Parallel I/O Type)

HPIO-HLS
RF/IR communication, (HLS Bus Type)

HPIO-S
RF/IR communication, (Serial Type)

IR-PIO
IR communication, (Parallel I/O Type)

OPTION

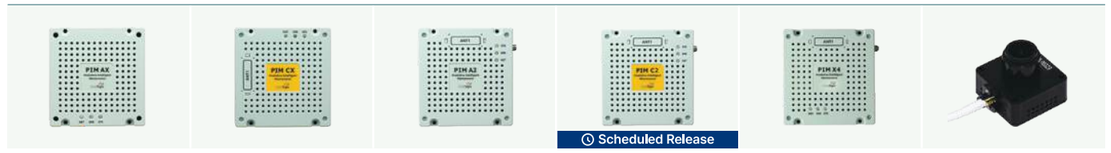
iMAN+
Teaching Pendant for Maintenance

OPTION

E84 Analyzer
E84 Sequence Analysis and Notation

IoT Hub(Fault diagnosis/Predictive Mainternance)

42p



PIM AX
Analog Signal IoT Hub

PIM CX
IoT Hub for EtherCAT communication

PIM A2
For 2-channel camera and analog signal

Scheduled Release

PIM C2
For 2-channel camera and EtherCAT

PIM X4
For 4-channel camera

High-Speed Camera
Compact, high-resolution camera

Thermal imaging camera
Compact, heat detecting sensor

Scheduled Release

OPS
OHT position detection sensor (standard type)

Scheduled Release

OPS Pro
OHT position detection sensor (precision type)

Scheduled Release

VNS
Broadband Noise and Vibration Sensor

Scheduled Release

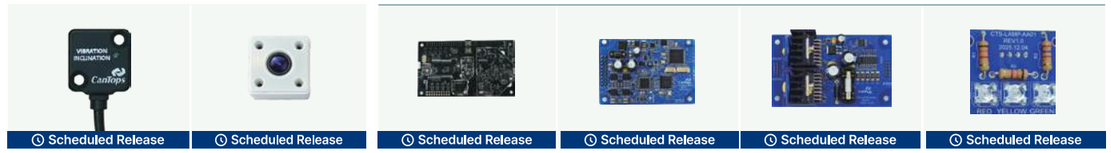
Light Sensor
Compact, Low-power Light sensor

Scheduled Release

Noise Sensor
Compact, Low-power Noise sensor

Compact OHT Module

51p



Scheduled Release

Vibration&Inclination Sensor
Compact, Low-power Vibration&Inclination Sensor

Scheduled Release

High-Speed Camera (Integrated Lighting)
combines high-speed imaging and lighting in a single unit.

Scheduled Release

pCOM Module
Gripper Unit Power Line Communication Module

Scheduled Release

Anti-Drop Module
Single-Axis Step Motor Control Module (for Anti-Drop)

Scheduled Release

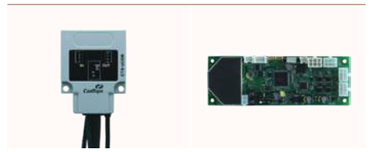
Steering Module
Steering Controller Module

Scheduled Release

LAMP
Three-Color LED Module for OHT Status Indication (Red, Yellow, Green)

Gripper Controller

51p



pCOM
Power Line (Belt) Communication Module for Gripper Unit Control

pSMC
Integration of gripper controller and power-line communication device

Dedicated Controller/Module

54p

Custom I/O Board
Integration of various peripherals required for OHT

Scheduled Release

Wireless LAN Module
Wireless LAN module for OHT resistant to radio interference

Linker
Use the iMAN+ to enable OHT receiver for controlling

Scheduled Release

LCD Panel
LCD Panel for Displaying OHT Information

RFID Reader

38p

LS21
Ultra-compact/lightweight 134.2kHz Reader (Serial Communication)

LE21
Ultra-compact/lightweight 134.2kHz Reader (Ethernet Communication)

Antenna
134.2kHz Antenna

HS11
13.56MHz Single Channel Reader

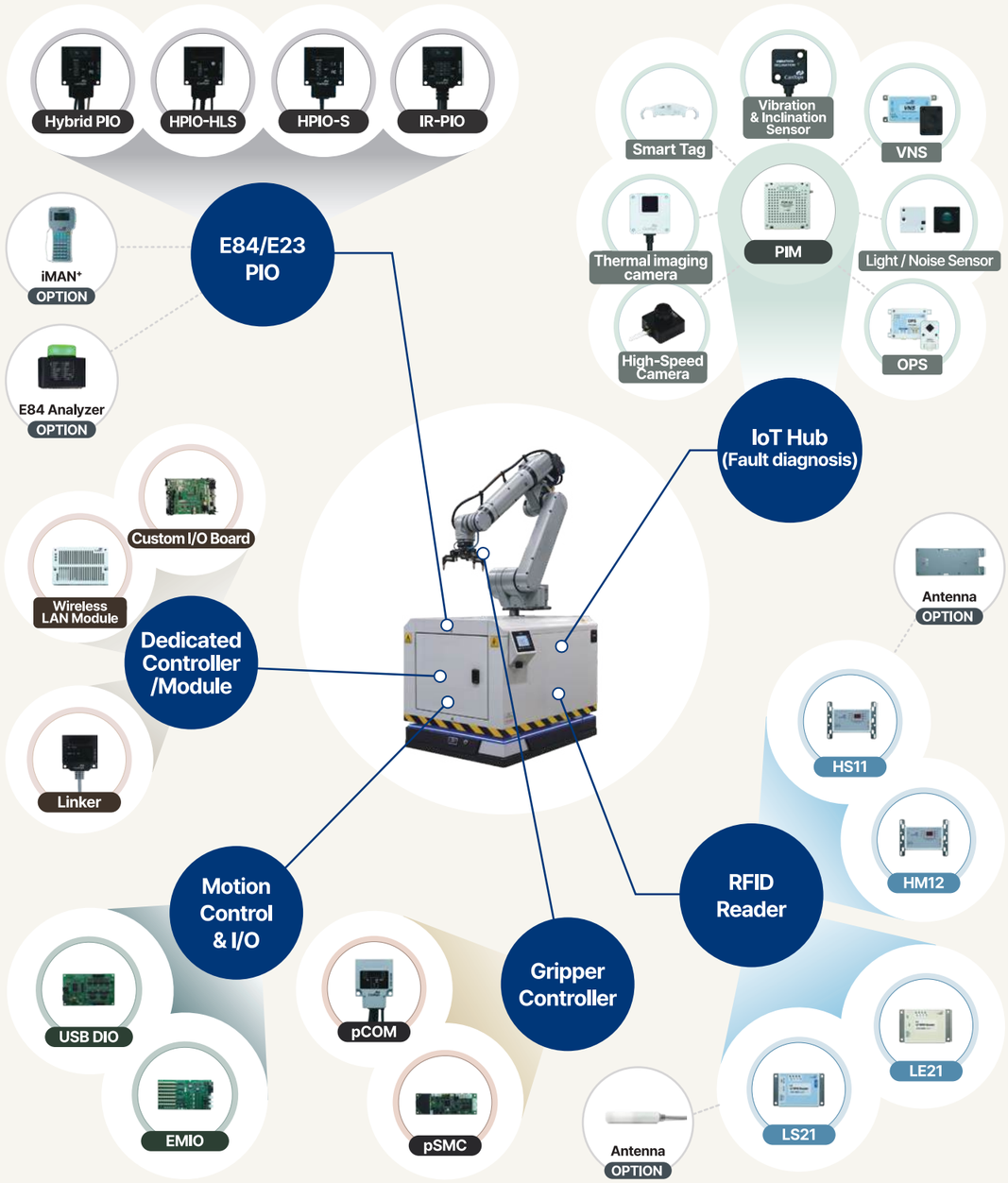
HM12
13.56MHz Multi Channel Reader

Antenna
13.56MHz Antenna

AMR Autonomous Mobile Robot

Our AMR control solutions maximize the productivity and efficiency of factory automation and AMHS handling area through our own motion control technology and high reliability.

CanTops has over 40 years of expertise in diverse manufacturing processes. With this extensive know-how, we achieve process optimization and operational cost reduction with flexible scalability and innovative technology.



E84/E23 PIO

32p

The World's No.1 Product

Hybrid PIO(HPIO)
RF/IR communication, (Parallel I/O Type)

HPIO-HLS
RF/IR communication, (HLS Bus Type)

HPIO-S
RF/IR communication, (Serial Type)

IR-PIO
IR communication, (Parallel I/O Type)

OPTION

iMAN+
Teaching Pendant for Maintenance

OPTION

E84 Analyzer
E84 Sequence Analysis and Notation

IoT Hub(Fault diagnosis/Predictive Maintenance)

42p

PIM AX
Analog Signal IoT Hub

PIM CX
IoT Hub for EtherCAT communication

PIM A2
For 2-channel camera and analog signal

Scheduled Release

PIM C2
For 2-channel camera and EtherCAT

PIM X4
For 4-channel camera

High-Speed Camera
Compact, high-resolution camera

Thermal imaging camera
Compact, heat detecting sensor

Scheduled Release

OPS
OHT position detection sensor (standard type)

Scheduled Release

VNS
Broadband Noise and Vibration Sensor

Scheduled Release

Light Sensor
Compact, Low-power Light sensor

Scheduled Release

Noise Sensor
Compact, Low-power Noise sensor

Scheduled Release

Vibration&Inclination Sensor
Compact, Low-power Vibration&Inclination Sensor

Motion Control & I/O

50p

EMIO
Motion and I/O Integrated Controller (Ethernet Communication)

USB DIO
Digital I/O board using USB interface

Gripper Controller

51p

pCOM
Communication device of the gripper controlling power-line(Belt)

pSMC
Integration of gripper controller and power-line communication device

Dedicated Controller/Module

54p

Custom I/O Board
Integration of various peripherals required for AMR

Scheduled Release

Wireless LAN Module
Wireless LAN module for AMR resistant to radio interference

RFID Reader

38p

LS21
Ultra-compact/lightweight 134.2kHz Reader (Serial Communication)

LE21
Ultra-compact/lightweight 134.2kHz Reader (Ethernet Communication)

Antenna
134.2kHz Antenna

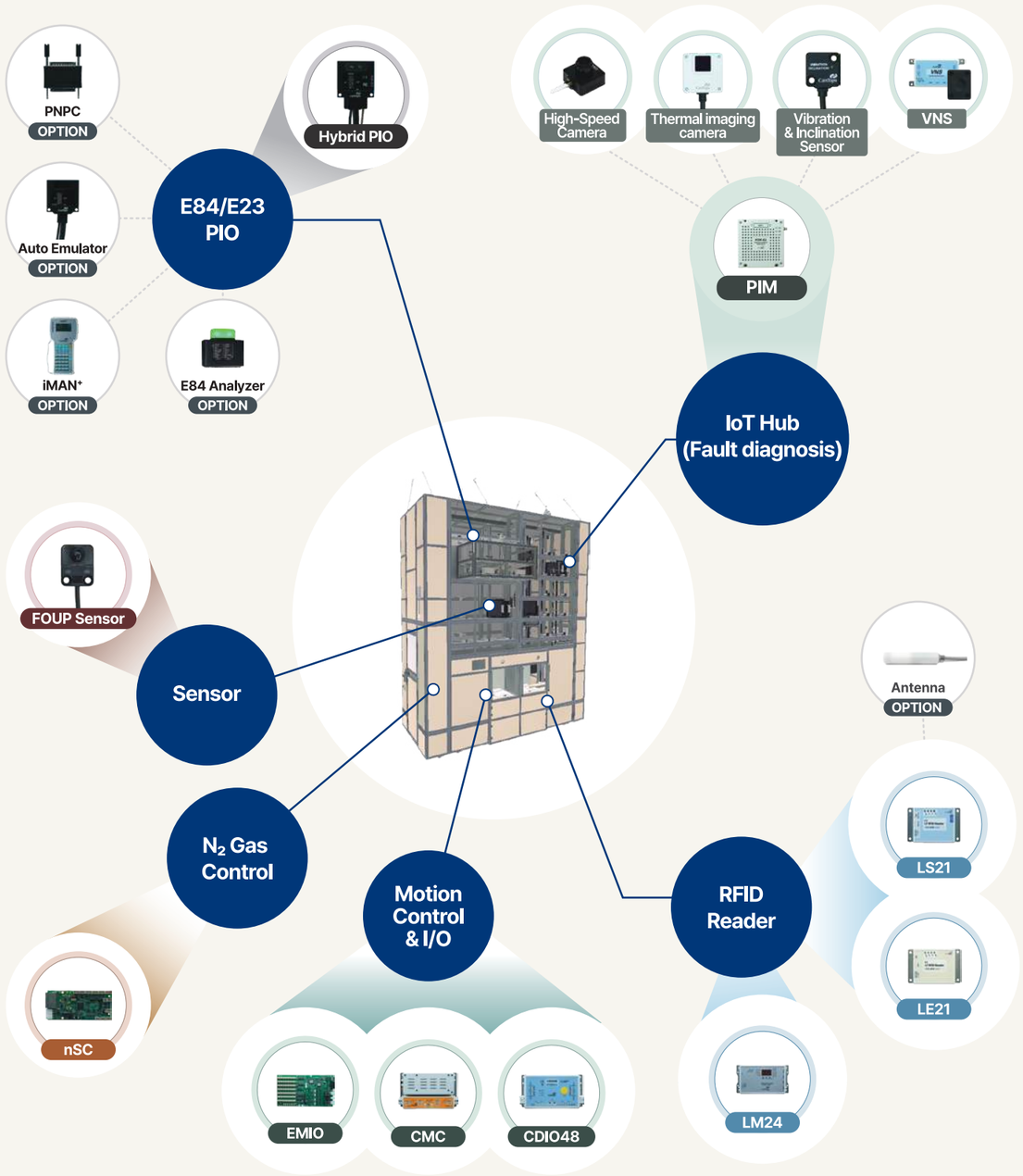
HS11
13.56MHz Single Channel Reader

HM12
13.56MHz Multi Channel Reader

Antenna
13.56MHz Antenna

Stocker

Our Stocker control solutions can contribute to improve the productivity and cost-efficiency of semiconductor through our own motion control technology and optimal N_2 flow control.



