VEICHI 伟创电气
DRIVE FOR EVER

VH600 Series PLC Product Overview



Date. August 19, 2024

CONTENTS catalogue

01 Key Points Summary

02 VH600 and VM modules

03 VH Series & VC Series

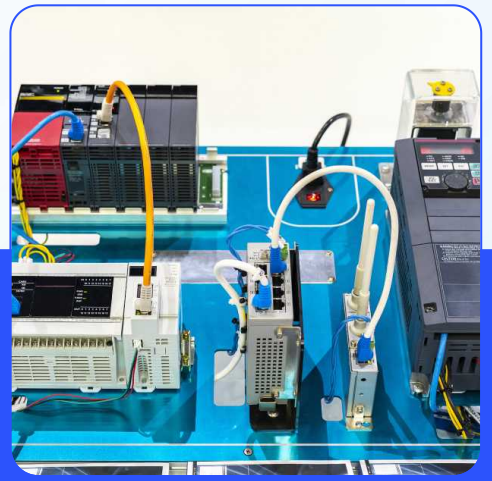
04 Summary



01

Key Points Summary

The basic structure of a PLC



input module I
(Input)

It is responsible for receiving signals from external devices such as buttons and sensors, and converting them into digital signals that the PLC can process.



output module O
(Output)

Responsible for converting the PLCs processing results into signals understandable by external devices, such as motor drivers and indicator lights.



Central Processing Unit (CPU)

It handles input signals, executes user programs, and controls output modules. The CPU serves as the core component of the PLC, responsible for overall system control and coordination.

The working principle of PLC

Input/Output Signal

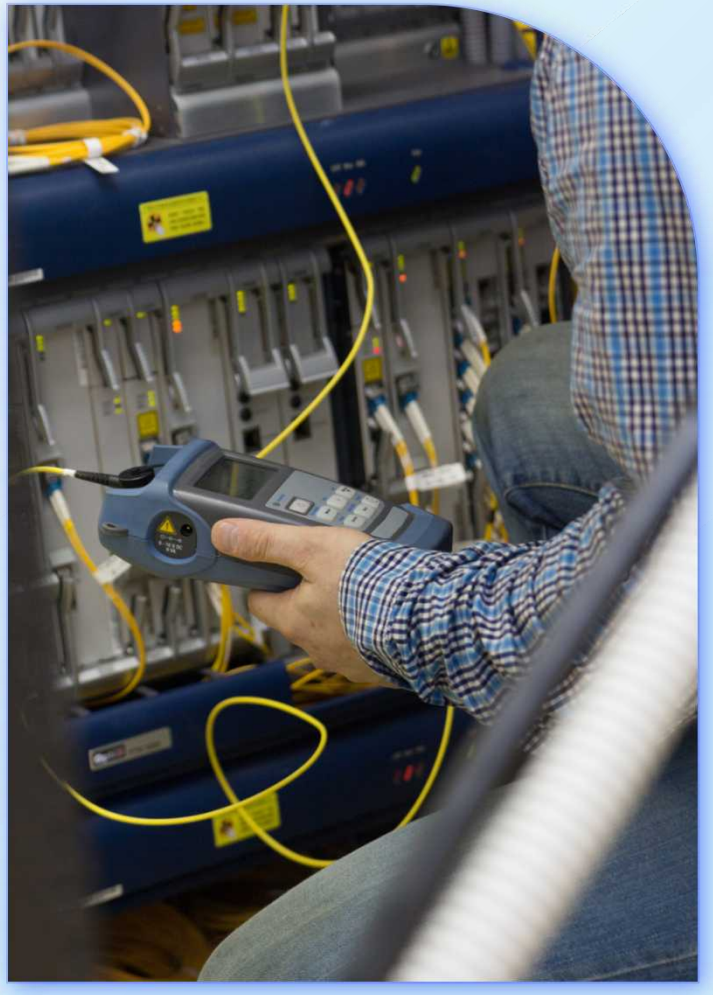
The system receives signals from sensors via the input module and controls the actuators through the output module to achieve equipment operation.

program execution

The input signal is analyzed, sorted, and processed according to a pre-programmed algorithm, generating the corresponding control signal.

communication

The communication module facilitates data exchange with other devices or systems, enabling remote monitoring and control.



Three major categories of modules

01

Input/Output Type

- Digital Input/Output (DI/DO)
- Analog Input/Output (AI/AO)
- Various input/output extensions

02

Communication Type

- Expand existing but insufficient communication types
- A communication type that was not available before but is now required

03

functional form

- Add a power supply
- Add a timer function
- Add temperature detection functionality
- ……

The main selection parameters for PLCs

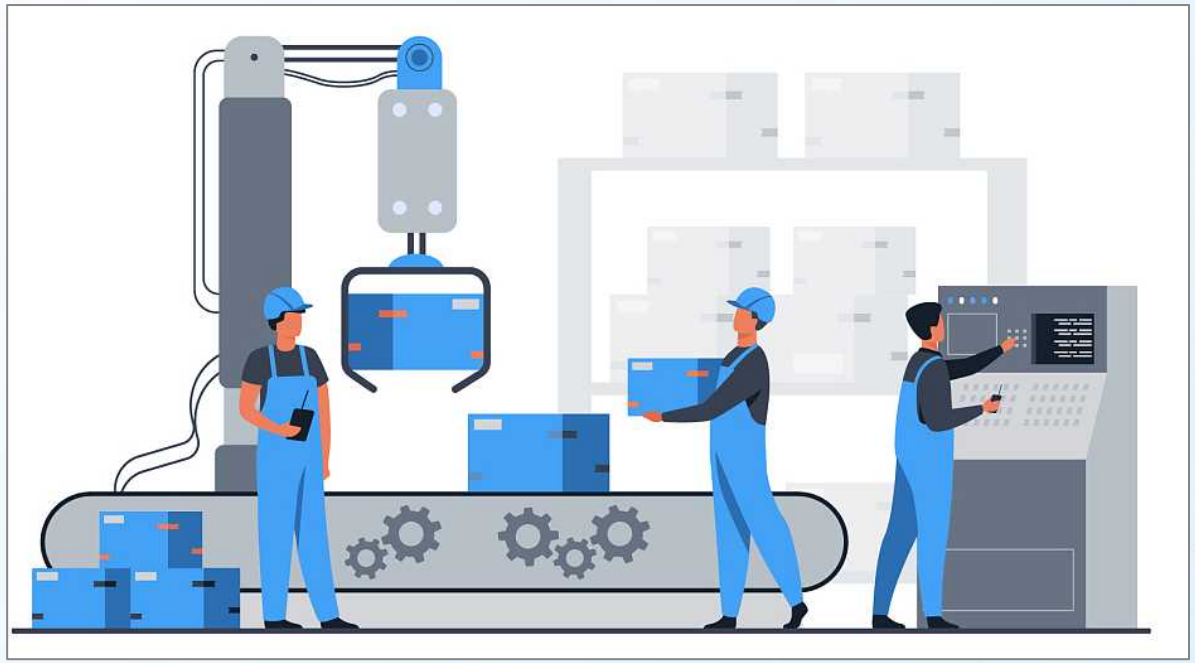
project	explain	Where to watch
Input/Output Points (I/O Points) 	Input points: Determine the number of digital and analog inputs required. The number of input points determines how many sensor or switch signals the PLC can receive. Number of output points: Determines how many devices (e.g., motors, valves) the PLC can control.	an album of paintings
I/O type 	Digital input/output: such as switch quantity input/output, used for processing binary signals. Analog input/output: Used to process analog signals from sensors or devices, such as voltage and current.	Album/Price List
CPU handling capacity	Scan time: The duration required for PLC processing per cycle. A shorter scan time enables rapid response to input signals. Storage capacity: includes program storage, data storage, registers, etc.	an album of paintings
Communication Capability 	Serial communication: RS-232, RS-485 Fieldbus: Modbus, Profibus, CANopen Industrial Ethernet: Ethernet/IP, Profinet, Modbus TCP/IP Less frequently asked questions include: Wi-Fi, OPC, Bluetooth, GPRS, etc.	an album of paintings
Scalability 	Does it support expansion of I/O modules, communication modules, etc.?	an album of paintings
environmental suitability	Working temperature range, humidity, vibration resistance, electromagnetic compatibility, etc.	Album/User Manual
programming language	Supports programming languages (such as ladder diagrams, structured text, function block diagrams, and instruction tables), ensuring ease of programming and maintenance.	users manual
power requirement	Power input requirements for PLCs, such as AC or DC power supply and voltage range	an album of paintings



