

Ordering Information

Model	CM4 Module	Memory	Storage
CPI-PS10CM4-2E021	Raspberry Pi	2GB RAM	Raspberry Pi OS + CODESYS®
CPI-MS10CM4-2E021	Compute Module 4		Raspberry Pi OS

Ordering Information

	Item	Specification
CM4 module	Module	Raspberry Pi Compute Module 4
	CPU	Broadcom BCM2711 quad-core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz
	GPU	VideoCore VI® 500MHz
	Memory	2GB LPDDR4-3200 SDRAM
	Storage	16GB eMMC flash memory
Interface	Resolution output	HDMI 1.4 x1 (resolution: up to 1920x1080)
	LAN	100BASE-T / 100BASE-TX / 10BASE-T RJ-45 connector x1 (built-in CM4 module x1) 100BASE-TX / 10BASE-T RJ-45 connector x1 (Microchip LAN9512 x1)
	USB	USB 2.0 Type-A x2, USB 2.0 Micro-B x1 (for OS writing)
	NVMe	PCIe Gen2 type2242 Key-M
	Digital input/output	DI x2 (non-isolated), DO x1 (solid-state relay output, isolated)
	External power output	8 to 28 VDC power output, max. 2A (output voltage depends on DC input voltage) 5V ±5%, 500mA (Max.) ^{*1} under following condition: No expansion board installed, 0A power output on 5VDC bus, USB device supply 1.0A, with SSD installed
	LED	Power LED, status LED, access LED, active LED
	SW	Power switch, configuration switch (interrupt notification signal)
	RTC	Yes, battery installed
	Rated voltage range	8 to 28VDC
Power supply	Power consumption ^{*2}	At 0A external power output: 8VDC 4.0A (max.), 28VDC 1.1A (max.)
	Operating ambient temperature ^{*3}	-20 to 50°C (-4 to 122°F, no airflow) -20 to 60°C (-4 to 140°F, with 0.7 m/s airflow)
Dimensions		82.9 (W) × 56.5 (D) × 61.7 (H) mm (3.26 × 2.22 × 2.43 in) Excluding mounting brackets and protrusions
Compliance		CE marking (EMC Directive Class A, RoHS Directive); FCC Class A; UKCA; VCCI Class A

*1 Ensure that the total power consumption does not exceed the available power output.

*2 A 5A fuse is built in for overcurrent protection.

*3 The 5V output current may be limited depending on the ambient temperature. (Refer to the manual for details.)

Options

HAT-sized Expansion Board

Model	Function
CPI-AI-1208LI	Bus isolated analog input 12-bit 8ch (Differential 4ch), Voltage input / Current input
CPI-AO-1602LC	Bus isolated analog output 16-bit 2ch, Voltage output / Current output
CPI-SSI-4C	Thermocouple input: 4 differential channels
CPI-DIO-0808L	Opto-isolated digital inputs 8ch and opto-isolated digital outputs 8ch
CPI-DIO-0808RL	Opto-isolated digital inputs 8ch (negative-common) and opto-isolated digital outputs 8ch (negative-common)
CPI-DI-16L	Opto-isolated digital inputs 16ch
CPI-DO-16L	Opto-isolated digital outputs 16ch
CPI-DO-16RL	Opto-isolated digital outputs 16ch (negative-common)
CPI-RRY-16	Semiconductor relay outputs 16ch
CPI-CNT-3201I	Opto-isolated input 32-bit up/down counter 1 ch, Single phase input/Two-phase input (A/B/Z)

Others

Product Name	Model	Description
DIN Rail-Mount Power Supply	CPS-PWD-30AW24-01	Embedded power supply, 30W (Input: 100-240VAC, Output: 24VDC 1.3A)
	CPS-PWD-90AW24-01	Embedded power supply, 90W (Input: 100-240VAC, Output: 24VDC 3.8A)
DIN Rail Mounting Kit	CPI-DIN01	Simple mounting onto DIN rails. Wall mounting and desktop installation are also supported.
Spacer Set for Raspberry Pi 5 (for 2 units)	CPI-SPA01-2	Spacer for attaching CPI series to the Raspberry Pi 5