E84/E23 PIO

32p

The World's No.1 Product

Hybrid PIO(HPIO)
RF/IR communication, (Parallel I/O Type)

OPTION

Auto Emulator
E84/E23 Sequence Auto Emulator

OPTION

iMAN+
Teaching Pendant for Maintenance

OPTION

E84 Analyzer
E84 Sequence Analysis and Notation

OPTION

PNPC
Converter (NPN to PNP Type)

IoT Hub(Fault diagnosis/Predictive Maintenance)

42p

PIM AX
Analog Signal IoT Hub

PIM CX
IoT Hub for EtherCAT communication

PIM A2
For 2-channel camera and analog signal

Scheduled Release

PIM C2
For 2-channel camera and EtherCAT

PIM X4
For 4-channel camera

High-Speed Camera
Compact, high-resolution camera

Thermal imaging camera
Compact, heat detecting sensor

Scheduled Release

VNS
Broadband Noise and Vibration Sensor

Scheduled Release

Vibration&Inclination Sensor
Compact, Low-power Vibration&Inclination Sensor

RFID Reader

38p

LS21
Ultra-compact/lightweight 134.2kHz Reader (Serial Communication)

LE21
Ultra-compact/lightweight 134.2kHz Reader (Ethernet Communication)

Antenna
134.2kHz Antenna

LM24
Standard Type 134.2kHz Multi-Channel Reader

N_2 Gas Control

48p

nSC
N_2 Shelf Controller

Motion Control & I/O

50p

EMIO
Motion and I/O Integrated Controller (Ethernet Communication)

CMC
Motion Controller (EtherCAT Communication)

CDIO48
Digital I/O Module (EtherCAT Communication)

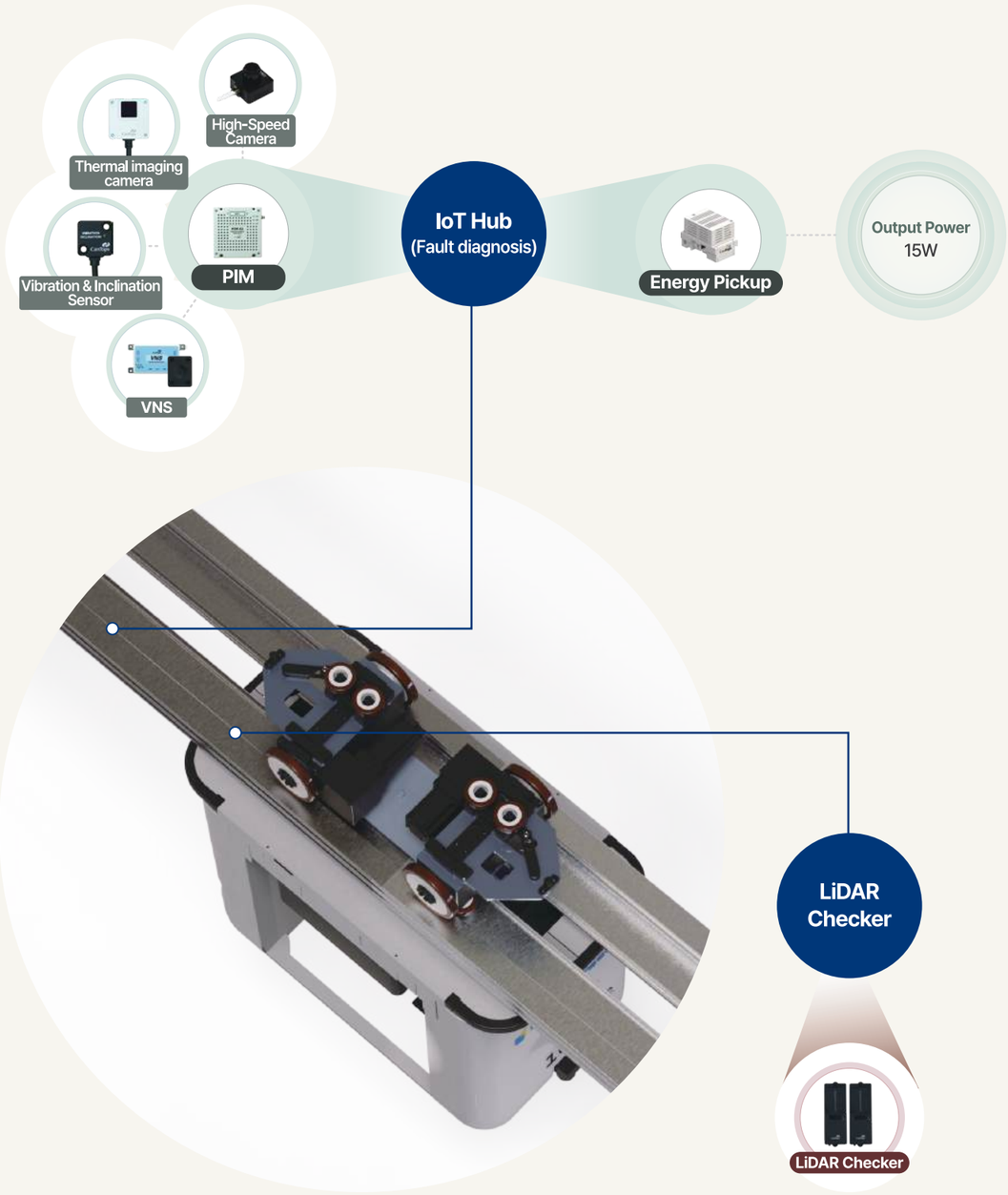
Sensor

52p

FOUP Sensor
Contact sensor for detecting FOUP

Rail

Based on over 40 years of expertise gained across diverse manufacturing processes worldwide,
we deliver innovative technologies that ensure optimal and reliable OHT operation.
Through easily rail-mounted sensors, wired and wireless networks, and non-contact energy pickup systems
installed on the rail, we maximize process optimization and operational efficiency.



CanTops

IoT Hub(Fault diagnosis/Predictive Maintenance)

42p

PIM AX
Analog Signal IoT Hub

PIM CX
IoT Hub for EtherCAT communication

PIM A2
For 2-channel camera and analog signal

Scheduled Release

PIM C2
For 2-channel camera and EtherCAT

PIM X4
For 4-channel camera

High-Speed Camera
Compact, high-resolution camera

Thermal imaging camera
Compact, heat detecting sensor

Scheduled Release

VNS
Broadband Noise and Vibration Sensor

Scheduled Release

Vibration&Inclination Sensor
Compact, Low-power Vibration&Inclination Sensor

Scheduled Release

Energy Pickup
Contactless Power Collector for Rail Systems

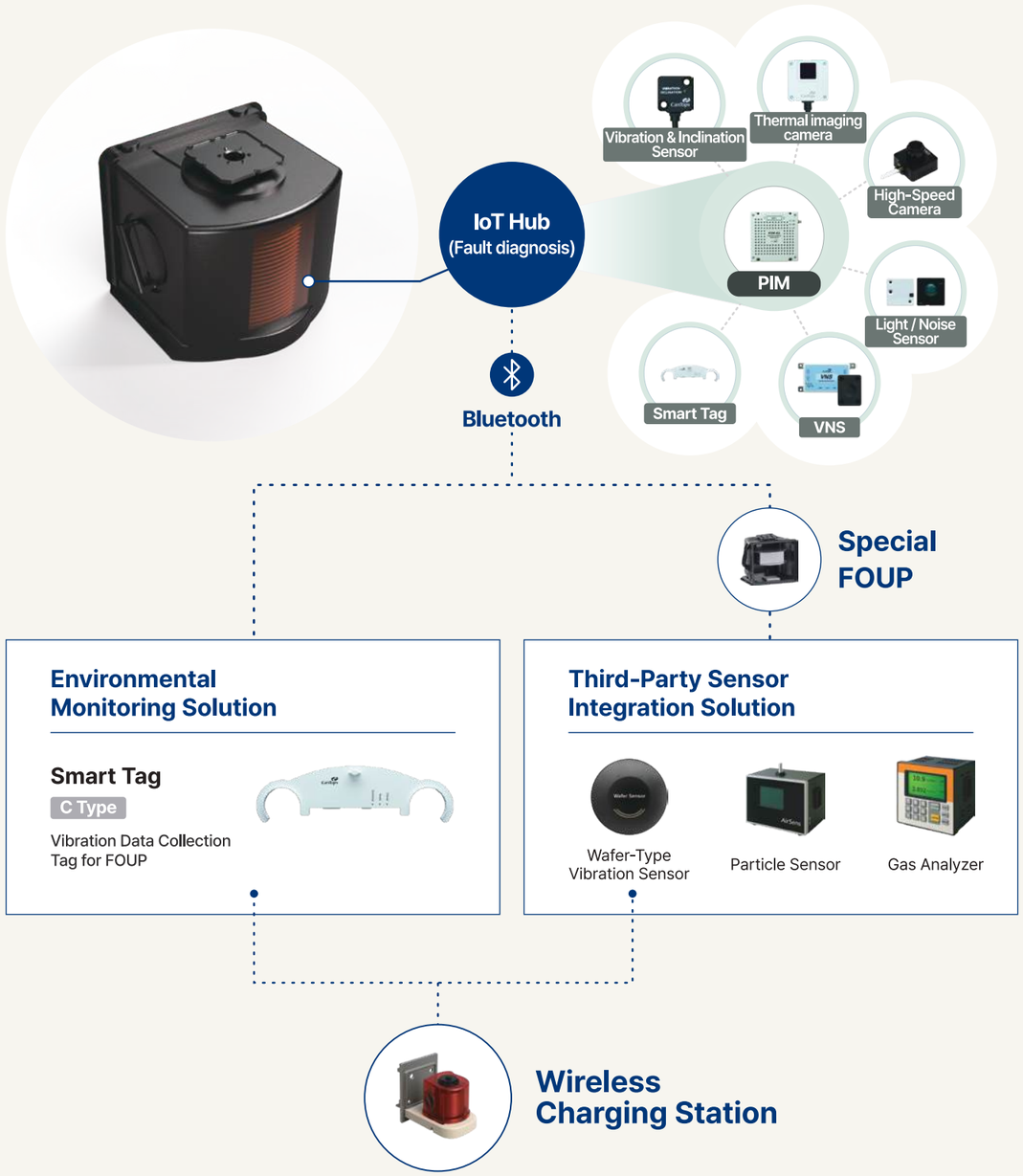
LiDAR Checker

53p

LiDAR Checker
Optical Axis Tilt and Light Intensity Measurement Device for Forward Detection Sensors

FOUP / Wafer

Utilizing state-of-the-art sensors, RFID, wireless power delivery, and real-time communication technologies, our system provides continuous in-FOUP environmental monitoring, including vibration, temperature, and humidity, ensuring optimal wafer protection and significantly enhancing semiconductor yield and productivity.