02

VH600 and VM modules

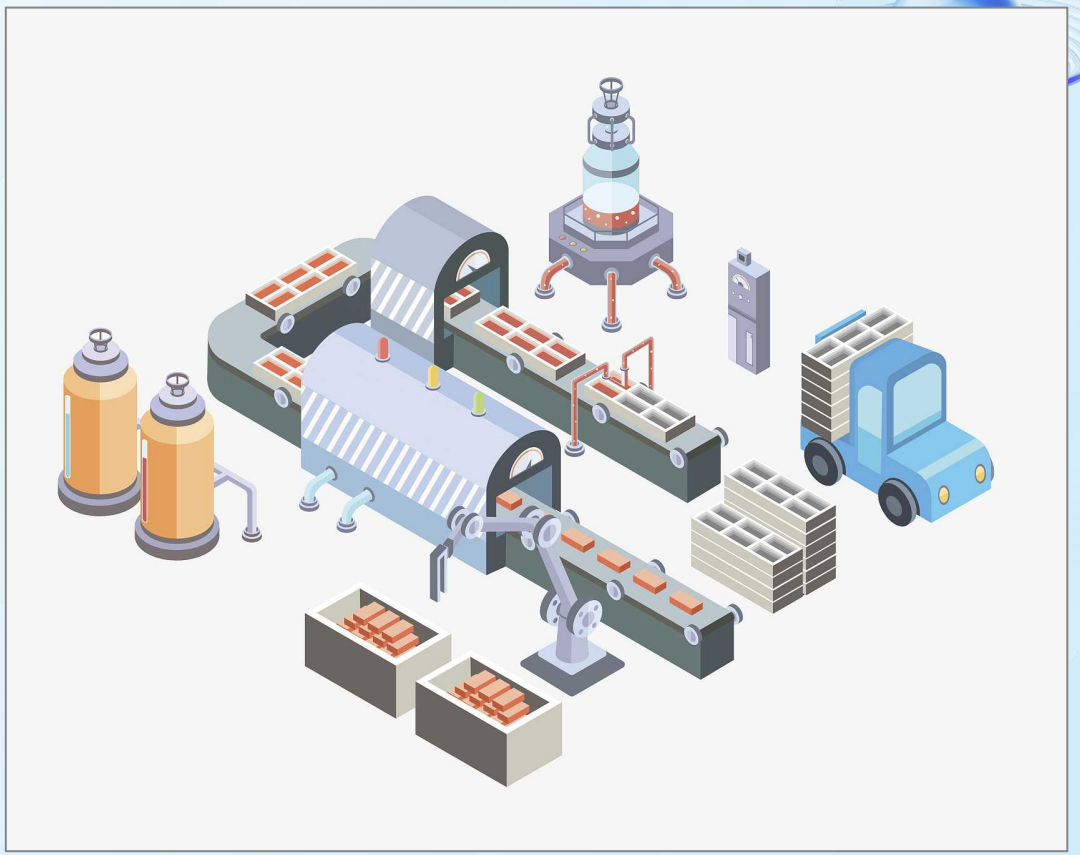
How Should PLC Customers Choose a PLC? – For End-User Applications



Simple production line:
- The level of automation is relatively low and/or involves few steps.
- The portion observed by humans is predominant.
- The movement patterns of each component are simple.

This results in fewer CO2 concentration sensors, fewer automatic control components, and a reduced variety of information to be processed.

cause ☞
- The required number of input points (I) and output points (O) is minimal.
- There is little data to process
- A fast response speed may not be required.

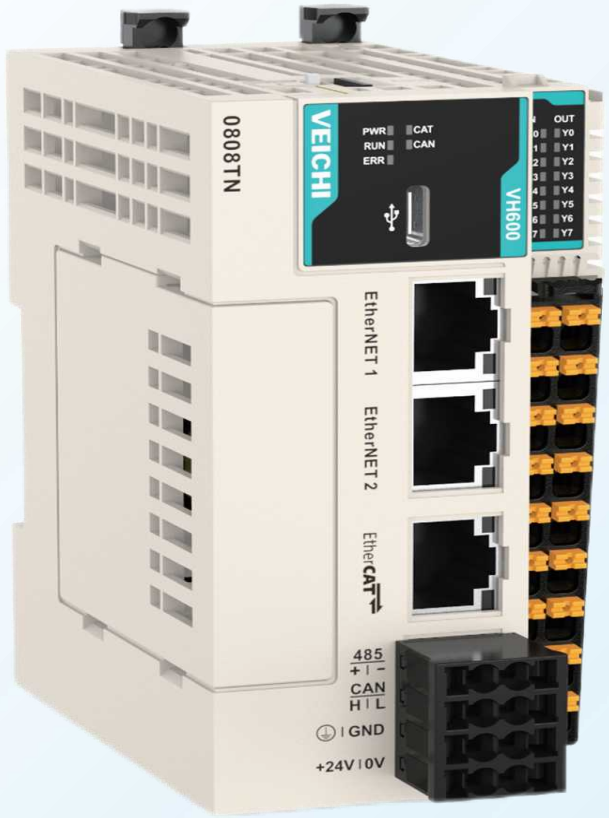


Complex production line:
- High degree of automation; unmanned operation
- The movement patterns of each component are complex.

This results in a higher number of enzyme-linked immunosorbent assay (ELISA) sensors, more components requiring control, and a greater variety of information to be processed.

cause ☞
- There are multiple required input points (I) and output points (O).
- There is a large amount of data that needs to be processed.
- The required response speed is faster.

The VH600 series medium-sized PLC is a high-performance medium-sized PLC independently developed by VEICHI Electric based on the CoDeSys+A53 hardware and software platform.



The VH600 is the first mid-sized PLC independently developed by VEICHI. Leveraging years of experience in industrial control equipment development, VEICHI has designed this robust and reliable industrial controller specifically for mid-to-high-end equipment and factory automation, based on thorough analysis of real-world operational scenarios.