Ordering Information

Item		Specification
CODESYS Control Standard S	Supported Protocols	EtherCAT / PROFINET / EtherNet/IP: 1 Instance PROFIBUS / Modbus: 4 Instances
	Number of I/O Channels	512
	Code Size	3MB
	Visualization	Supports up to 128 Tags (Target Visualization / Web Visualization)
	OPC UA	OPC UA S
	DataSource Manager	Yes
	Reloadable C code	Yes
	Core assignment of IEC task groups	—
CODESYS Communication S	License Details	Symbol Configuration, Communication Manager, Data Source Manager (up to 512 Tags)
CODESYS Visualization S	License Details	Target Visualization / Web Visualization (up to 128 Tags)
Upgrade License	Each performance category (Runtime, Visualization, Communication, Motion) offers upgrade licenses, allowing users to upgrade from a lower-tier license to a higher-tier license. Downgrading from a higher-tier license to a lower-tier license is not permitted.	



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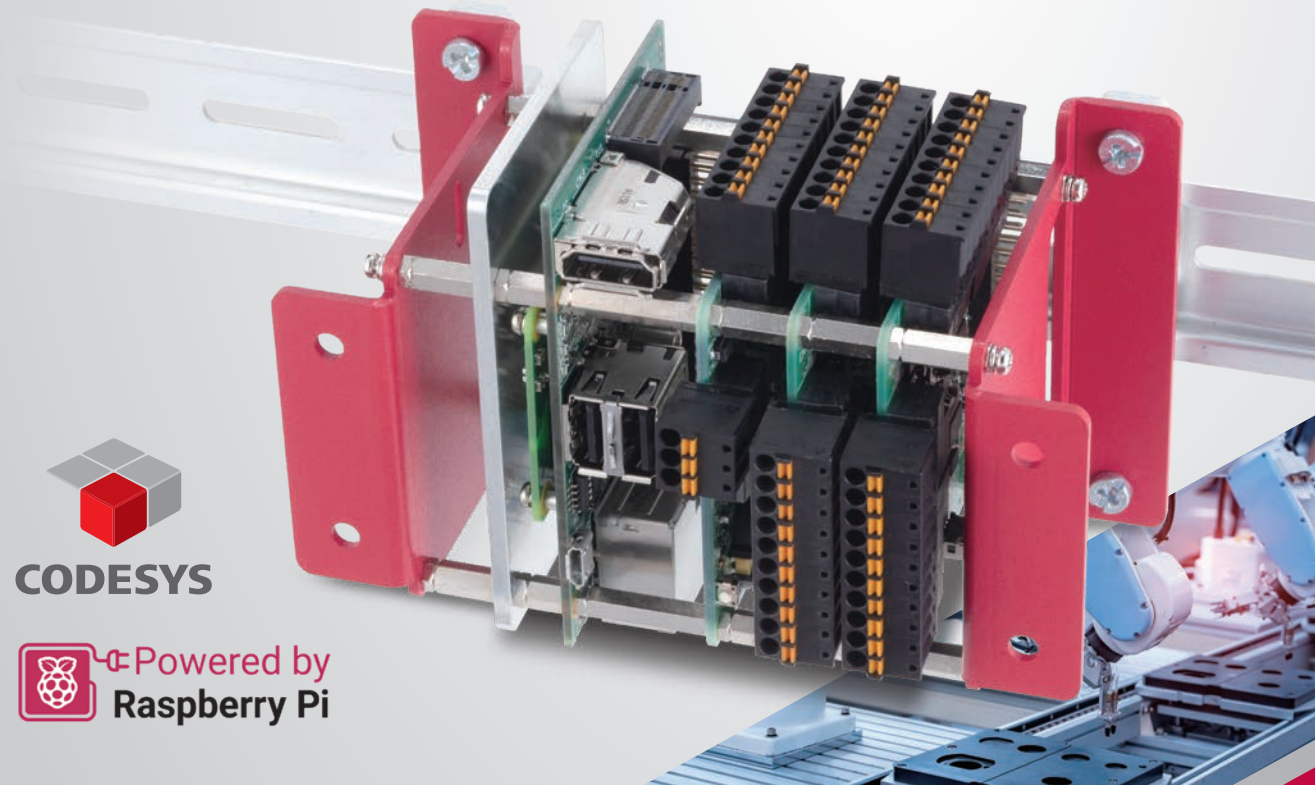