CanTops

IoT Hub(Fault diagnosis/Predictive Maintenance)

42p

PIM AX
Analog Signal IoT Hub

PIM CX
IoT Hub for EtherCAT communication

PIM A2
For 2-channel camera and analog signal

Scheduled Release

PIM C2
For 2-channel camera and EtherCAT

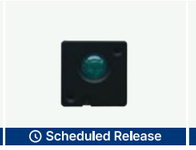
PIM X4
For 4-channel camera

High-Speed Camera
Compact, high-resolution camera

Thermal imaging camera
Compact, heat detecting sensor

Scheduled Release

VNS
Broadband Noise and Vibration Sensor



Scheduled Release

Light Sensor
Compact, Low-power Light sensor

Scheduled Release

Noise Sensor
Compact, Low-power Noise sensor

Scheduled Release

Vibration&Inclination Sensor
Compact, Low-power Vibration&Inclination Sensor

Scheduled Release

Smart Tag
Tag for collecting fault diagnosis data

Environmwntal Monitoring Solution

Scheduled Release

Smart Tag
C Type
To be installed outside the FOUP to measure vibration, temperature and humidity

Scheduled Release

Smart Tag
P Type
To be installed inside the FOUP to measure humidity temperature, pressure and tilt

Scheduled Release

Smart Tag
G Type
Standard type tag

Third-Party Sensor Integration Solution

PIM transmits collected data in real time via Wi-Fi for remote monitoring

Wafer-Type Vibration Sensor
Transmits AVS sensor (Bluetooth) data via Wi-Fi

Particle Sensor
Environmental analysis solution integrating various environmental sensors with real-time location data

Gas Analyzer
Measures hazardous gases inside the fab (NH_3, HF, HCl) and transmits data via Wi-Fi

Wireless charging station

Wireless charging solution for STB, Load Port

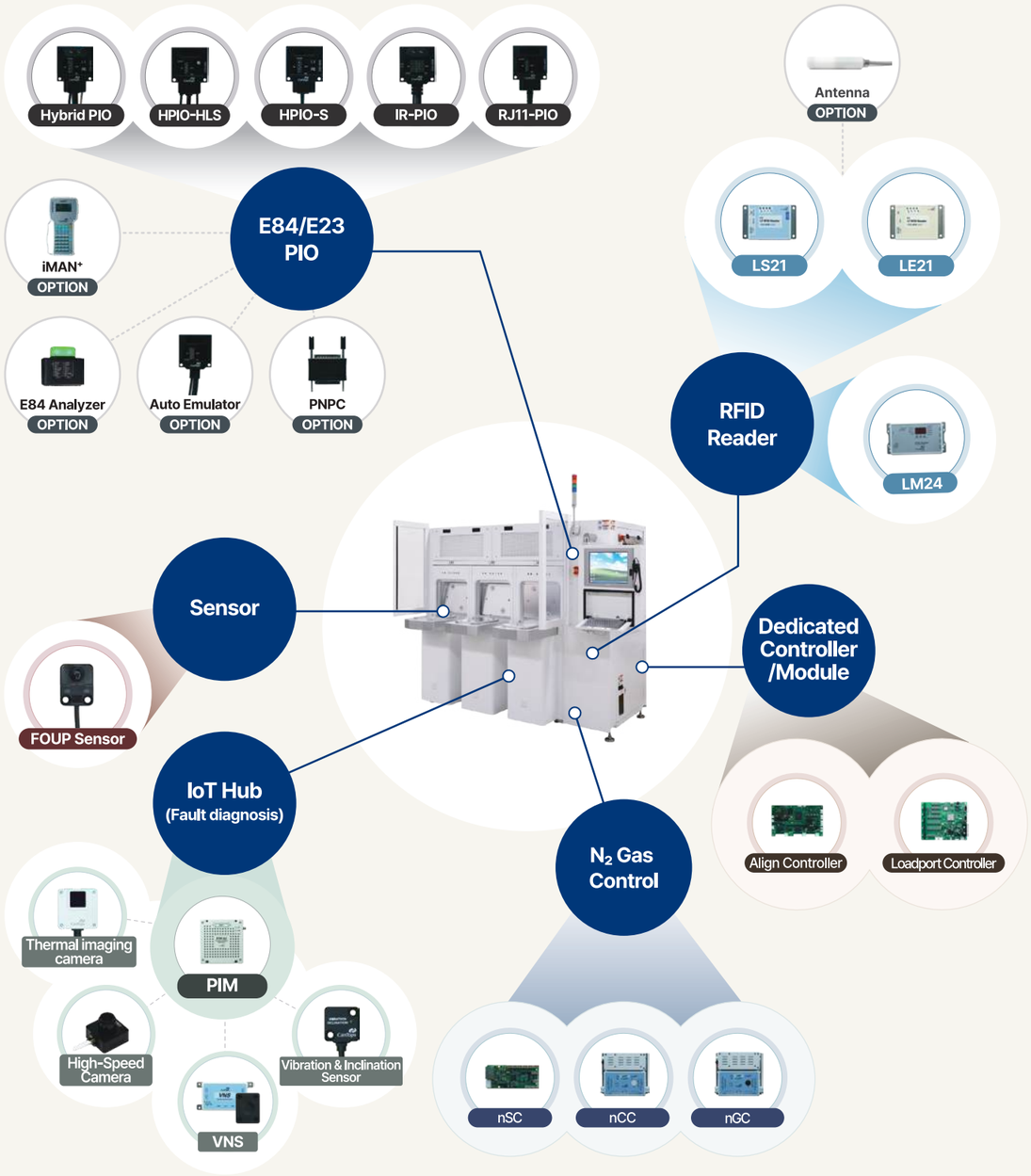
Wireless charging solution for charging batteries embedded in special FOUPs

Special FOUP

A standardized platform for wireless, battery-powered remote monitoring with OHT tracking and sensor integration

EFEM Equipment Front End Module

Leveraging its extensive technical foundation, we provides integrated control solutions that incorporate RFID-based tracking, precise N_2 flow control, automated Load Port and Wafer Aligner systems, and intelligent fault diagnostics—optimizing equipment performance across semiconductor front-end processes.



CanTops

E84/E23 PIO

32p

The World's No.1 Product

Hybrid PIO(HPIO)
RF/IR communication, (Parallel I/O Type)

HPIO-HLS
RF/IR communication, (HLS Bus Type)

HPIO-S
RF/IR communication, (Serial Type)

IR-PIO
IR communication, (Parallel I/O Type)

RJ11-PIO
IR communication, (RJ11 Moduler Type)

OPTION

Auto Emulator
E84/E23 Sequence Auto Emulator

Dedicated Controller/Module

54p

OPTION

iMAN+
Teaching Pendant for Maintenance

OPTION

E84 Analyzer
E84 Sequence Analysis and Notation

OPTION

PNPC
Converter (NPN to PNP Type)

Align Controller
Wafer alignment controller for equipment use

Load Port Controller
Wafer transfer controller for equipment use

IoT Hub(Fault diagnosis/Predictive Maintenance)

42p

PIM AX
Analog Signal IoT Hub

PIM CX
IoT Hub for EtherCAT communication

PIM A2
For 2-channel camera and analog signal

Scheduled Release

PIM C2
For 2-channel camera and EtherCAT

PIM X4
For 4-channel camera

High-Speed Camera
Compact, high-resolution camera

N_2 Gas Control

Thermal imaging camera
Compact, heat detecting sensor

Scheduled Release

VNS
Broadband Noise and Vibration Sensor

Scheduled Release

Vibration&Inclination Sensor
Compact, Low-power Vibration&Inclination Sensor

nSC
N2 gas purge controller for equipment use

nCC
All-in-One N_2 Carrier Controller and RFID Reader

nGC
Steering Controller (Modular)

RFID Reader

38p

LS21
Ultra-compact/lightweight 134.2kHz Reader (Serial Communication)

LE21
Ultra-compact/lightweight 134.2kHz Reader (Ethernet Communication)

LM24
Standard Type 134.2kHz Multi-Channel Reader

Sensor

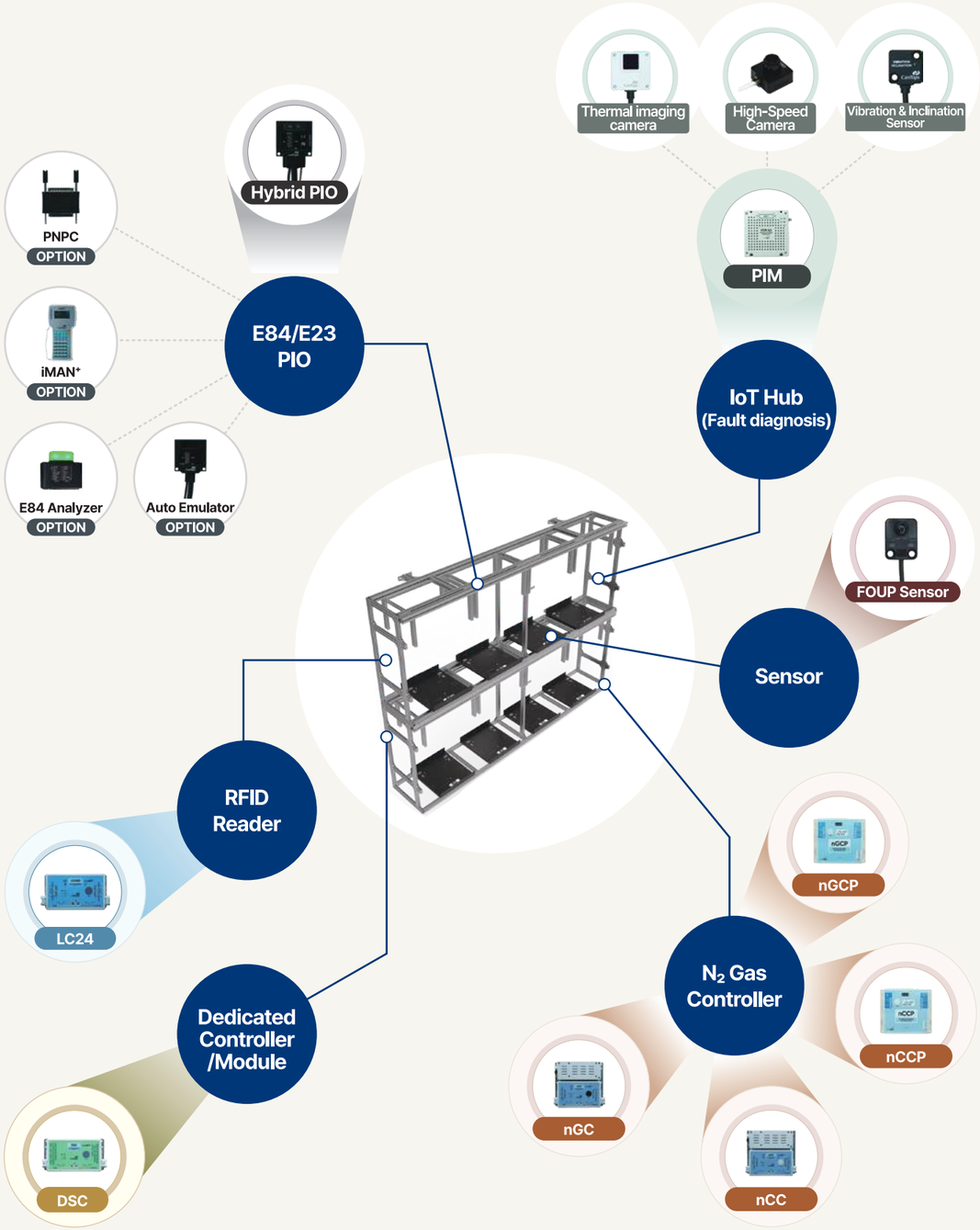
52p

Antenna
134.2kHz Antenna

FOUP Sensor
Contact sensor for detecting FOUP

Buffer STB, UTB / OHB

Engineered for high-performance FOUP buffer management, our integrated control solutions combine N_2 gas flow optimization, RFID-based traceability, wireless connectivity, and EtherCAT enabled motor control, ensuring enhanced safety, traceability, and throughput in semiconductor FAB.



E84/E23 PIO

32p

The World's No.1 Product

Hybrid PIO(HPIO)
RF/IR communication, (Parallel I/O Type)

OPTION

Auto Emulator
E84/E23 Sequence Auto Emulator

OPTION

iMAN+
Teaching Pendant for Maintenance

OPTION

E84 Analyzer
E84 Sequence Analysis and Notation

OPTION

PNPC
Converter (NPN to PNP Type)

IoT Hub(Fault diagnosis/Predictive Maintenance)

42p

PIM AX
Analog Signal IoT Hub

PIM CX
IoT Hub for EtherCAT communication

PIM A2
For 2-channel camera and analog signal

Scheduled Release

PIM C2
For 2-channel camera and EtherCAT

PIM X4
For 4-channel camera

High-Speed Camera
Compact, high-resolution camera

Thermal imaging camera
Compact, heat detecting sensor

Scheduled Release

Vibration&Inclination Sensor
Compact, Low-power Vibration&Inclination Sensor

N_2 Gas Controller

48p

nCC
All-in-One N_2 Carrier Controller and RFID Reader

nGC
N_2 Gas Controller

Scheduled Release

nCCP
All-in-One N_2 Carrier Controller and RFID Reader (Power-Line communication)

Scheduled Release

nGCP
N_2 Gas Controller (Power-Line communication)

Dedicated Controller/Module

54p

DSC
Controller for managing STBs with two or more stages

RFID Reader

38p

LC24
Standard Type 134.2kHz Multi-Channel Reader (EtherCAT Communication)