It provides users with ample resources, ultra-high computing speeds, exceptional system performance, and an integrated suite of functions. The VH600 is highly suitable for large-scale controlled factory automation, production line automation, and process control automation systems

A simple and user-friendly Codesys development and integration environment:
Supports a variety of IEC 61131-3 programming languages (LD, FBD, IL, ST, SFC, CFC).

Powerful motion control capabilities:
The EtherCAT bus supports up to 128 axes with pulse signals (32 axes are recommended).
The 16-axis electronic cam controls a synchronization cycle of 2 ms.

CodeSys Solution

Rich bus network:
Up to 128 EtherCAT slaves (including servo axes)

Supports mainstream PLCopen application features

What type is "medium-sized"?



definition

Medium-sized PLCs strike a balance between small and large PLCs in terms of functionality, processing capacity, number of I/O ports, and scalability.

characteristic

- I/O points: The VH600 series medium-sized PLCs feature between several hundred to over a thousand I/O points, supporting complex control systems.
- Processing Capacity: Compared to small PLCs, the VH600 series offers higher processing speeds and greater data processing capabilities.
- Scalability: Supports multiple expansion modules and network communication protocols, allowing flexible addition of I/O ports or device connections.

application scenarios

It is suitable for medium-scale automation systems, such as manufacturing production lines and certain production processes in factories.

Self-check: How are large and small defined?

Codesys Introduction

01

Controller Development System (CDS), an integrated PLC programming development platform.

02

With interface standards and a powerful language library, the user experience will be excellent.

03

The pre-written program can be transferred between different PLCs with compatible support codes—a true boon for PLC programmers.



The brands own PLC development platform



01 Siemens TIA Portal

Developed by Siemens, this solution is designed for S7 series PLC programming, integrating PLC, HMI, SCADA, and driver programming and configuration.

02 RockwellAutomation Studio5000

Rockwell Automation Development is designed for programming the Allen-Bradley series PLCs and supports multiple programming languages.

03 MitsubishiGX Works

Developed by Mitsubishi Electric, this tool is designed for Mitsubishi PLC programming and supports multiple programming methods.

04 Omron CX One

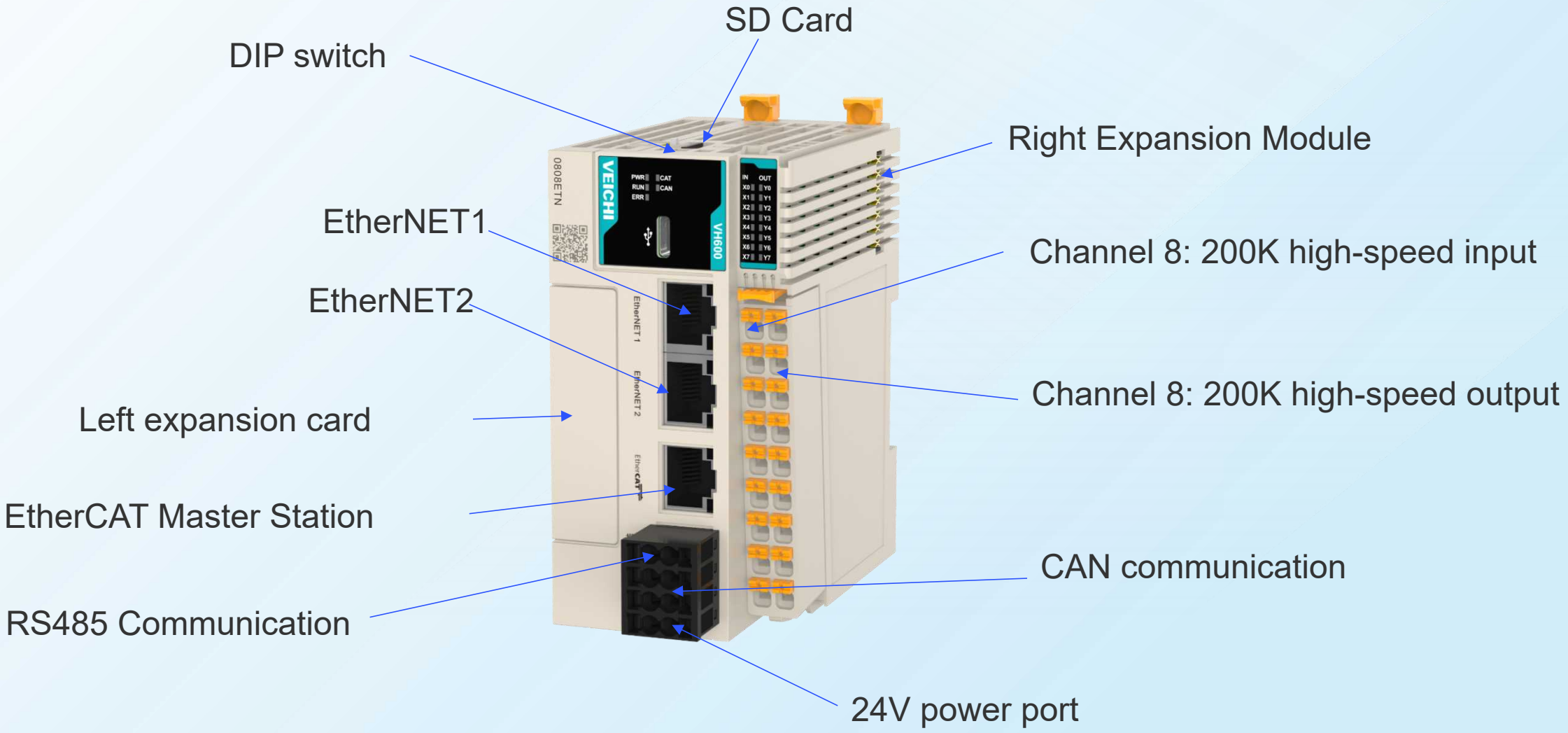
Developed by Omron, this solution is designed for programming and configuration of Omron PLCs, HMIs, and motion controllers, supporting multiple programming languages.

05 SchneiderElectric EcoStruxure MachineExpert

Schneider Electric provides solutions for PLC programming, configuration, and debugging, supporting the standard IEC 61131-3 programming language and integrating motion control and safety functions.

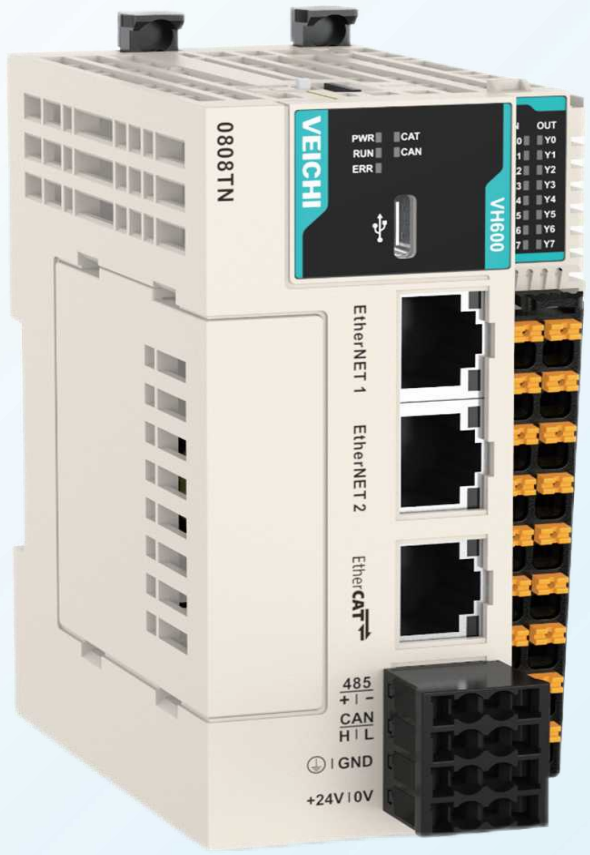
CodeSys Solution

One-stop control service:



CodeSys Solution

VH600 Local Specifications

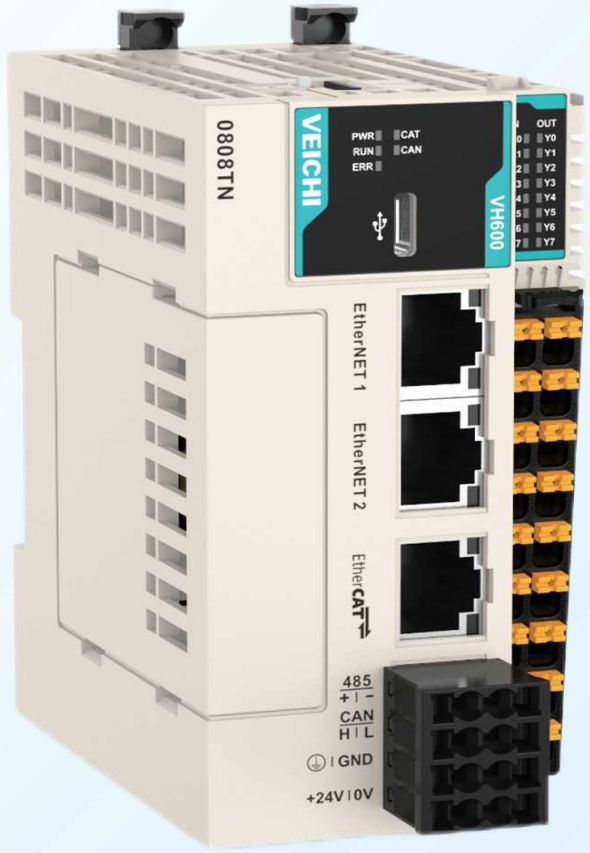


name of index	specifications			
model	VH600	VH601	VH602	VH603
rated voltage	DC24V			
RS485	RS485 serial communication for Route 1			
CAN	CANOpen Master Station for Route 1			
EtherNet	The 2-channel internal routing port supports Modbus TCP/IP, EtherNet/IP, OPC UA, and program modification.			
EtherCAT	The 1st bus supports up to 128 EtherCAT slaves (including servo axes).			
USB	Route 1: 2.0 Full-Speed Type-C Interface			
High-speed monitoring point	Input: 8 channels, 200K Output: 8 channels (8-channel pulse axis), 200K			
Left expansion	Scalable with 1-channel RS-485 functionality, etc.			
Right expansion	Maximum expansion: 16 modules			
SD Card	The 1st channel supports up to 32 GB			
Program Data Volume	Program storage space: 10 MB; power loss retention: 512 KB (Flash power loss preservation); data capacity: 20 MB			
Number of axes that can be included	128-axis	8-axis	16-axis	32-axis
procedural language	IEC 61131-3 Programming Languages (LD, FBD, IL, ST, SFC, CFC)			
motor control	Supports linear arc interpolation; supports electronic gears and electronic cams			

In-house Solution

VH100
VH300

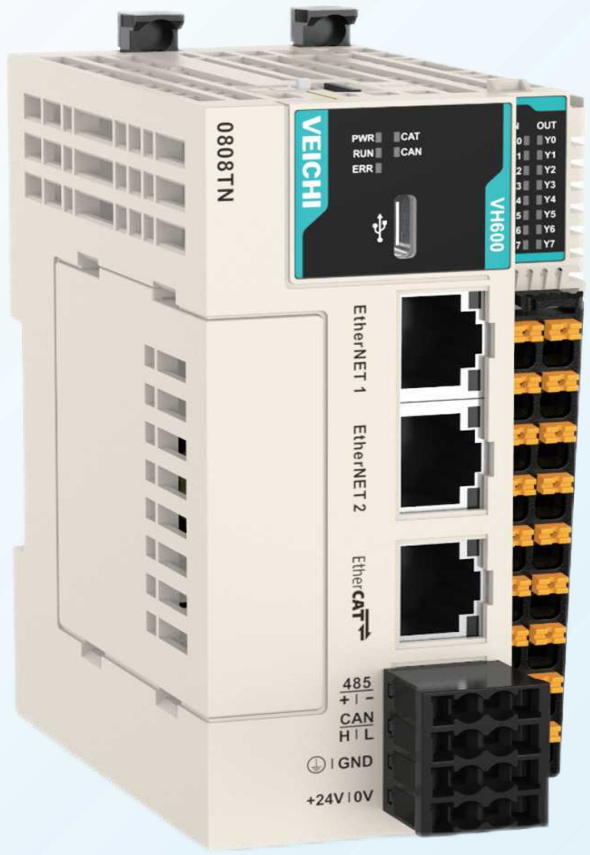
Device Specifications



name of index	specifications		
model	VH100	VH301	VH311
rated voltage	DC24V		
Serial Port	1*RS485 + 1*RS232	(1+2) RS485 serial communication channels	
CAN	not have		CANOpen Master Station
EtherNet	not have		Route 1: EtherNet
EtherCAT	not have		
USB	Route 1: 2.0 Full-Speed Type-C Interface		
High-speed Input	Route 8: 100 km	Route 8: 200K	
High-speed output	Route 3: 100 km	Route 8: 200K	
Right expansion	nonsupport	Maximum expansion: 16 modules	
motor control	nonsupport	impulse cam	
procedural language	LD、 IL、 SFC	LD、 FBD、 IL、 ST、 SFC、 CFC	
Release Date	The prototype will be available in mid-September.		