Technology for a better life

Featuring World-Standard CODESYS® Software PLC

Compact All-in-One Embedded PLC

Based on **Raspberry Pi 4**



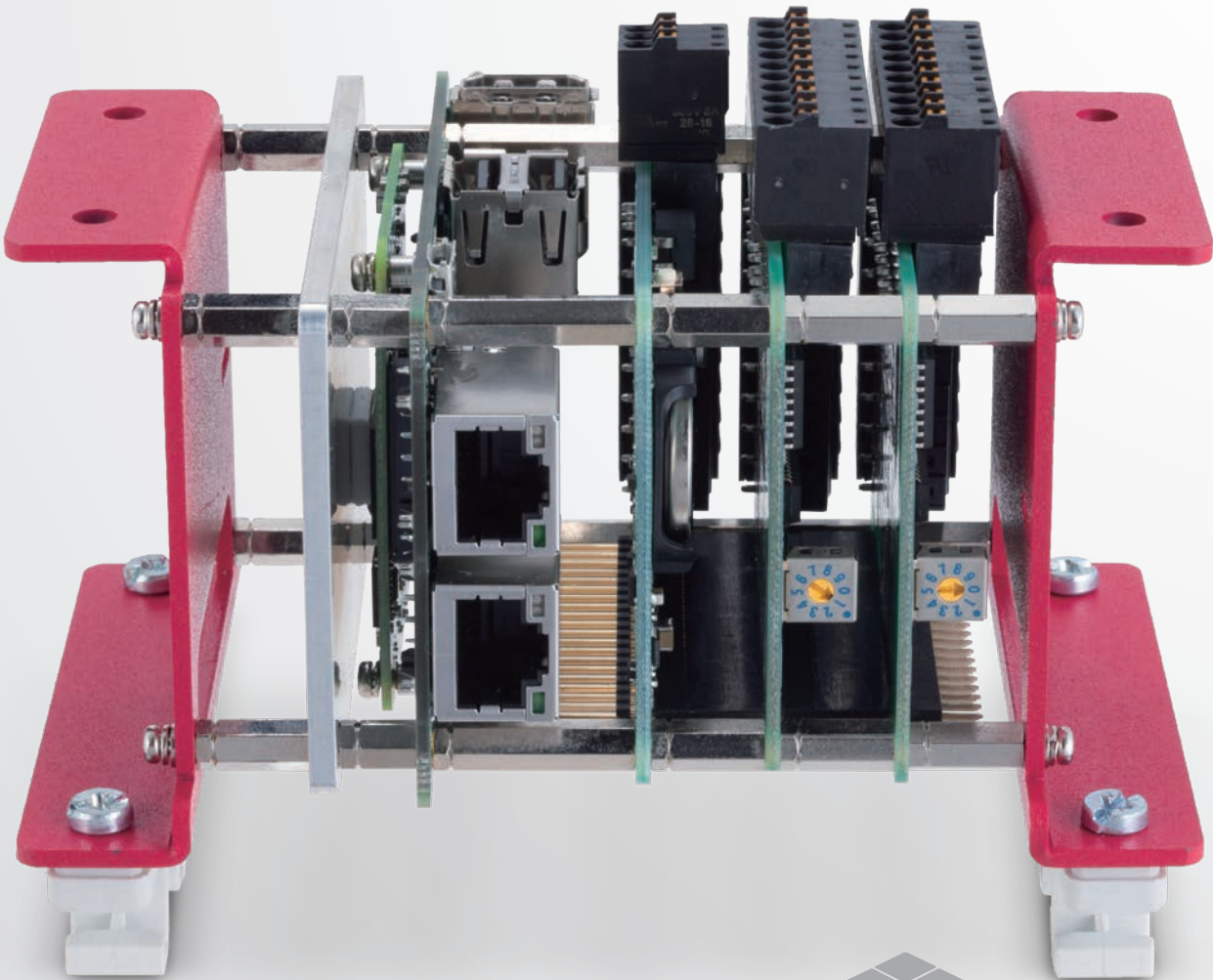
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Featuring World Standard CODESYS® Software PLC