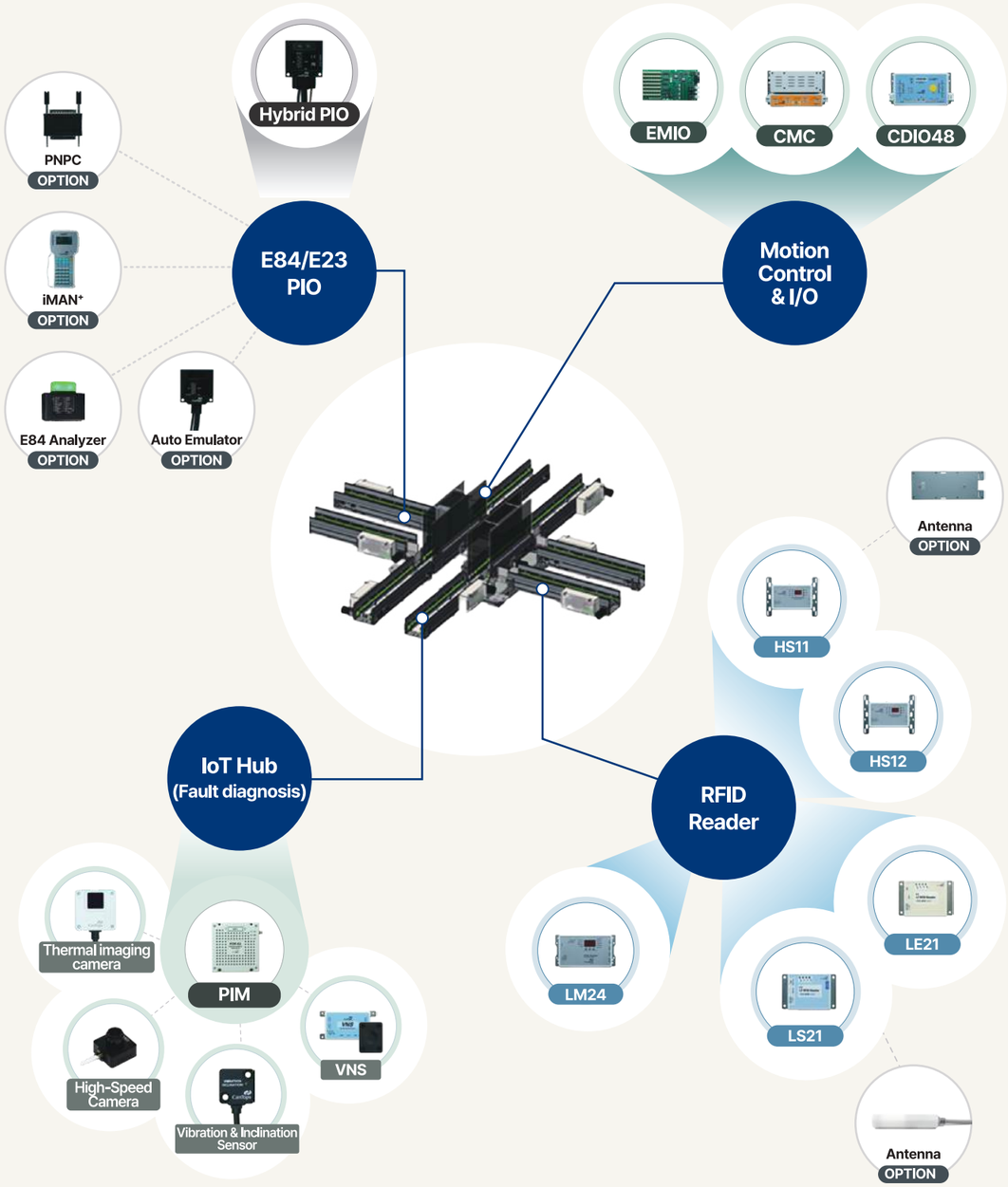
Sensor

52p

FOUP Sensor
Contact sensor for detecting FOUP

Conveyor

CanTops enhances FOUP transport performance by embedding cutting-edge technologies such as EtherCAT enabled RFID, wireless E84 protocols, precision step motors and intelligent control logic into conveyor systems. This results in reduced transfer time, improved equipment interoperability, and streamlined automation.



E84/E23 PIO

32p

Hybrid PIO(HPIO)
RF/IR communication, (Parallel I/O Type)

Auto Emulator
E84/E23 Sequence Auto Emulator

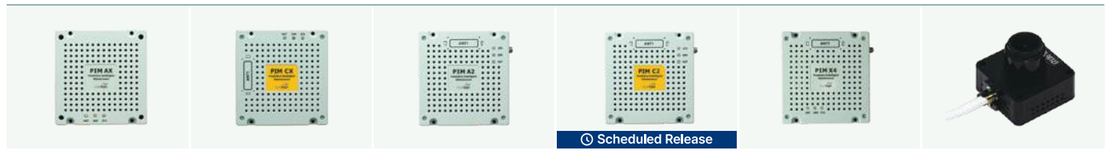
iMAN+
Teaching Pendant for Maintenance

E84 Analyzer
E84 Sequence Analysis and Notation

PNPC
Converter (NPN to PNP Type)

IoT Hub(Fault diagnosis/Predictive Maintenance)

42p



PIM AX
Analog Signal IoT Hub

PIM CX
IoT Hub for EtherCAT communication

PIM A2
For 2-channel camera and analog signal

PIM C2
Scheduled Release
For 2-channel camera and EtherCAT

PIM X4
For 4-channel camera

High-Speed Camera
Compact, high-resolution camera

Thermal imaging camera
Compact, heat detecting sensor

VNS
Scheduled Release
Broadband Noise and Vibration Sensor

Vibration&Inclination Sensor
Scheduled Release
Compact, Low-power Vibration&Inclination Sensor

RFID Reader

38p

LS21
Ultra-compact/lightweight 134.2kHz Reader (Serial Communication)

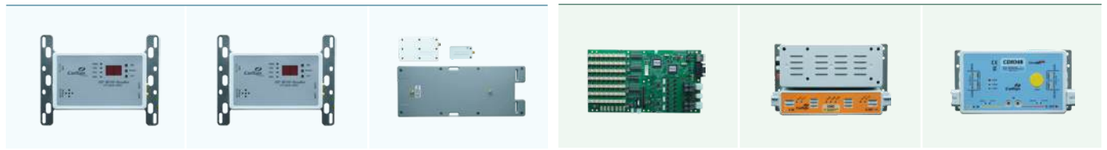
LE21
Ultra-compact/lightweight 134.2kHz Reader (Ethernet Communication)

LM24
Standard Type 134.2kHz Multi Channel Reader

Antenna
134.2kHz Antenna

Motion Control & I/O

50p



HS11
13.56MHz Single Channel Reader

HS12
13.56MHz Multi Channel Reader

Antenna
13.56MHz Antenna

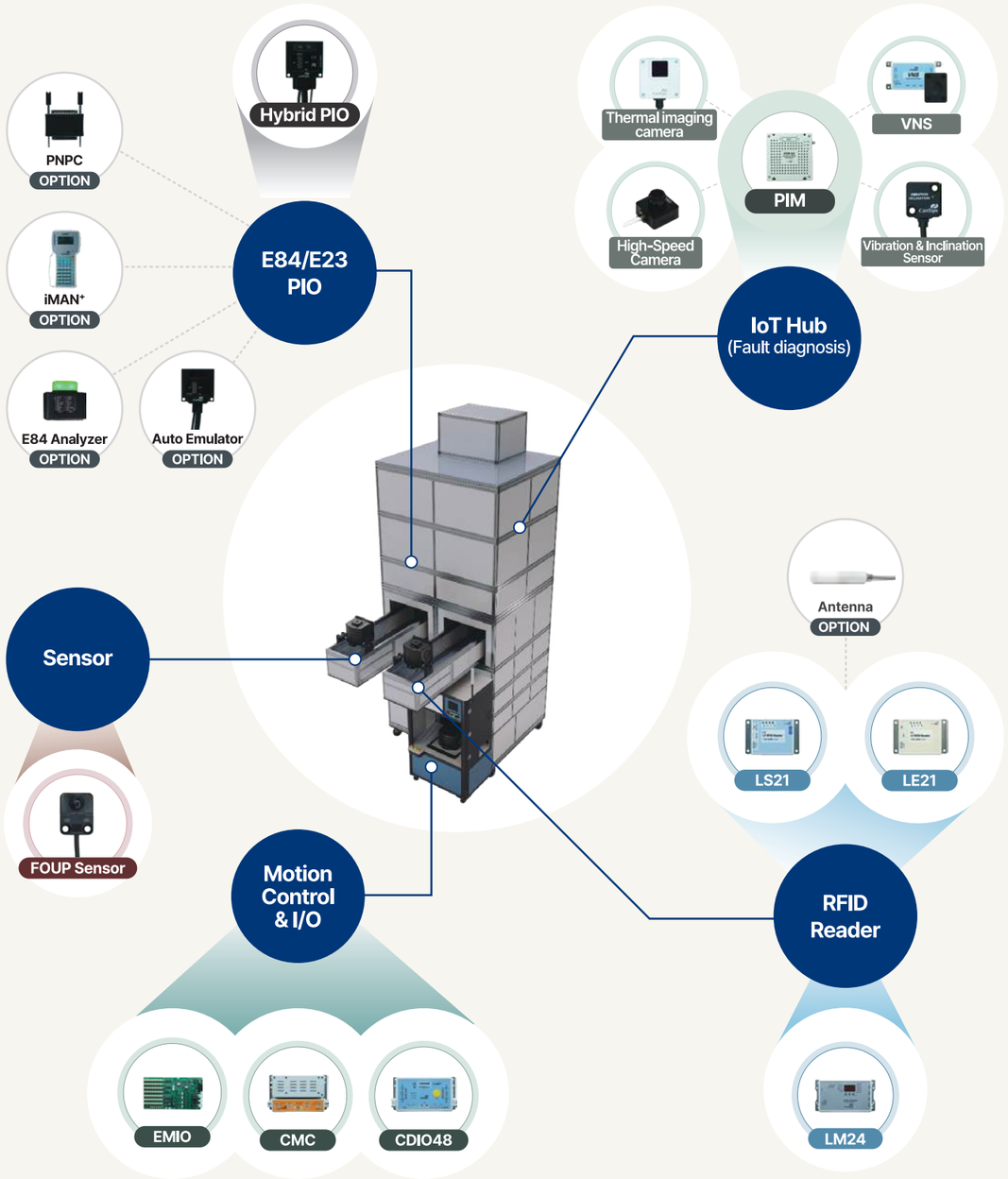
EMIO
Motion and I/O Integrated Controller (Ethernet Communication)

CMC
Motion Controller (EtherCAT Communication)

CDIO48
Digital I/O Module (EtherCAT Communication)

Tower Lifter

Designed to meet the demands of high-throughput semiconductor environments, our Tower Lifter solutions integrate RFID tracking, wireless E84 protocols, motorized lift control, and intelligent fault detection ensuring safe, efficient, and uninterrupted FOUP vertical transport.



E84/E23 PIO

32p

Hybrid PIO(HPIO)
RF/IR communication, (Parallel I/O Type)

Auto Emulator
E84/E23 Sequence Auto Emulator

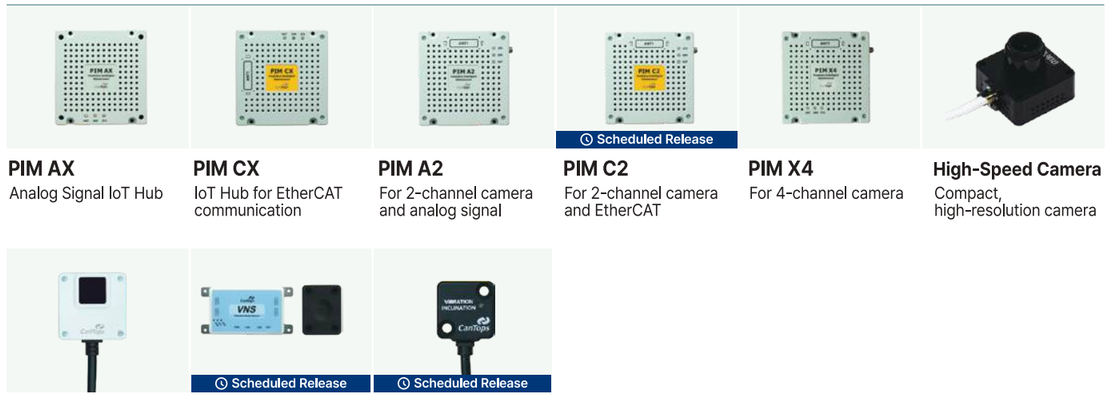
iMAN+
Teaching Pendant for Maintenance

E84 Analyzer
E84 Sequence Analysis and Notation

PNPC
Converter (NPN to PNP Type)

IoT Hub(Fault diagnosis/Predictive Maintenance)

42p



PIM AX
Analog Signal IoT Hub

PIM CX
IoT Hub for EtherCAT communication

PIM A2
For 2-channel camera and analog signal

PIM C2
Scheduled Release
For 2-channel camera and EtherCAT

PIM X4
For 4-channel camera

High-Speed Camera
Compact, high-resolution camera

Thermal imaging camera
Compact, heat detecting sensor

VNS
Broadband Noise and Vibration Sensor

Vibration&Inclination Sensor
Scheduled Release
Compact, Low-power Vibration&Inclination Sensor

RFID Reader

38p

LS21
Ultra-compact/lightweight 134.2kHz Reader (Serial Communication)

LE21
Ultra-compact/lightweight 134.2kHz Reader (Ethernet Communication)

LM24
Standard Type 134.2kHz Multi-Channel Reader

Antenna
134.2kHz Antenna

Motion Control & I/O

50p

EMIO
Motion and I/O Integrated Controller (Ethernet Communication)

CMC
Motion Controller (EtherCAT Communication)

CDIO48
Digital I/O Module (EtherCAT Communication)

Sensor

52p

FOUP Sensor
Contact sensor for detecting FOUP

Part 02

Specification of Product

E84/E23 PIO

SOLUTIONS LINE-UP

- The World's first Hybrid PIO integrating three communication media (5GHz, 2.4GHz, IR) into one
- The World's Best Quality proved by Major OHT Manufacturers and Semiconductor Companies Worldwide
- Delivering efficiency and securing the solutions free from the huge investment costs and risks of unnecessary duct construction

CanTops

Contributing to ESG Management and Policies

Improved worker safety and convenience,
and reduced carbon emissions

IoT-Enabled Implementation

Communication between OHT systems
using auxiliary communication functions

Applied at Over 1,000 Sites Worldwide

United States, Japan, China, Taiwan, South Korea, Germany, France, and more

E84/E23 PIO
SOLUTIONS

Communication method 01

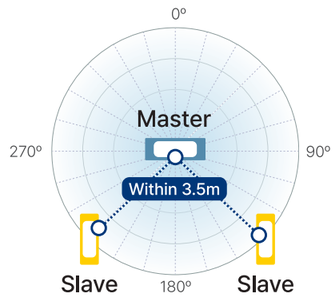
RF communication

No restriction on installation location and no need for unnecessary cable laying duct construction

Communication media 5GHz, 2.4GHz

Communication distance

Caution
Ensure installation within 3.5 meters without any metal obstacles in between.