In-house Solution

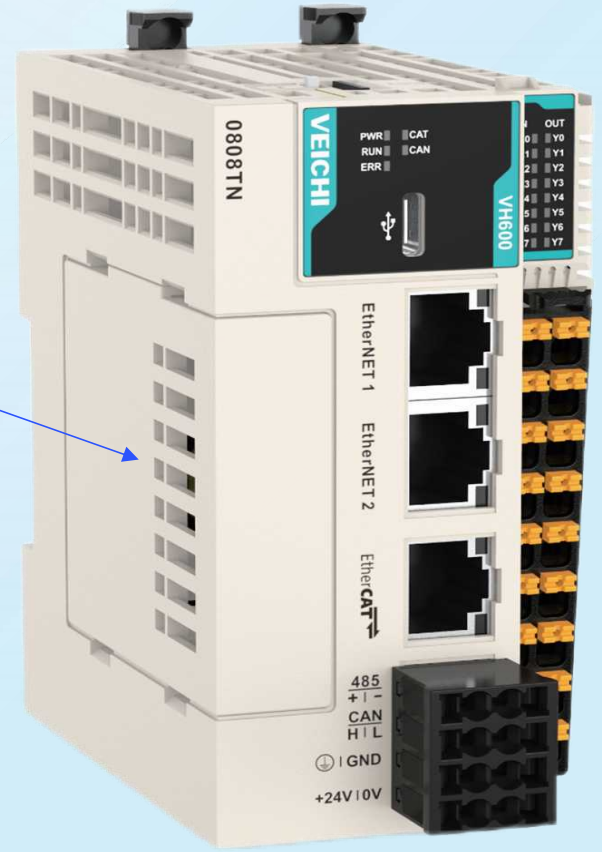
VH500 Local Specifications



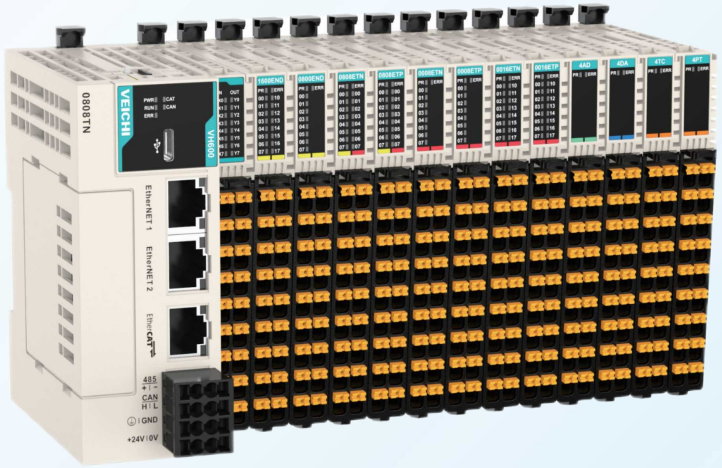
name of index	specifications			
model	VH511	VH522	VH523	VH524
rated voltage	DC24V			
Serial Port	(1+2) RS485 serial communication channels			
CAN	not have	CANOpen master station		
EtherNet	Route 1: EtherNet			
EtherCAT	16 stations	72 stations		
Bus axis count	8	16	32	48
USB	Route 1: 2.0 Full-Speed Type-C Interface			
High-speed Input	not have	Route 8: 200K		
High-speed output	not have	Route 8: 200K		
Right expansion	Maximum expansion: 16 modules			
motor control	Supports linear arc interpolation; supports electronic gears and electronic cams			
procedural language	IEC 61131-3 Programming Languages (LD, FBD, IL, ST, SFC, CFC)			
Release Date	The prototype will be available in mid-September.			

model	specifications
VH-RS485	Left expansion channel RS485
VH-4DI	4-channel digital input
VH-4DO（TN）	4-channel leakage-type digital output
VH-2AD1DA-I	2-channel analog input, 1-channel analog output, current-mode.
VH-2AD1DA-V	2-channel analog input, 1-channel analog output, voltage type.
VH-RTC	Real-time Clock Expansion Card
VH-RS485-RTC	All RS485
VH-4DI-RTC	4-channel digital input
VH-4DO-TN-RTC	4-channel leakage-type digital output
VH-2AD1DA-I-RTC	2-channel analog input, 1-channel analog output, current-mode.
VH-2AD1DA-V-RTC	2-channel analog input, 1-channel analog output, voltage type.

Left expansion card specifications



Right expansion module specifications



model	description
VH-RTU-ECT	Programmable Controller EtherCAT (Automatic Scanning) Communication Module
VH-RTU-PN	Programmable Controller PROFINET Communication Module
V H-1600END	16-channel digital input module
V H-0800END	8-channel digital input module
V H-0016ETN	16-channel digital transistor NPN output module
V H-0016ETP	16-channel digital transistor PNP output module
V H-0808ETN	8-channel digital input module, 8-channel digital transistor NPN output module
V H-0808ETP	8-channel digital input module, 8-channel digital transistor PNP output module
V H-0008ETN	8-channel digital transistor NPN output module
V H-0008ETP	8-channel digital transistor PNP output module
V H-4AD	4-channel analog input module
V H-4DA	4-channel analog output module
V H-4PT	4-channel input thermal resistance temperature detection module
V H-4TC	4-channel input thermocouple temperature detection module

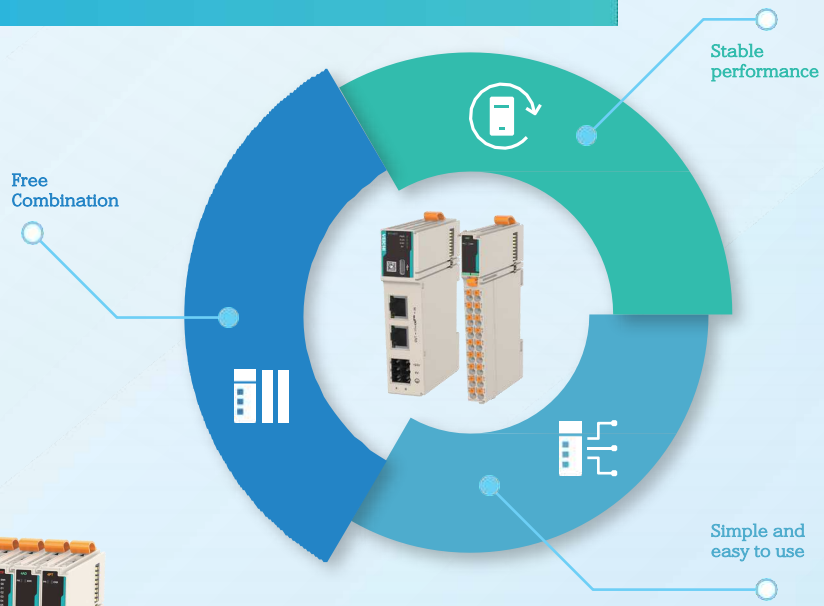
Part 03

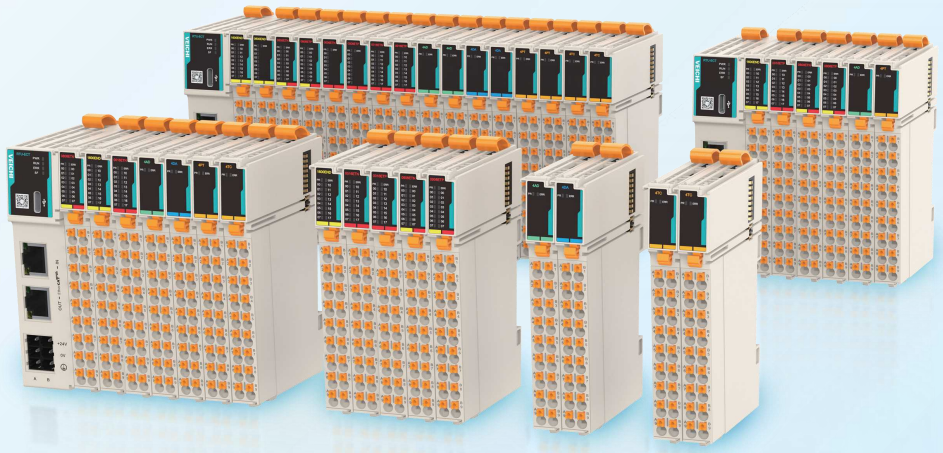
VM Product Series Introduction



VM Series Remote Extension Module

The VM series remote module is a new-generation expansion module introduced by VEICHI, featuring a compact size, rapid signal acquisition speed, easy installation, and high reliability. It is suitable for common bus networks and delivers response times at the microsecond level.