Compact All-in-One Embedded PLC

Based on **Raspberry Pi 4**,

For more than 40 years, Contec has led the market in PC-based electronic measurement and FA control through an extensive lineup of expansion cards for measurement control that supports a wide range of sensors and field devices.



Unlock New Possibilities with CONTEC

Features

**Fully Compatible with
Raspberry Pi 4**

**Scalable Expansion
Using CONTEC
HAT-Size I/O Cards**

**Ready to Use with
Pre-installed
CODESYS Runtime**

**Built-in Support
for Industrial
Open Networks**

Bringing the convenience Bringing the ease

Under the motto of “Bringing the ease of PCs to FA,” Contec has been developing interface cards for building PC-based measurement control systems since the introduction of the first personal computers (hereinafter “PCs”) in 1982. For more than 40 years, Contec has continuously adapted to technological innovations in expansion buses and operating systems, thus contributing to the expansion of industrial applications of PCs.

Advantages of Raspberry Pi

Recognizing the growing use of Raspberry Pi in industrial applications, Contec entered the Raspberry Pi market in 2021 with the launch of HAT (Hardware Attached on Top)-sized I/O cards. In 2022, Contec expanded its lineup to enhance support for open general-purpose technologies, followed by models pre-installed with CODESYS as well as models running Raspberry Pi OS in 2024. Contec also plans to introduce additional products in 2025 to further expand options for users.



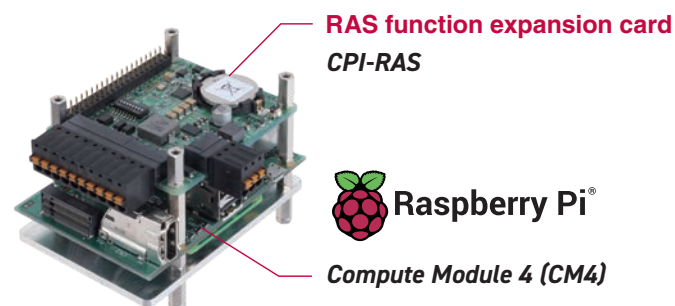
Integration of Global Standard Technology

The CPI Series is the compact, all-in-one embedded PLC originally developed by Contec, built on the latest Raspberry Pi Compute Module 4 (CM4). Designed for industrial automation and IoT applications. Contec's latest model comes pre-installed with CODESYS and Raspberry Pi OS, enabling users to develop their own software in-house.

Highly compatible with Raspberry Pi 4	Industrial grade products with enhanced reliability and environmental resistance
Pre-installed with CODESYS®	High-speed, high-capacity PC technology for advanced PLC functionality
I/O expansion with HAT-sized cards	Comprehensive application of Raspberry Pi peripheral devices
IoT and industrial open network support	Equipped with Web HMI and OPC UA server/client functionality

Highly compatible with Raspberry Pi 4

Originally developed as an instructional card in 2012, the Raspberry Pi—now in its fifth generation—has continued to evolve while staying true to its original concept. To date, more than 60 million units have been shipped, including industrial-grade Compute Modules. The Raspberry Pi Foundation reports that more than 60% of its sales in 2023 were for industrial and embedded applications. To ensure high compatibility with Raspberry Pi 4, Contec has adopted Compute Module 4 (CM4) for its products. Contec has also developed RAS function expansion cards equipped with essential features for industrial controllers—including RAS/RTC functionality, a watchdog timer, and hardware monitoring—to deliver the reliability and environmental resistance required for industrial applications.