Interface type
- Parallel I/O Type
- Serial Type (RS-232C, RS-485)
- RJ11 Modular Cable Type
- HLS Bus Type

IoT function
- Saves over 100 log data and time-stamped data
- Analyzes wireless communication delays caused by optical and electromagnetic noise interference
- Enables to exchange the key information through wireless communication between vehicles and equipment

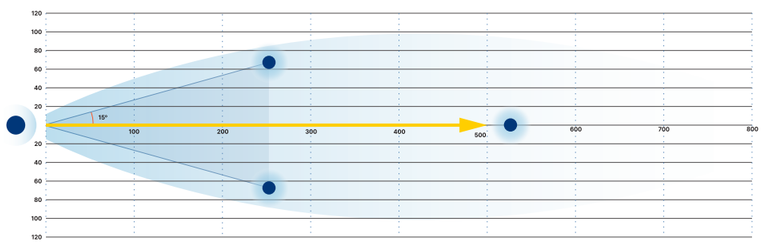
Communication method 02

IR communication

The World's best performance in optical and electromagnetic noise environments

Communication media IR(Infrared)

Communication distance and communication angle
- Easy configuration of communication distance by Software (0.3, 0.5, 0.7m)
- Precise communication angle (able to be use for recognition of correct position)

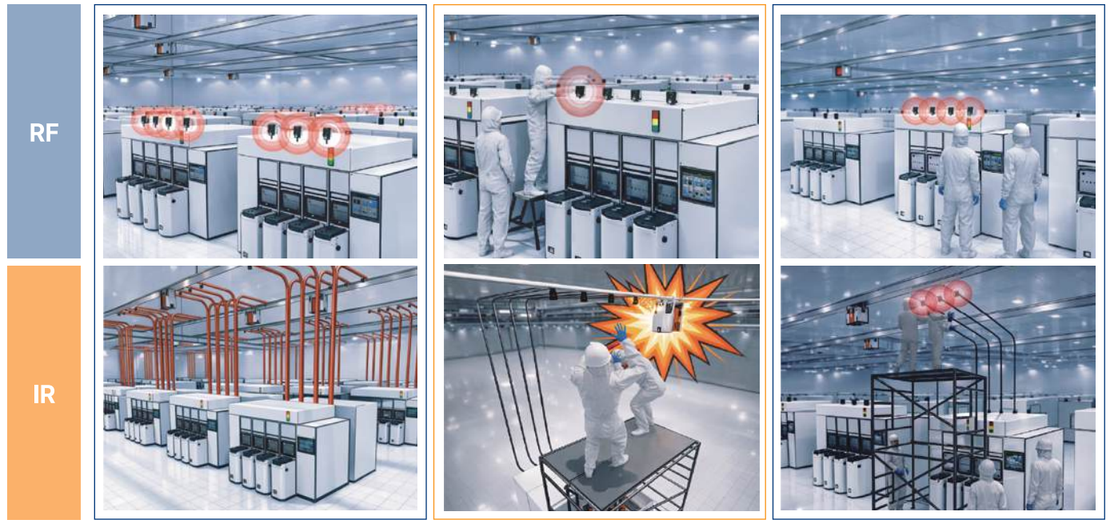


Wireless communication function(2.4GHz)
- F/W update, Log Download, Parameter change

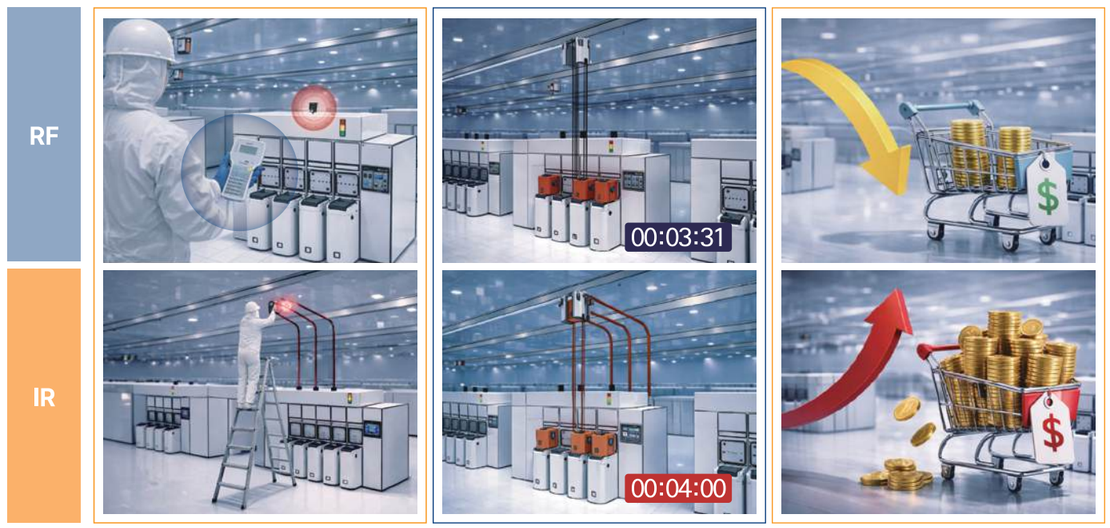
E84/E23 PIO
SOLUTIONS

Advantages of using RF PIO

Safe and convenient Fab line operation and maintenance without ladder work



Reduction of transfer and loading time of wafers and minimized construction costs



E84/E23 PIO
LINE-UP

Product line-up of E84/E23 PIO Supports multiple types of interfaces

Type	Hybrid				IR use only
Product	I/O	Serial	RJ11	HLS	I/O
					
Interface	Parallel I/O	RS-232C	RS-485, Parallel I/O	HLS Bus Type	Parallel I/O
Media	RF + IR				IR
Size(WxHxD)	50 × 60 × 20 mm				50 × 53 × 20 mm

RF Communication Specifications

Main Functions	• 8-bit I/O Data Transmission • Auxiliary Data Communication (OHT ↔ EQ) • I/O and Communication Status Logging
Communication Media	2.4GHz and 5GHz ISM Band, 1MHz Bandwidth
Frequency / Channels	• 2.4GHz : 2.400~2.525GHz 126 Channels • 5.8GHz : 5.725~5.852GHz 128 Channels
Communication Speed	1 Mbps High-Speed Communication
Communication Cycle	Approx. 20–30 ms
Communication Method	1:1 Communication, Half Duplex
Modulation Method	GFSK
Safety Functions	Unique ID Verification, CRC-16

IR Communication Specifications

Main Functions	• 8-bit I/O Data Transmission • Optical Noise Rejection • I/O and Communication Status Logging
Communication Media	870nm, Infrared
Frequency / Channels	• Distance: 0.5 m (0°), 0.25 m (±15°) • Angle: 30° (±15°) *Adjustable up to Max. 0.7 m Based on Center Reference
Communication Cycle	Approx. 23 ms
Communication Method	1:1 Communication, Half Duplex
Installation Position	T type : Top View / F type : Front View
Optical Modulation Method	Pulse Modulation
Communication Error Check	Parity
Ambient Light Conditions	Below 4,000 lx, Fluorescent Light, No Direct Sunlight

E84/E23 PIO
LINE-UP

Optional Solutions for PIO product

The optional solutions can be provided to customers for efficient Fab operation, enabling PIO parameter control, testing, and communication analysis

iMAN+ Teaching Pendant

Enables communication with HPIO using RF and IR communication.
Supports PIO emulation, parameter configuration, log download, and firmware update functions.

- Portable design with rechargeable battery
- Supports I/O check and HPIO configuration via wired and wireless communication
- Wireless log download without the need for high-altitude work
- F/W Update supported • 128 × 64 pixel LCD

Emulator Auto/Manual Emulator

A device designed to test and simulate OHT or equipment operation in compliance with SEMI-E84/E23 communication standards.

- Enables auto/manual E84/E23 emulation by replacing OHT or equipment (OHT/EQ)

PNP Converter NPN to PNP Converter

A device that converts NPN output to PNP
*Supplying voltage : 11 ~ 30V VDC

- E84 standard Pin Map
- 10 inputs, 9 outputs
- Reverse polarity protection function

Mounting bracket PIO-specific cover

Designed for easy PIO installation on equipment and seamless IR communication with iMAN+ Facilitates the optical link between HPIO and iMAN+ by utilizing reflection. without the need for high-altitude work

- Facilitates the optical link between HPIO and iMAN+ by utilizing reflection.

E84 Analyzer For E84 Sequence analysis

A device that can be installed between the equipment and PIO for logging I/O and checking the status of necessary I/O

- Log storage (over 100)
- Operation status of the I/O signals required to analyze the E84 sequence can be checked easily

Log Viewer PIO log analysis tool

SEMI-E84/E23 sequences can be visualized as a Time Chart and used to analyze operations for almost 100 Time Stamps

- Analyzing communication error between OHT and EQ, and custom timing of E84/E23

RFID Reader

SOLUTIONS LINE-UP

- World-class reading performance even in noisy environments
- Designed for semiconductor environments with superior durability, ensuring stable operation for over a decade
- Provides a more cost-effective and efficient solution through our product design technology that reduces equipment costs

Contribute to ESG management and enhance competitiveness

Leveraging more than four decades of expertise to reduce carbon emissions

IoT-Enabled Implementation

FOUP internal environment monitoring using Smart Tags integrated with various sensors

World-Class Reliability

Maintains superior reading performance even in diverse and noisy environments

RFID Reader
SOLUTIONS

Unique technology in global
Unique company having convergence technology sensor and Tags for FAB in the world

World's best quality
Proven performance and reliability with several hundred thousands ports shipped worldwide

Cost reduction with superior field support
Customized technical services can be provided by the top experts

Optimized solutions for semiconductor processes
Supports various interfaces : RS-232C, RS-485, Ethernet, EtherCAT

Supports diverse protocols

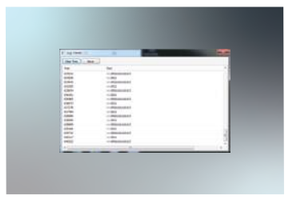
Able to Support various protocols such as SECS-GEM, HSMS, CanTops' own protocol and so on.

Solutions for optimizing the RFID usage environment

- Tag ambient electromagnetic noise detecting and filtering technology
- Stable operation even in metal adjacent locations
- Fast read and write time
- Various I/O for N_2 flow control
- Antenna operation indicator lamp
- Fast technical support through the cumulative know-how from various field experiences (Deployed in over several hundred thousand Ports)

RFID Reader Configuration Manager Program

- IP setup of RFID Reader
- Protocol changes of RFID Reader
- Communication interface setup
- Reader function test
- Supports communication commands
- Supports TCP/IP, Serial communication



Powerful error analysis

- More than 10,000 logs can be stored
- Communication data, error details and time can be verified
- Verifies the commands from Host

The world's first Smart Tag technology

-Able to measure vibration, level, temperature, humidity and pressure related to the Foup
-IoT implementation : Bluetooth, Wi-Fi, RS-232C, ISO11785
- Equipped with built-in tag functionality (compatible with TI RI-TRP-DR2B tag)

CanTops

RFID Reader
SOLUTIONS

Applications

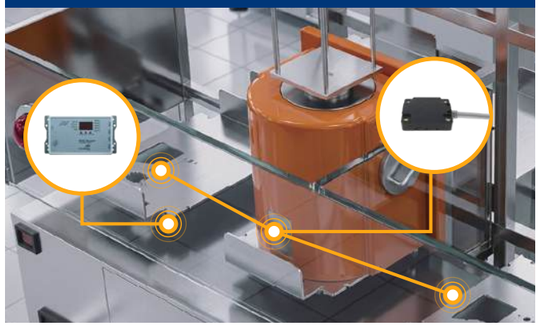
Our RFID Reader solution can be applied to various equipment and AMHS area with optimal solution and reliable reading performance providing cost reduction effect.