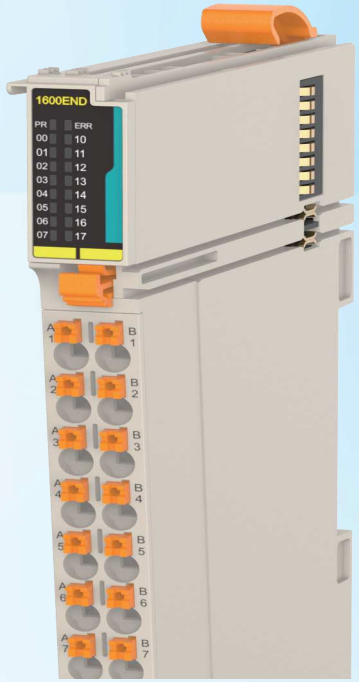
Lighter, faster, and more reliable
New generation of distributed remote modules

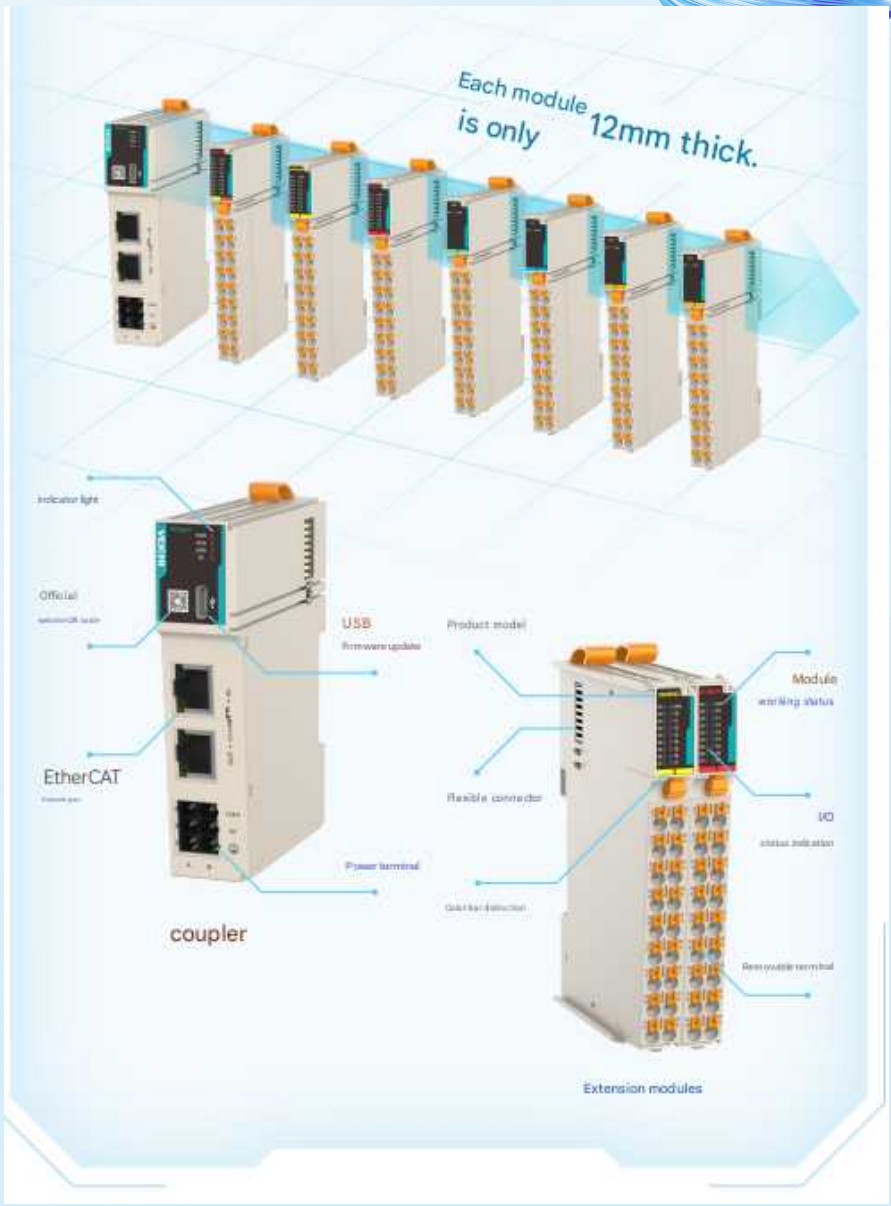
Maximum Support
16 modules

The new-generation bus speed has been increased to 100 Mbps.

Lightweight and space-saving design
2/3 of the cabinet space

D-BUS design with double-sided tight fit for high stability and greater reliability