Compute Module 4 (CM4)

Specifications

- Quad-core Cortex-A72 (ARMv8) 64-bit SoC @ 1.5 GHz
- 2 GB high-speed DDR4 memory
- 16 GB eMMC storage
- Basic processing speed (LD instruction): 1.86 ns (*Measured by Contec)
- Applied processing speed (ST instruction): 2.06 ns (*Measured by Contec)
- Program capacity: 3 MB
- Number of I/O tags: 512 (*16-bit data counted as one tag)
- Interfaces: 1 × 1000 Mbps LAN, 1 × 100Mbps LAN, 1 × HDMI, 2 × USB
- M.2 Key M NVMe socket

RAS function expansion card

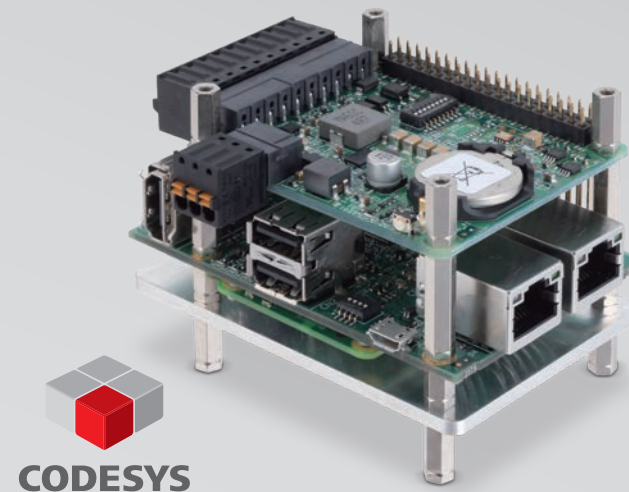


The RAS function expansion card adds RAS functionality, RTC functionality, and 8–28 VDC power supply input functionality to the Raspberry Pi. This HAT-sized expansion card connects via a 40-pin header for stackable connection and provides the Raspberry Pi with the enhanced scalability and maintainability required for industrial computer applications.

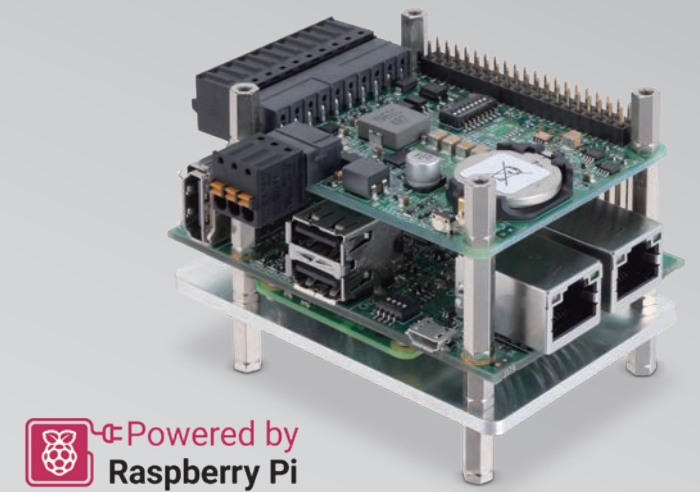
Specifications

- RAS (Reliability, Availability, Serviceability) function
- Built-in RTC (real-time clock)
- Built-in WDT (watchdog timer)
- Power switch functionality
- 8–28 VDC power supply input
- 5 VDC 500 mA high-output, high-efficiency power supply with noise filter