Equipment

Cost Down

Supports up to 4 ports with a single reader

Stocker



Cost Down

Supports up to 4 ports with a single reader

STB/OHB

Provides optimized solutions for STB/OHB

Supports minimized cable wiring and optimal antenna design

OHT

Superior reading performance even in the noisy environment inside

Ensures stable operation even under CPS, SMPS, and motor noise interference

RFID Reader
LINE-UP

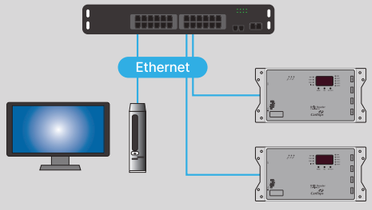
Product line-up of RFID Reader

Supports various kinds of communication protocols and interfaces

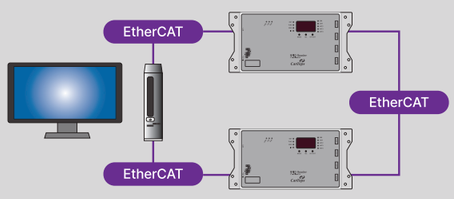
Line	FAB					Packaging & Test	
Product	LM24	LS21	LE21	LC24	nCC	HS1x	HM1x
							
Operating frequence(standard)	134.2kHz (ISO11785)					13.56MHz (ISO15693)	
Interface	RS-232C/485, Ethernet	RS-232C/485	Ethernet	EtherCAT		RS-232C, Ethernet	
Protocol	CanTops / SECS GEM / ASCII-H / Third-party protocols			CanTops		CanTops	
Port	4	1		4		1~4	
Current consumption	100mA	40mA		80mA	100mA	100mA	
Size(WxHxD)	185×97×41.2mm	78×66×38.5mm		185*97*65.7mm	185*97*65.7mm	123×77×37.7mm	
Features	One reader supports 4 ports	Ultra compact Serial Type	Ultra compact Ethernet Type	Reader for EtherCAT communication	N_2 control + Reader	One reader supports 1~4 ports	
Applied equipment	Load Port, Stocker	OHT, AMR, Stocker, Load Port		STB, Stocker, Conveyor	N_2 STB, Stocker	Bonding EQ, Conveyor	

Interface technology to be connected with various communication protocols

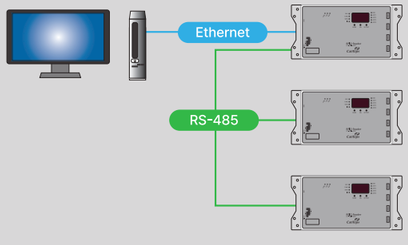
Ethernet HSMS / GEM, CanTops Protocol, Others



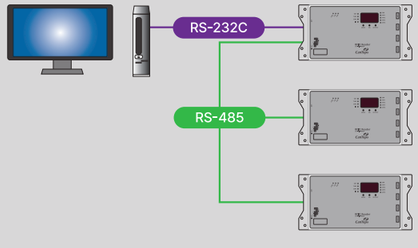
EtherCAT(LC24) CanTops Protocol



Ethernet + RS485 Expansion HSMS / GEM

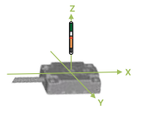
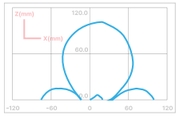
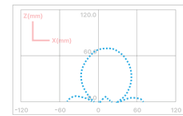
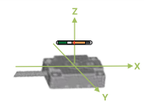
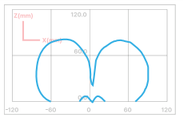
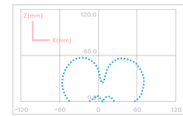
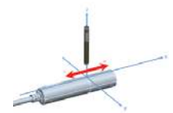
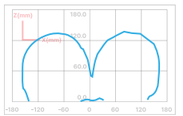
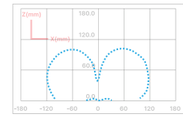
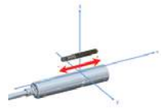
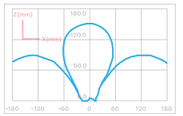
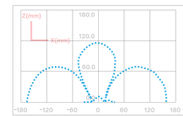
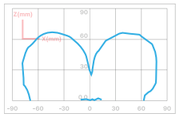
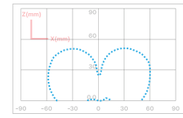
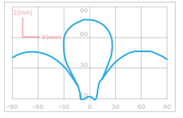
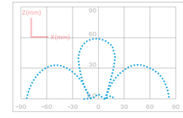


RS-232C + RS485 Expansion SECS-I / GEM

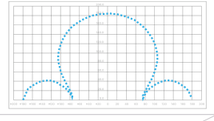
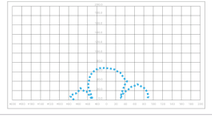
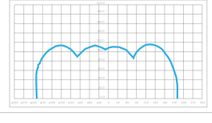
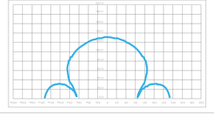
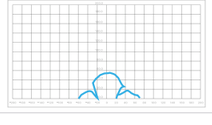


RFID Reader
LINE-UP

Operation range of 134.2kHz Antenna

Antenna Model	Tag Direction	Reading Area	Writing Area
 Square Type CTS-STBA-ECO			
			
 AC Type CTS-RFID-AC01			
 AB Type CTS-RFID-AB01			
 AO Type CTS-RFID-AO01			
			

Operation range of 13.56MHz Antenna

Antenna Model	Tray Tag Horizontal	MAG Tag Horizontal	Tray Tag Vertical
 CTS-RFID-HFAA			
 CTS-RFID-HFAB			
 CTS-RFID-HFAC			

IoT Hub

Fault diagnosis /Predictive Mainternance

SOLUTIONS LINE-UP

World's best IoT technology for the optimal operation of AMHS devices

Recognized for world-class quality by major global semiconductor manufacturers, this solution maximizes investment efficiency through the integration of diverse sensor convergence technologies.

CanTops

Providing Sensing Platform for **Physical AI**

Contribute to ESG management and enhance competitiveness

Maximizes ESG performance through optimized factory operation

OHT, Rail, FOUP

Comprehensive management of OHT, Rail, FOUP, and equipment status

Provides precise fault analysis based on over 40 years of accumulated field expertise

IoT Hub SOLUTIONS
Fault diagnosis /Predictive Maintenance

IoT Hub SOLUTIONS
Fault diagnosis /Predictive Maintenance

CanTops

Network | **IoT Server** | **Video Server** | **IoT AP**

Output Capacity
15W
Output current
0.63A

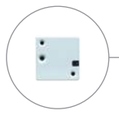
Energy Pickup
Power Pickup Device on Wireless Track Rail

Thermal imaging camera
Compact, heat detecting sensor

High-Speed Camera
Compact, high-resolution camera

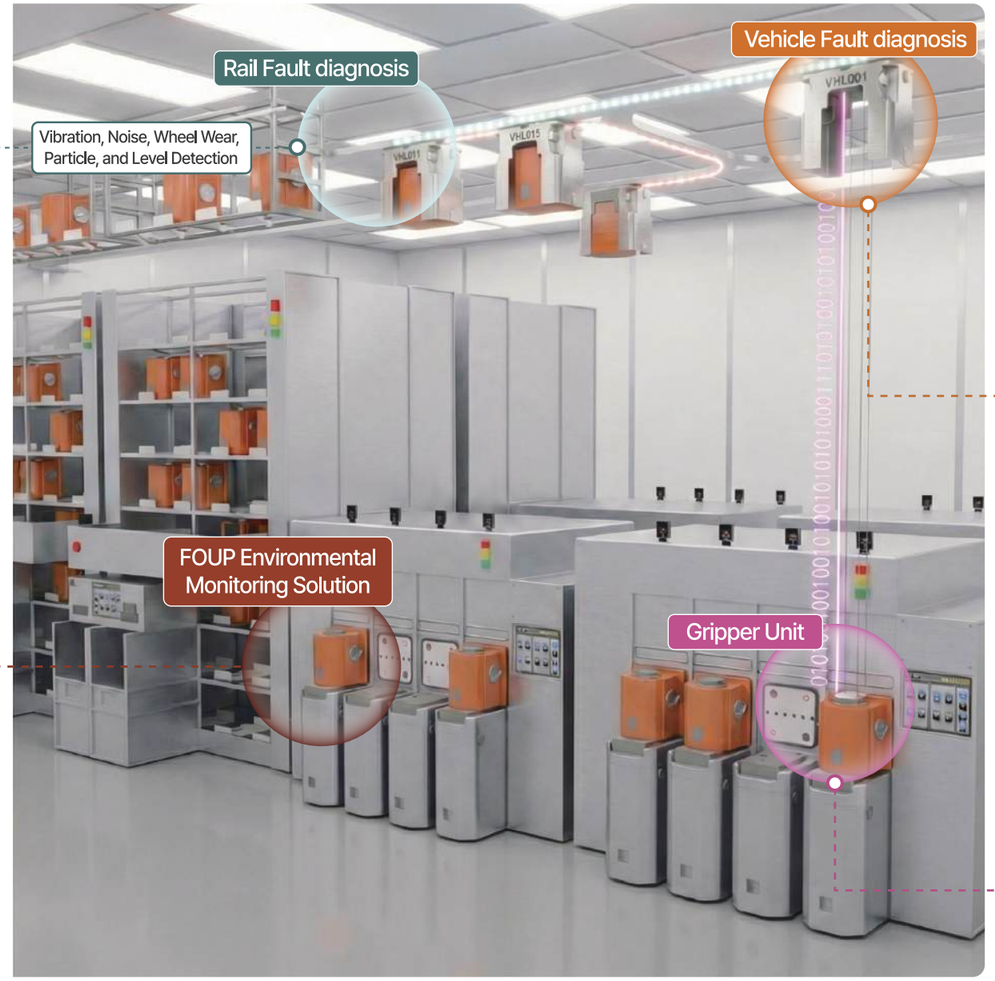
Vibration&Inclination Sensor
Compact, Low-power Vibration&Inclination Sensor

Noise Sensor
Compact, Low-power Noise sensor



Wi-Fi

PIM



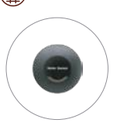
FOUP Environmental Monitoring Solution

Smart Tag G Type

Smart Tag P Type

Smart Tag C Type

Third-Party Sensor Integration Solution



Wafer-Type Vibration Sensor

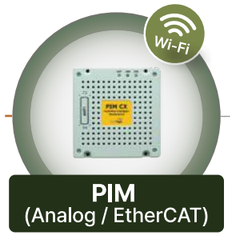
Particle Sensor

Gas Analyzer

PIM
IoT Solution for Monitoring the Status and Environment of Logistics Automation Equipment

- IoT Hub (Wi-Fi, Bluetooth,LAN)
- Equipped with Real-Time Wired or Wireless Streaming and Alarm Functions
- Detection of Abnormal Motor Speed/Torque
- Real-Time Location Data Synchronization Using OPS

Wi-Fi

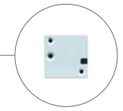


PIM (Analog / EtherCAT)

Detection of Abnormal Voltage, Vibration, Fire, and Belt Conditions

OPS
OHT Positioning Sensor

VNS
Vibration Noise Sensor



Noise Sensor
Noise Sensor for Monitoring Working Environment

Light Sensor
Compact and Low Power Consumption Light Sensor

High-Speed Camera
Compact and High-Resolution Camera

pCOM
Communication Device for Gripper Control

Thermal Imaging Camera
Compact and Cost-Effective Thermal Imaging Camera

IoT Hub LINE-UP

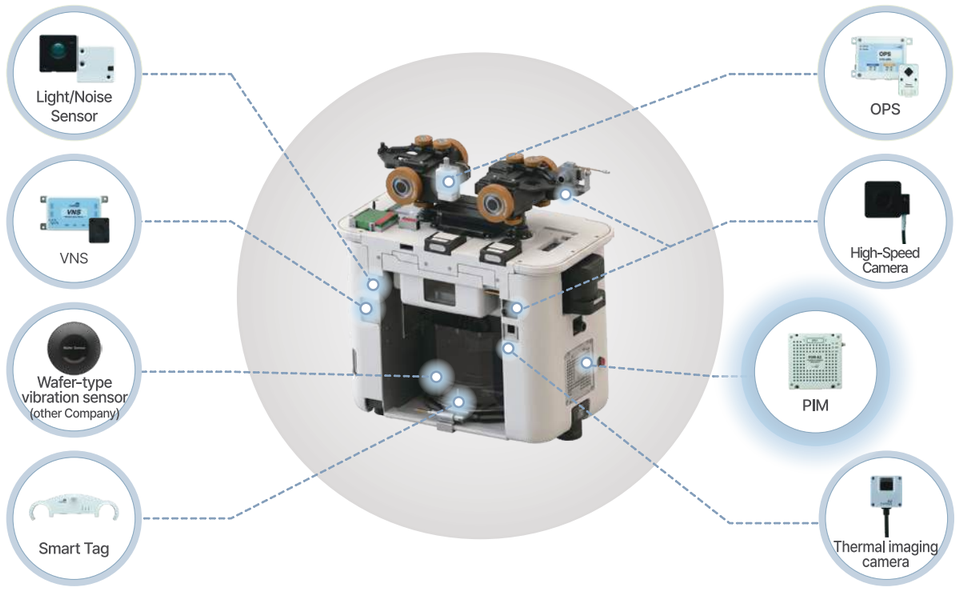
Fault diagnosis /Predictive Maintenance

Product line-up of **PIM**

Provides diverse solutions that are easily applicable to both new and existing equipment

Product	PIM AX Analog IoT	PIM CX EtherCAT IoT	PIM A2 Camera 2CH + Analog IoT	PIM C2 Camera 2CH + EtherCAT IoT	PIM X4 Camera 4CH
				 Scheduled Release	
Servo Pack Data	Analog	EtherCAT	Analog	EtherCAT	-
Number of camera channels	none		2	2	4
Types of built-in sensors	Vibration/ Inclination/ Wobbling/ Shock/ Temperature/ Humidity				-
Types of connectable sensors	Refer to the right PIM Sensor and wireless power solution				
SD card capacity	Supports two SD card slots for data and camera use : Up to 1.5TB depending on configuration.				Camera slot support : up to 1.5 TB (optional)

Examples of Product Installation on OHT



CanTops

PIM Sensor and wireless power solutions

Easily and affordably monitor equipment status using various sensors to measure vibration and temperature.
Our pickup device enables non-contact power access from existing rail lines.