VM-RTU-ECT

① ② ③

① on-product information

VM: Slice-type programmable controller

② Module Type

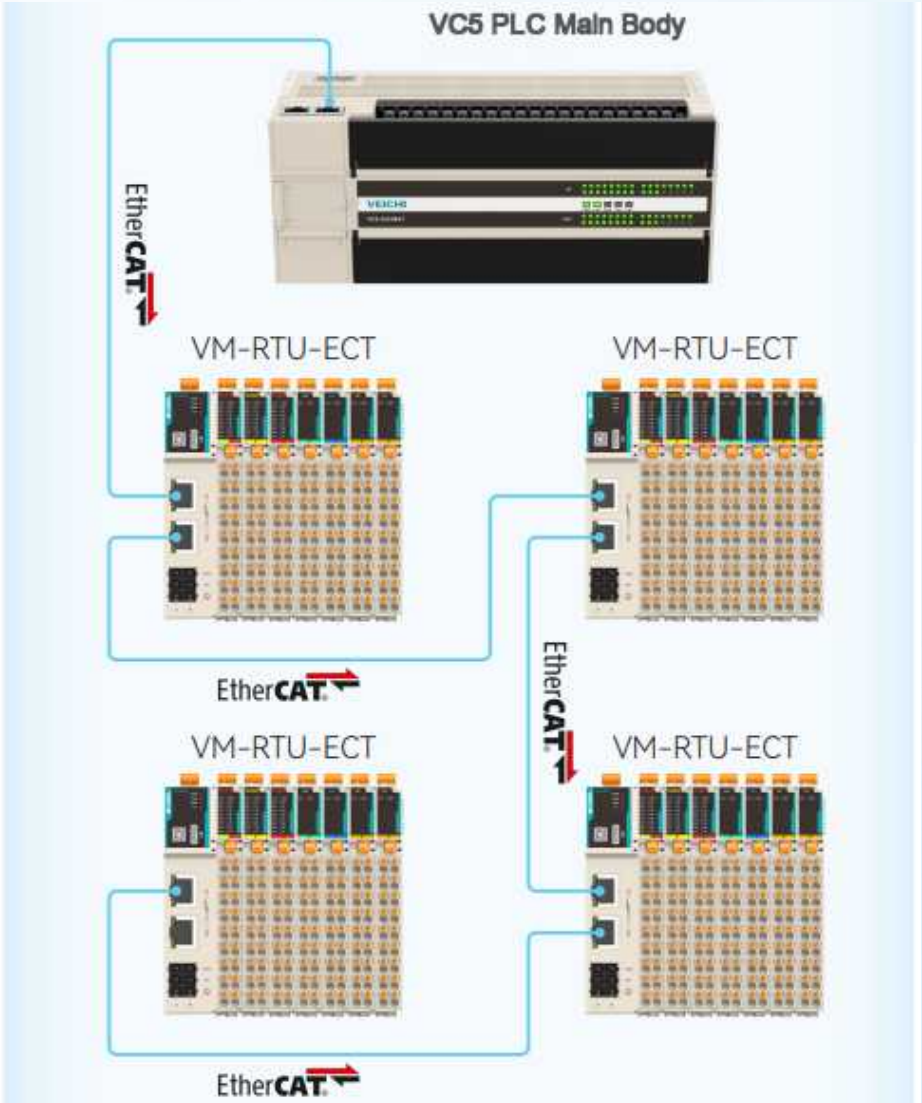
RTU: Remote Interface Module

③ protocol type

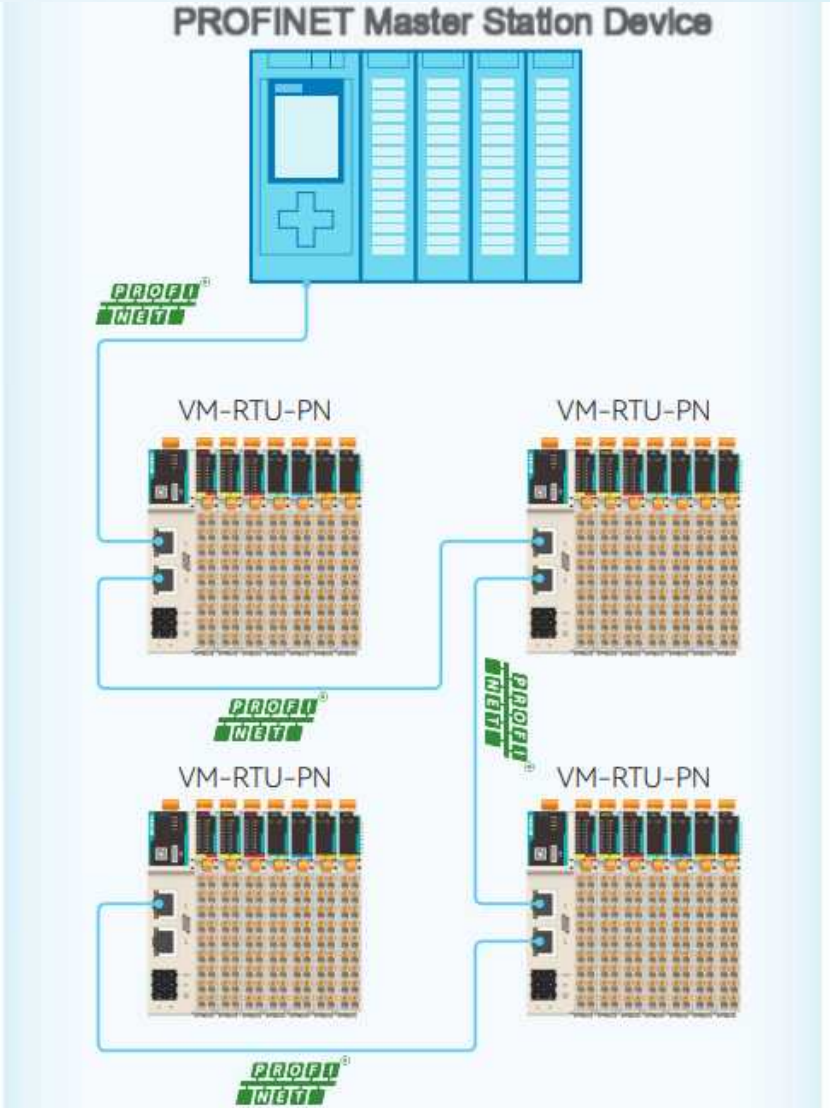
ECT： EtherCAT

PN： PROFINET

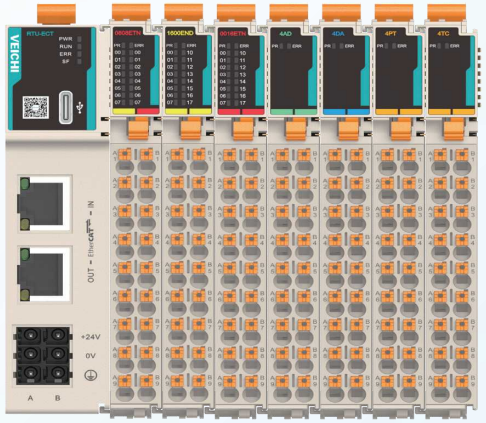
The EtherCAT bus design ensures unrestricted communication.



PROFINET slave station design with high system compatibility



Selection of Distributed IO for the VM Series



model	description
VM-RTU-ECT	Programmable Controller EtherCAT (Automatic Scanning) Communication Module: Coupler
VM-RTU-PN	Programmable Logic Controller PROFINET Communication Module: Coupler
VM-1600END	16-channel digital input module
VM-0800END	8-channel digital input module
VM-0016ETN	16-channel digital transistor NPN output module
VM-0016ETP	16-channel digital transistor PNP output module
VM-0808ETN	8-channel digital input module, 8-channel digital transistor NPN output module
VM-0808ETP	8-channel digital input module, 8-channel digital transistor PNP output module
VM-0008ETN	8-channel digital transistor NPN output module
VM-0008ETP	8-channel digital transistor PNP output module
VM-4AD	4-channel analog input module
VM-4DA	4-channel analog output module
VM-4PT	4-channel input thermal resistance temperature detection module
VM-4TC	4-channel input thermocouple temperature detection module



03

Comparison between the VH Series and the VC Series



1. 3-channel 100 kHz pulse output
   2-channel 50 kHz, 6-channel 10 kHz high-speed counting
2. 16K Step User Program
3. One RS-232 channel and one RS-485 channel.
   Additionally, an RS-485 or VC-eNet (Ethernet slave) port can be added on the left side.
4. Supports USB communication
5. The system detected a power outage and saved the component values as configured by the user.
   Maximum capacity: 2000 words



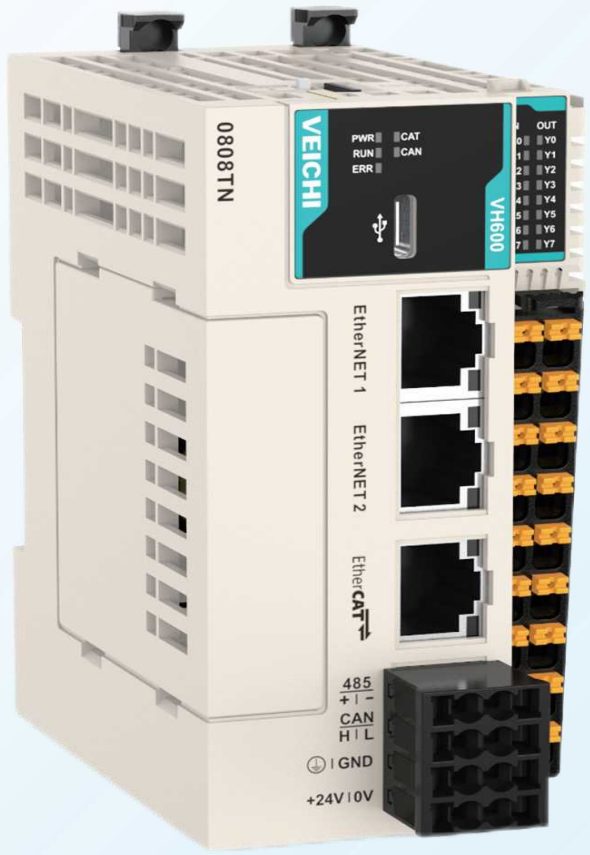
1. 8-axis 2 00 kHz pulse input
   8-axis 200 kHz pulse output
   Capable of achieving high-performance motion control
2. 64 K-step User Program
3. One RS-232 channel and one RS-485 channel.
   An additional RS-485 channel can be expanded on the left.
4. Supports USB communication
5. Supports CanOpen communication and the 301/402 protocols
6. Power-off save saves all D original data
7. Supports Ethernet Modbus TCP master-slave and TCP socket communication