CODESYS Pre-installed Model CPI-PS10CM4

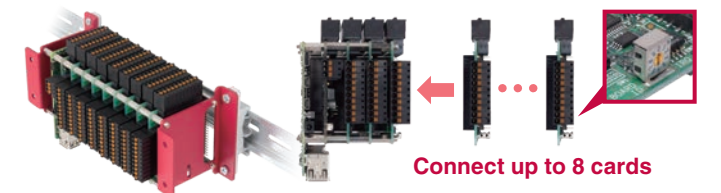


Raspberry Pi OS Model CPI-MS10CM4



HAT-sized design for stacked connections of up to 8 cards

FA control and measurement control systems require large numbers of signal inputs and outputs. Due to HAT specifications, conventional Raspberry Pi could only support a single I/O card. With Contec's proprietary multi-stage connection technology, however, stackable connections of up to eight I/O cards are possible.



HAT-sized cards and optional products

Contec offers a wide variety of expansion cards and various options for adding peripheral devices for FA control systems utilizing Raspberry Pi. The HAT-sized expansion cards connect via a 40-pin header, allowing easy addition of various I/O required for measurement and control. Installation is also incredibly simple with Contec's DIN rail mounting kit. Compact embedded PLCs are often installed inside control panels as card-type PLCs and housed within metal enclosures. This provides excellent resistance to static electricity, spurious signals, noise, and shock, ensuring reliable operation in industrial environments.

Specifications

- Push-type terminal block for easy wiring
- Stacked connections of up to 8 boards
- API compatible with PC expansion cards (With development asset reusability across multiple platforms)
- Python and GCC sample programs included
- Wide variety of input/output types
- Photocoupler-isolated bus
- Usable over a wide range of operating environment temperatures (–20 to 60°C / –4 to 140°F)

Optional Product Lineup

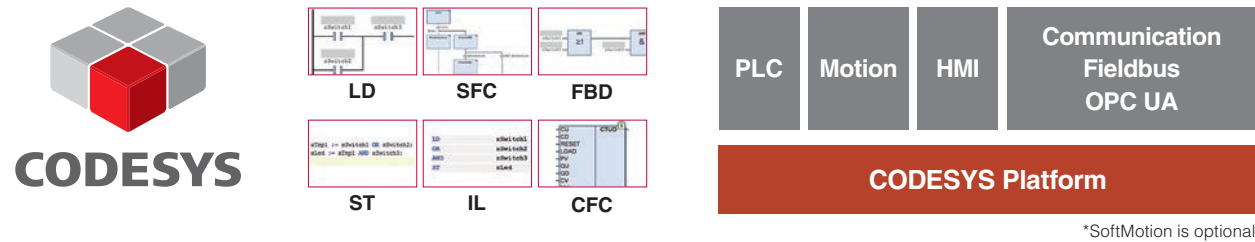
Product Name	Specification	Description
Analog input board	Isolated analog input	12-bit analog input, 8 channels
Analog output board	Isolated analog output	16-bit analog output, 2 channels
Thermocouple input board	Thermocouple input	4 differential channels
Digital I/O board	Photocoupler-isolated digital I/O	8 inputs / 8 outputs
	Reverse-common isolated digital I/O	8 inputs / 8 outputs
Digital input board	Photocoupler-isolated digital input	16 inputs
	Photocoupler-isolated digital output	16 outputs
Digital output board	Solid-state relay output	16-channel photo-MOS relay output
	Reverse-common isolated digital output	16 outputs
Counter board	Isolated counter	32-bit up/down counter, 1 channel
	DIN rail mount kit	35 mm (1.38 in)
Accessories	AC adapter	65W
	DIN rail-mount power supply	30W / 90W

Going forward, Contec plans to actively expand the use of Raspberry Pi in industrial applications by developing specialized cards, including analog input/output cards, serial communication cards such as RS-232C and RS-422A, and custom-designed cards tailored to specific needs.