Up to 4 cameras can be used

High-Speed Camera

High speed, high resolution camera

Interface	PoC(Power over Coax)
Resolution	• HD(1280 × 720 Pixel) FHD(1920 × 1080 Pixel)
FOV	• HD 87°H × 48.5°V FHD 109°H × 58°V
Size(WxHxD)	31 × 31 × 32.2 mm

High-Speed Camera (Integrated Lighting)

A high-speed camera with integrated illumination

- Integrated lighting structure
- Adjustable brightness
- Supports automatic strobe function

Scheduled Release

OPS(OHT Positioning Sensor)

OHT positioning sensor

Interface	RS-232C, RS-485
Accuracy	±3%
Size(WxHxD)	• 95 × 65 × 28.2 mm • 49.4 × 27 × 19.2 mm (Top View) • 44.3 × 27 × 14 mm (Front View)


Scheduled Release

OPS Pro(OHT Position Sensor)

OHT positioning sensor

Interface	RS-232C
Accuracy	±1mm
Size(WxHxD)	86 X 62 X 33 mm

Scheduled Release

VNS(Vibration Noise Sensor)

Vibration/ Noise monitoring device

Interface	Ethernet, USB 2.0
Range	• Vibration 2 ~ 16 G • Noise 20Hz ~ 20 kHz
Sample rate	Vibration 1kHz, Noise 32kHz
Size(WxHxD)	• 132 × 67 × 36.8 mm(Controller) • 43 × 33 × 12 mm(Sensor)

Thermal Imaging Camera

Ultra compact type, low price version

Interface	RS-232C, RS-485
Temp. Range	-40 ~ 300°C
FOV	110°H × 75°V
Size(WxHxD)	31 × 31 × 18 mm


Scheduled Release

Light Sensor

Ultra-compact, low-power

Interface	RS-232C
Lux Range	0 ~ 23,000 lx
FOV	140°
Resolution	1lx
Size(WxHxD)	39.8 × 39.8 × 17 mm


Scheduled Release

Noise Sensor

Noise sensor to measure the work environment

Interface	RS-232C
Range	0 ~ 120 dB
Resolution	0.1dB
Size(WxHxD)	39.8 × 39.8 × 17 mm

Scheduled Release

Smart Tag

Wafer and Carrier management sensor tag

- Use as the existing reader
- Battery-less measurement
- Measures Temperature / Humidity / Pressure / Vibration / Inclination
- Various custom shapes supported

Scheduled Release

Vibration & Inclination Sensor

Ultra-Compact Sensor for Abnormality Detection in Rail, STB, and OHT Systems

Interface	RS-232C, RS-485
Range	1~10,000ms
Incl. Accuracy	±4G (Minimum resolution) ±1mg
Transfer Rate	±20° (Minimum resolution) ±0.2°
Size(WxHxD)	19 × 19 × 9mm

Third-Party Sensor Integration Solution

Data collection using PIM (IoT Hub)

- Collecting sensor vibration data via Bluetooth through PIM
- Real-time, remote transmission of collected vibration data via Wi-Fi


Scheduled Release

Energy Pickup

Power pickup device on wireless track rail

Output Power	15W
Output current	0.63A

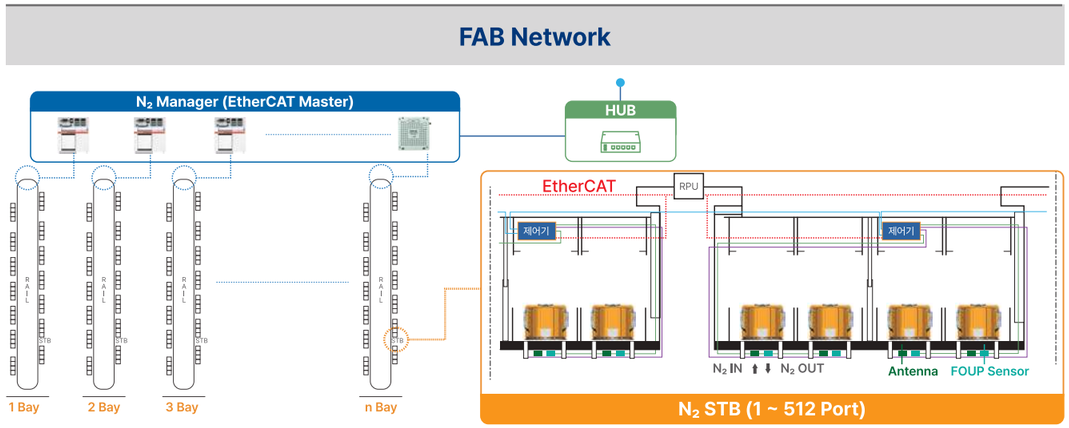
N_2 Gas Control

N_2 Gas control for STB/UTB and Stocker

- World's First EtherCAT-Based MFC Developed for STB Applications
- Developed with Over 40 Years of Expertise – Proven Quality with over several hundred thousands Ports in Operation
- Equipped with Core Technologies to Support Continuous Cost Reduction

N_2 STB : N_2 Gas flow control and status monitoring system

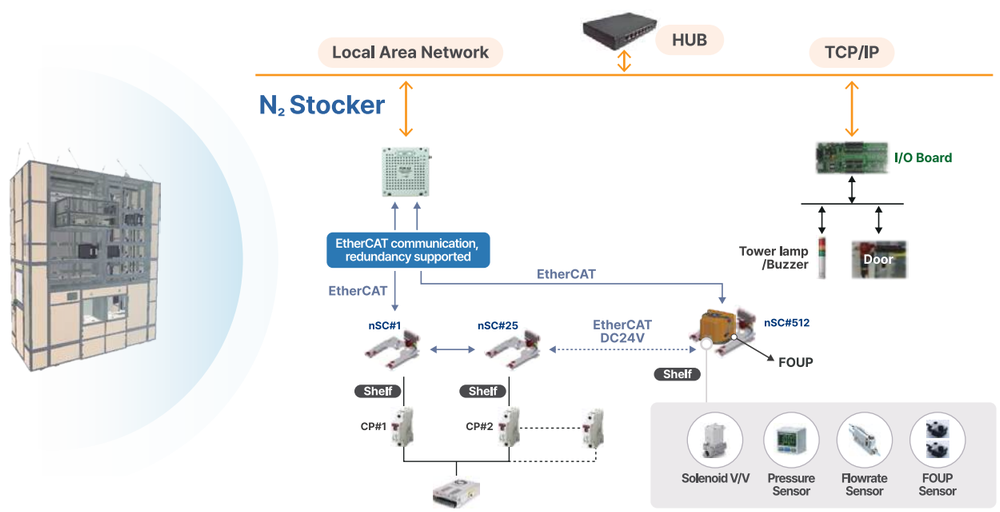
N_2 Gas flow control and Carrier status monitoring system for Carriers loaded into N_2 STB/UTB, including an optional Carrier ID management feature



N_2 Stocker : N_2 Shelf Controller

Integrates and manages 1 ~ 512 of Nodes with a single communication network

Real-time management system based on high-speed, high-reliability EtherCAT communication, controlling N_2 Gas flow for each shelf of the N_2 Stocker



N_2 Gas Control product

Line-up of N_2 Gas controller with EtherCAT communication

nCC

SMPS :
AC 100-240V, DC24V

N_2 Carrier Controller + RFID Reader (STB/UTB)

Strength

Stable operation even in noise environment

Features

- 134.2kHz RFID Reader
- Real-time sensor measurement, monitoring and I/O control
- N_2 flow PID control

Cost Down One reader supports 4 ports

nGC

SMPS :
AC 100-240V, DC24V

STB/UTB N_2 Gas Controller

Strength

Stable operation even in noise environment

Features

- Real-time sensor measurement, monitoring and I/O control
- N_2 flow PID control

nSC

MFC[(Note1)] Controller for N_2 Stocker

Strength

Compact size for installation in Stocker

Features

- EtherCAT based real time I/O monitoring and controlling system by each of shelf
- N_2 flow PID control

Cost Down Digital I/O Port : 4 points / 2 points
Analog I/O Port : 3points / 1 point

N_2 Gas Control product without communication lines

Line-up of N_2 Gas controller with power-line communications

nCCP

SMPS :
AC 100-240V, DC24V

Scheduled Release

No separate communication line required
N_2 Carrier Controller + RFID Reader

Strength

Stable communication through power-line, no separate communication line required.

Features

- 134.2kHz RFID Reader(nCCP)
- Real-time sensor measurement, monitoring and I/O control
- N_2 flow PID control

Cost Down One reader supports 4 ports

nGCP

SMPS :
AC 100-240V, DC24V

Scheduled Release

N_2 Gas Controller
No separate communication line required

Strength

Stable communication through power-line, no separate communication line required.

Features

- Real-time sensor measurement, monitoring and I/O control
- N_2 flow PID control

Cost Down One reader supports 4 ports

*Note 1) MFC : Mass Flow Control

Motion Control & I/O

Integrated controller combining step motor control and I/O

A high-performance controller capable of I/O and motion control using Ethernet, EtherCAT, and other protocols.
Providing a user-friendly development environment and allows selection of models best suited to specific applications.

EMIO
Ethernet Motion I/O Controller

Application

Stocker, Conveyor

Specifications
- Step Motor 2-axis (up to 6-axis stackable expansion)
- 2-Phase Bipolar (Unipolar motor compatible)
- Micro step : Full ~ 256
- 7A RMS/Phase(10A Peak/Phase)
- Digital Input/Output : 40points / 16points (up to 104 points / 80 points when expanded)

Features
- Ethernet, RS-232C
- S-curve speed profile applied
- Supports up to 4 axes of external drivers
- Motion I/O Library provided for development
- Photo-Coupler I/O isolation
- Supports 2-axis circular interpolation function

CDIO
EtherCAT Digital I/O Controller

Application

Stocker, Conveyor

Specifications
- Digital Input/Output : 12points/12points x 4Port
- (Option)Digital Input/Output : 12points/12points x 8Port

Features
- EtherCAT(supports redundancy)
- Digital Filter applied
- Development library provided
- Log can be verified

USB DIO
USB Digital I/O Controller

Application

X-ray inspection device

Specifications
- Digital Input/Output : 32points/32points
- Supports USB 2.0

Features
- Analog and Digital Filter Application
- Photo-Coupler I/O Isolation
- Up to 4-sheet expandability
- Development Library Provided (Windows API)

CMC
EtherCAT Motion Controller

Application

Stocker, Conveyor

Specifications
- Step Motor 1-axis
- 2-Phase Bipolar (Unipolar motor compatible)
- Micro step : Full ~ 256
- 3.1A RMS/Phase(4.4A Peak/Phase)
- Digital Input 6points

Features
- EtherCAT(supports redundancy)
- AC power input
- Expandable with Daisy Chain structure

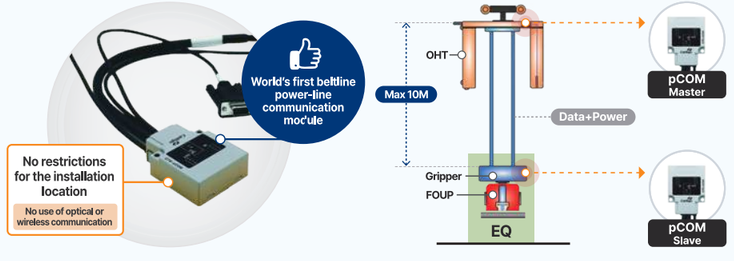
Gripper Controller

Gripper Control Solution for OHT and Robots

World's first system to control a gripper unit via serial communication over a power line (belt).
Fully utilizing all functions of the gripper controller. Real-time monitoring during operation enables fault diagnosis and analysis, making it an essential solution for efficient system management and predictive maintenance.

pCOM
Gripper Unit control solution based on power line communication

- Communication device for OHT Gripper control
- Immune to optical noise through wired communication using existing belt lines
- Real-Time Communication with Gripper Device via User Serial Port

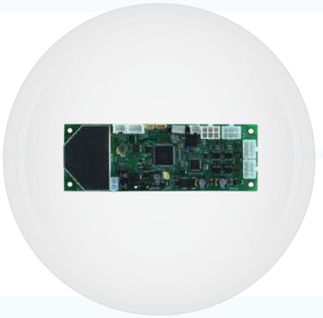


- Up to 10m of communication distance supported (essential for the lines using EUV equipment)
- 32 / 32-bit Input / Output supported
- User Serial communication port supported : RS-232C, RS-485
- Hand part's vibration, shock and tilt detecting function

pSMC
Power-line Smart Motion Controller

Power line of the Gripper and motion controller are integrated

Motion Controlling Function
- Built-in 1 axis of step motor driver
- Unipolar & Bipolar motor supported
- I/O 8 points can be controlled



pCOM Function
- Built-in power line communication function and no need of separate pCOM (Slave)
- 32 Bit I/O (16 Bit I/O + 16 Bit Serial)
- Supports User Serial communication port: RS-232C
- Gripper Unit's vibration, shock and tilt detecting function