Pre-installed with CODESYS® Runtime

CODESYS is used by over 400 OEM manufacturers worldwide, with more than one million licenses shipped annually. The CODESYS Store offers a variety of licenses to suit different applications, and Contec's compact embedded PLCs come pre-installed with the CODESYS Control Standard S license. This enables users to leverage the wide range of Raspberry Pi peripheral devices to build diverse control applications.

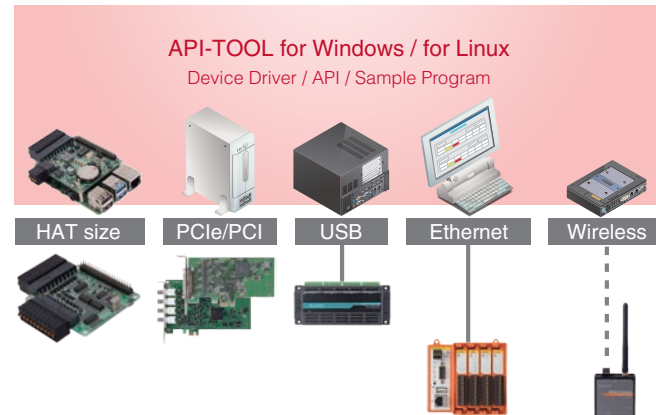
CODESYS supports six IEC 61131-3 standardized programming languages, including LD (Ladder Diagram) and FBD (Function Block Diagram), allowing for smooth migration from traditional PLCs. As globally recognized software that is independent of specific hardware, CODESYS is easy for software engineers to work with and offers excellent maintainability.



Multi-platform support

For those looking to partially transition from a PC-based system to a Raspberry Pi-based system—or scale up a Raspberry Pi-based system to a PC-based one—Contec makes migration easy with minimal program modifications.

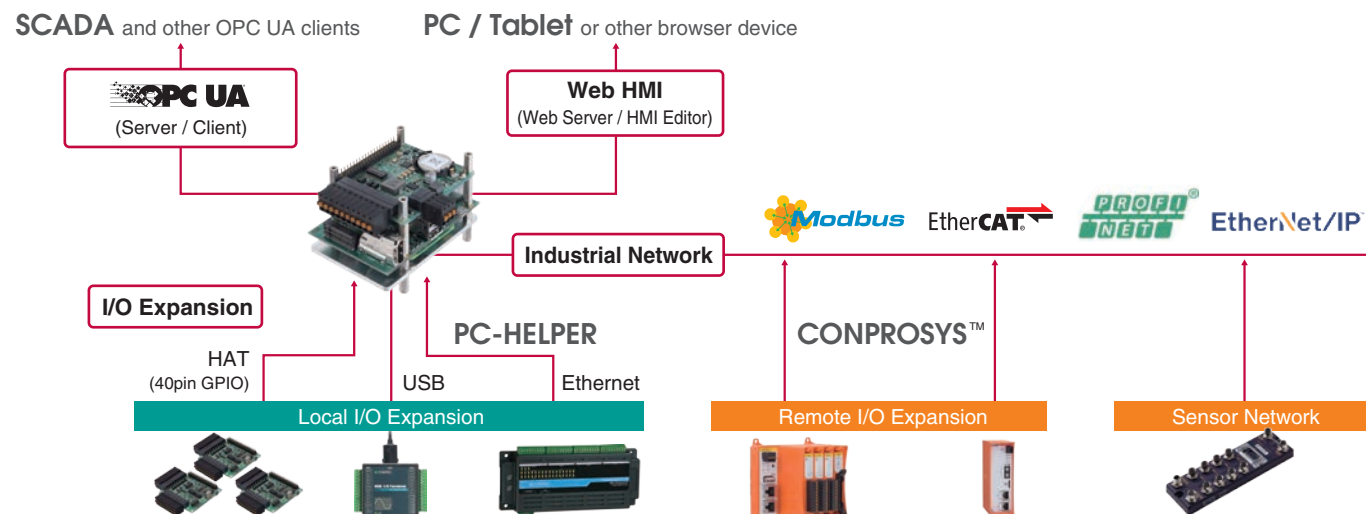
For example, when using PC expansion cards that connect via PCI bus, USB, Ethernet, or wireless, Contec's integrated driver software absorbs hardware differences, allowing for simple API-level program migration. Sample API programs are also provided free of charge to help streamline development.



Enhanced network and IoT linking

Contec's compact embedded PLCs are equipped with a wide range of industrial network communication functions enabling support for Modbus, EtherCAT, PROFINET, and EtherNet/IP. This enables communication control with Contec's CONPROSYS® nano series remote I/O products and M2M communication with other FA controllers.

Meanwhile, OPC UA server/client and Web HMI capabilities also allow use as an all-in-one controller with integrated IoT capabilities to implement DX. This eliminates the need for additional devices, helping to reduce overall system costs.



Transform Your Business with Contec's New Solution

Challenges with conventional PLCs and in-house development

Traditionally, general-purpose hardware PLCs have been widely used for small-lot systems. For high-mix, low-volume production, however, this approach often proves costly and leads to heavy dependence on specific manufacturers. In addition, the hardware and programming languages often differ between manufacturers, creating further challenges. Although in-house development can offer cost advantages for large-lot production, as development complexity increases and user requirements become more advanced, the increased workload for programming and software development becomes a significant challenge.

To address these challenges, Contec offers a compact all-in-one embedded PLC designed to strike the optimal balance between development costs and network functionality. Positioned between general-purpose hardware PLCs and full in-house development, it is ideal for small- to medium-lot production with high-performance requirements.

Advantages to a compact all-in-one embedded PLC

1 Hardware, OS, CODESYS —all in one place

Powered by Raspberry Pi, Contec's PLC comes fully equipped with an industrial-tuned Linux OS and CODESYS, eliminating the need for setup during installation. Contec also addresses key early-stage development challenges such as hardware selection, OS implementation, and system setup, allowing users to initiate system development easily and quickly.

3 Long-term reliability and stable supply

As an industrial-grade Raspberry Pi module, the PLC is backed by a stable supply framework and features RAS/RTC function extensions, a reliable and environmentally resistant design, a watchdog timer, and hardware monitoring, ensuring the reliability and quality required for continuous operation in demanding FA environments.

2 Reduced engineering cost

For equipment manufacturers, rising engineering costs often pose a greater challenge than manufacturing cost. With support for IEC 61131-3-compliant programming languages widely used by developers, this PLC makes it easier to secure skilled engineers. Moreover, because it is not hardware-dependent, existing engineering resources can be fully leveraged, helping to reduce additional training cost.

4 Easy maintenance and repair

The combination of globally trusted Raspberry Pi hardware and Contec's proprietary I/O expansion technology minimizes implementation risks. In addition, because the product is delivered with development steps already completed, the PLC offers flexibility for easy replacement and expansion if needed.

Targeted applications and markets

- FA/industrial automation
- Control equipment and sensor management for machine tools, conveyor lines, etc.

Data collection

- IoT/smart factories
- Equipment manufacturers/OEM companies

The Raspberry Pi, built on ARM architecture, can be considered a type of PC with the added advantage of easy access to a wide range of peripheral devices and abundant resources for practical use. As interest in industrial applications continues to grow, information on integrating specific sensors, communicating with peripheral devices, and connecting to the cloud will become increasingly accessible to meet a diverse range of needs. Leveraging its technical expertise cultivated through developing user-friendly FA products, Contec is dedicated to further strengthening its Raspberry Pi business by advancing the development and sales of expansion cards and software with the goal of positioning software PLCs as a new solution option.

Contec will continue to support the evolving needs of the measurement control industry by developing hardware and device drivers to ensure smooth adaptation to technological advancements.