Advantages of Integrating the Gripper Control Board with pCOM
- Reduced cable interference and cost savings (no Slave pCOM required)
- Improved signal stability and reduced malfunction risk
- Optimized installation space and reduced weight

Early Monitoring of Abnormal Signs
- Detection of gripper unit voltage, vibration (shock), and tilt
- Detection of abnormalities in the power-line belt
- Motion detection level setting function
- Motion detection alarm function: Digital Output

OHT Miniaturized Module

By applying a modularized design of control board, eliminating complex cable structures and minimizing the risk of wiring, installation space and connection efficiency has beem improved.

pCOM Module

Application
OHT

Specifications
- Communication device dedicated to OHT gripper control
- Power and data transmission through existing hoist belt line
- Immune to optical noise
- Real-time communication with gripper via user serial port

Features
- Minimizing installation space by integration of noise filter
- Simplifying the wiring by Module-type design
- Supports 32 / 32-bit Input / Output

Anti-Drop Module

Application
OHT, AMR

Specifications
- Step Motor: 1 axis
- 2 Phase Bipolar Motor (Unipolar motor compatible)
- Micro step : Full~256
- 3.1A RMS/Phase (4.4A Peak/Phase)
- 6 Digital Input

Features
- Diagnostics of Motor status (Open, Short detection)
- Measurement of Power voltage and current
- Measurement of Board temperature
- Detection of Inclination / Vibration / Shock
- Simplifying the wiring by Module-type

Steering Module

OHT

Features
- Simultaneous control of two steering motors
- Current level configuration (16 steps)
- Modular design for simplified wiring

Lamp

OHT, AMR

Features
- Compact design for space saving
- Three-color high-brightness LED (Red, Yellow, Green)

Sensor

Sensor solution suitable for the AMHS system

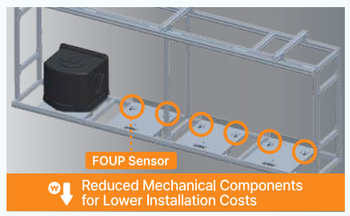
Compact and optimized design ensures easy installation and testing, while providing excellent stability and reliability for continuous operation.

FOUP Detection Sensor

Designed to recognize wafer carriers such as FOUP, FOSB, POD, and MAC used in semiconductor production lines.
Built with a high-durability mechanism capable of over 10 million operations, it ensures long-term stable performance.
The sensor features built-in protection circuits against reverse voltage, overheating, electrostatic discharge (ESD), and overcurrent

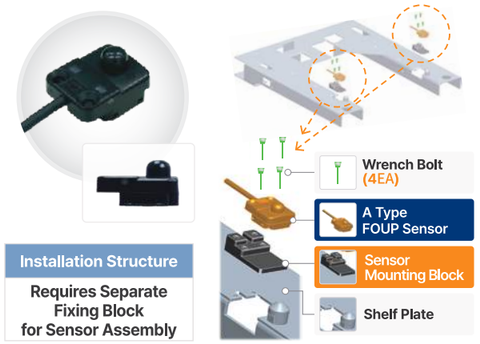
※ Applications : STB, UTB, Load Port, Stocker, Conveyor

- Head, Cable, and Connector Customizable
- Mini size (W x H x D) 20 × 25 × 9 mm
- Supports Push-to-OFF / ON Type
- Supports NPN and PNP Output Types
- Built-in Indicator LED for Status Monitoring



FOUP Detection Sensor – Type A / Type B Comparison

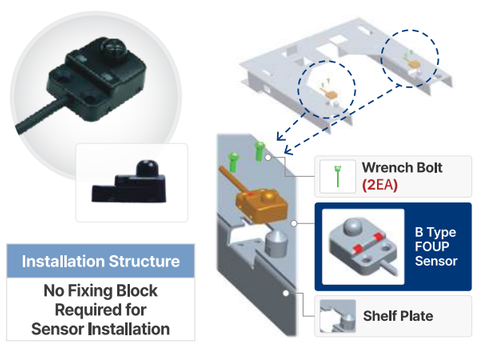
A Type



Installation Structure

Requires Separate Fixing Block for Sensor Assembly

B Type



Installation Structure

No Fixing Block Required for Sensor Installation

FOUP Detection Timing Chart

	Push to OFF Type CTS-STBS-A(NPN Type)/C(PNP Type)					Push to ON Type CTS-STBS-B(NPN Type)/D(PNP Type)				
Detection object FOUP, POD etc.	Off	On	Off	On	Off	Off	On	Off	On	Off
Indicate LED	Off	On	Off	On	Off	On	Off	On	Off	On
Output TR	On	Off	On	Off	On	On	On	Off	On	Off
Load Photo Coupler, Relay etc.	On	Off	On	Off	On	Off	On	Off	On	Off

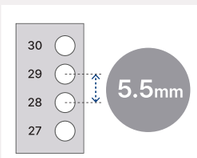
LiDAR Checker

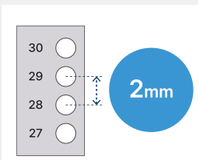
Designed to improve the accuracy of LiDAR sensors, one of the core components in mobile robots.
It precisely measures the angle and intensity of laser beams emitted from the LiDAR sensor, playing a critical role in diagnosing sensor faults and ensuring reliable performance.

- **IoT Integration via Wireless and Serial Communication with iMAN**
- **Dual Sensor Integration Function**
  Capable of precisely measuring the emission angle of laser beams from LiDAR sensors
- **2G RF Communication**
  IR & RF Communication Between Units
  Built-in Motion Sensor and Li-ion Battery

LiDAR Checker – 1st Gen vs. 2nd Gen Comparison

1st Gen	2st Gen (Scheduled Release)
Checks Left and Right Horizontal Angle of Laser Beam	Left/Right Horizontal Angle Check and Intensity Measurement of Laser Beam
5.5 mm Laser Beam Detection Pitch	2mm Laser Beam Detection Pitch
LED Color Indicates Horizontal Alignment of Laser Beam	FND Display for Visualizing Multiple System Parameters
RS-232C Interface for Serial Data Transmission	Compatible with RS-232C and RS-485 interfaces

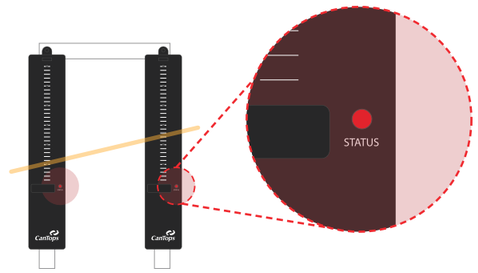




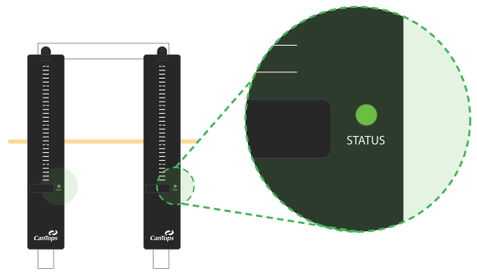
LED Provides Simple Horizontal Alignment Check

When the beam angle is level, a green LED lights up for quick and easy confirmation

When a different number is lit **Red LED Indicator**



When a same number is lit **Green LED Indicates**



Dedicated Controller/Module

AMHS Control Devices

Developed by combining over 40 years of accumulated expertise with innovative technology.
Provides a wide product lineup including OHT control, Load Port control, and Wafer Aligner control.

Align Controller

Equipment wafer alignment controller

Application: EFEM

Specifications
- Communication device for OHT gripper control
- Power and data transmission via existing hoist belt line
- Immune to optical noise
- Real-time communication with gripper via user serial port

Features
- Minimizes installation space by eliminating filters
- Simplified wiring through modular design
- Supports 32/32-bit I/O

Load Port Controller

Equipment wafer loading/unloading control

Application: EFEM

Specifications
- Step Motor 1 axis
- 2-Phase Bipolar(Unipolar compatible)
- 2.3A RMS/Phase(3.25A Peak/Phase)
- Digital Input/Output : 56 in / 36 out
- Micro step : Full ~ 256

Features
- RS-232C, RS-485
- S-curve speed profile
- External driver support
- Motion I/O development library provided
- Photo-coupler I/O isolation
- Encoder input (Differential, Single-ended)

Custom I/O Board

Integrated board for peripheral device control

Application: EFEM, AMR

Features
- Integrated interface board for the connection of various peripheral devices
- required for the VHL control
- VHL quality is improved by minimizing the complex wiring
- Cables are minimized
- Space saved and weight minimized

DSC (Dual STB Controller)

Dual STB control

Application: STB/UTB

Specifications
- Step Motor 4axes
- 2-Phase Biopolar(Unipolar compatible)
- 4.6A RMS/Phase(6.5A Peak/Phase)
- Digital Input/Output : 26in /16out
- Micro step : Full ~ 256

Features
- EtherCAT communication (supports redundancy)
- S-curve speed profile applied
- SEMI-E84 SW logic built-in on the equipment side
- External vibration sensor linkage

Wireless LAN Module

OHT wireless module with strong resistance to electrical noise

Scheduled Release

Application: OHT, AMR

Specifications
- IEEE 802.11 a/b/g/n/ac/ax (Wi-Fi 6)
- Dual Carrier Modulation
- Dual band : 2.4GHz, 5GHz

Features
- Wired/Wireless positioning device
- Simultaneous use of 2 bands (2.4GHz, 5GHz)
- Powerful logging function
- Simple controlling function through WebGUI

LCD Panel

LCD Panel for Displaying OHT Information

Scheduled Release

Application: OHT, AMR

Specifications
- 4.3inch(Diagonal) TFT LCD
- Resolution : 480×272
- Size : 140×70×8.3mm
- Interface : RS-232, RS-485

Features
- Compact and lightweight design
- External speaker connection (alarm, warning sound output)

Buzzer Module

Compact buzzer module for alarms and warnings

Scheduled Release

Application: OHT, AMR

Specifications
- Input Power: 2W
- Impedance: 8 Ohms
- Sensitivity: 85 dBA (@1W/1m)
- Size: 75 × 75 × 20 mm

Features
- Alarm and warning message output and storage
- Supports I/O or serial interface
- Controllable via LCD module

CanTops

aCC Anti-Collision Controller

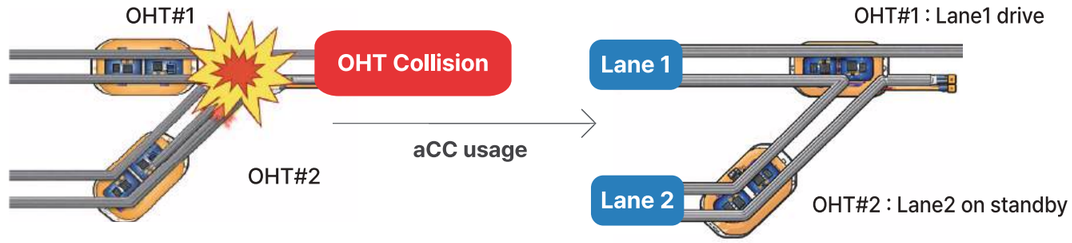
Wireless and Position-Recognition-Based Merge Collision Prevention Controller (World's First)

Enables high-speed control without deceleration at OHT merge points, maximizing material handling efficiency.

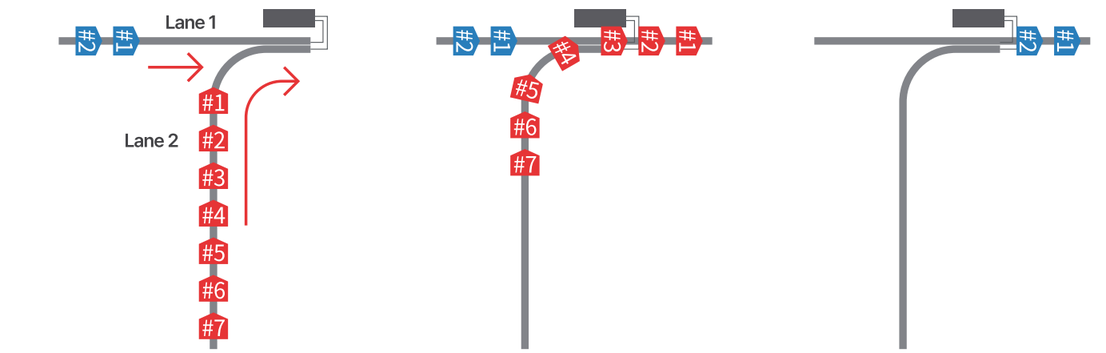
aCC(anti-Collision Controller) OHT collision prevention controller

- For the collision prevention between Vehicles at rail junction point
- The vehicle can pass through the junction point at the speed of 5 m/sec without congestion
- Enables high-speed operation with real-time communication for up to 7 units simultaneously

Examples of aCC usage



Example of junction handling during OHT operation



Thank you for your consideration

CanTops will lead future industries through continuous technological innovation and a spirit of challenge, delivering new value to customers and society.

CanTops