1. Maximum 48 real-axis EtherCAT bus motion control. There are a total of 64 axes, including real and imaginary axes.
2. Supports up to 72 EtherCAT slaves.
3. Supports absolute/relative positioning, speed, torque, jog control, interpolation functions, electronic cam/electronic gear mechanisms, as well as flying shear/trimming functions.
4. Communication cycle: 250 μs to 8 ms
   Adjustable synchronous jitter ±80 ns
5. The user program space supports 200K steps
6. Using tools such as LD, SFC, and function blocks
   Multiple efficient programming methods

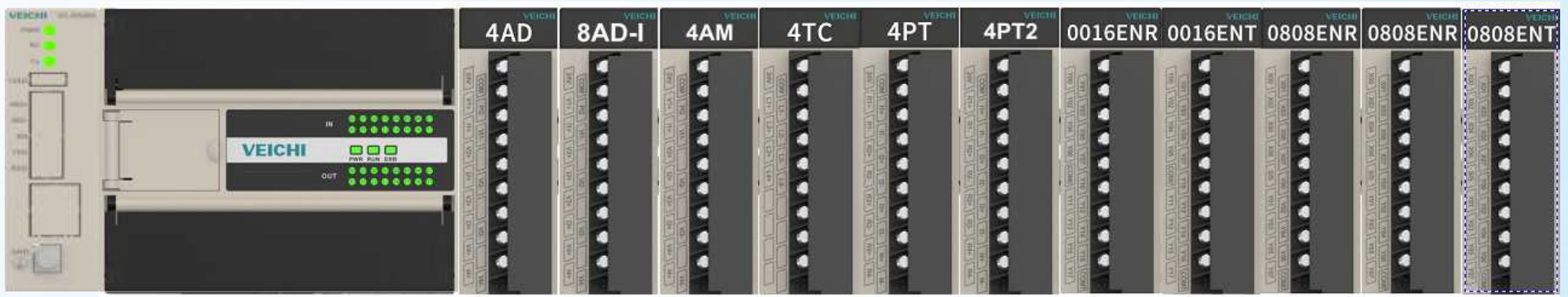
CodeSys Solution

VH600 Local Specifications



name of index	specifications			
model	VH600	VH601	VH602	VH603
rated voltage	DC24V			
RS485	RS485 serial communication for Route 1			
CAN	CANOpen Master Station for Route 1			
EtherNet	The 2-channel internal routing port supports Modbus TCP/IP, EtherNet/IP, OPC UA, and program modification.			
EtherCAT	The 1st bus supports up to 128 EtherCAT slaves (including servo axes).			
USB	Route 1: 2.0 Full-Speed Type-C Interface			
High-speed monitoring point	Input: 8 channels, 200K Output: 8 channels (8-channel pulse axis), 200K			
Left expansion	Scalable with 1-channel 485 functionality, etc.			
Right expansion	Maximum expansion: 16 modules			
SD Card	The 1st channel supports up to 32 GB			
Program Data Volume	Program storage space: 10 MB; power loss retention: 512 KB (Flash power loss preservation); data capacity: 20 MB			
Number of axes that can be included	128-axis	8-axis	16-axis	32-axis
procedural language	IEC 61131-3 Programming Languages (LD, FBD, IL, ST, SFC, CFC)			
motor control	Supports linear arc interpolation; supports electronic gears and cam functions			

VC Series Expansion Module



Communication Module

VC- RS485	RS485 Left Extension Module
VC- ENet	Ethernet Left Extension Module
VC-24V5 POW	Power Supply Module

VC- SL1	Touchscreen PLC serial communication cable
VC- SL2	USB to DIN8 communication cable
VC- SL3	USB communication line

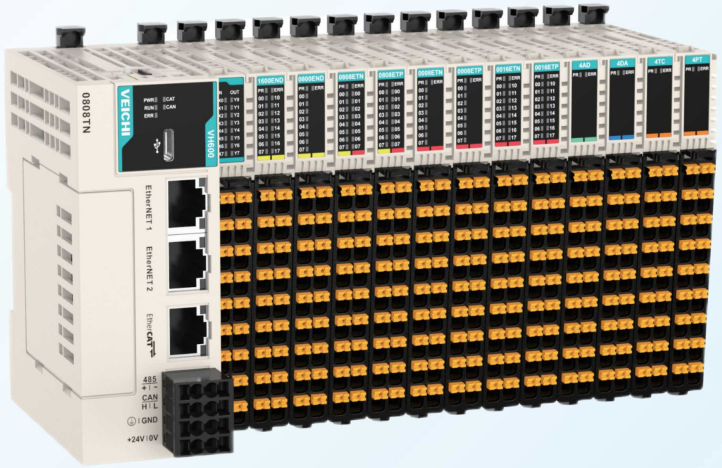
Special Module

VC-4AD	4-channel analog input module
VC-8AD-I/V	8-channel analog input module
VC-4AM	2-channel analog input module 2-channel analog output module
VC-4DA	4-channel analog output module
VC-4TC/8TC	4/8-channel thermocouple temperature module
VC-4PT/4PT2	4-channel thermistor temperature module

IO Extension Module

VC-0808ENR	8-channel DC24V input, 8-channel relay output
VC-0808ENT	8-channel DC24V input, 8-channel transistor output
VC-1600ENN	16V DC24V input
VC-0016ENR	16-point relay output
VC-0016ENT	16-point transistor output

Right expansion module specifications



model	description
VH-RTU-ECT	Programmable Controller EtherCAT (Automatic Scanning) Communication Module
VH-RTU-PN	Programmable Controller PROFINET Communication Module
V H-1600END	16-channel digital input module
V H-0800END	8-channel digital input module
V H-0016ETN	16-channel digital transistor NPN output module
V H-0016ETP	16-channel digital transistor PNP output module
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V H-0808ETP	8-channel digital input module, 8-channel digital transistor PNP output module
V H-0008ETN	8-channel digital transistor NPN output module
V H-0008ETP	8-channel digital transistor PNP output module
V H-4AD	4-channel analog input module
V H-4DA	4-channel analog output module
V H-4PT	4-channel input thermal resistance temperature detection module
V H-4TC	4-channel input thermocouple temperature detection module

Summary of V H Series PLC Products



Series Overview

The V H-series medium-sized PLC is a high-performance PLC independently developed by VEICHI Electric based on the CoDeSys+A 53 hardware and software platform. It is suitable for large-scale factory automation and the automated control of high-end equipment.



Main advantages

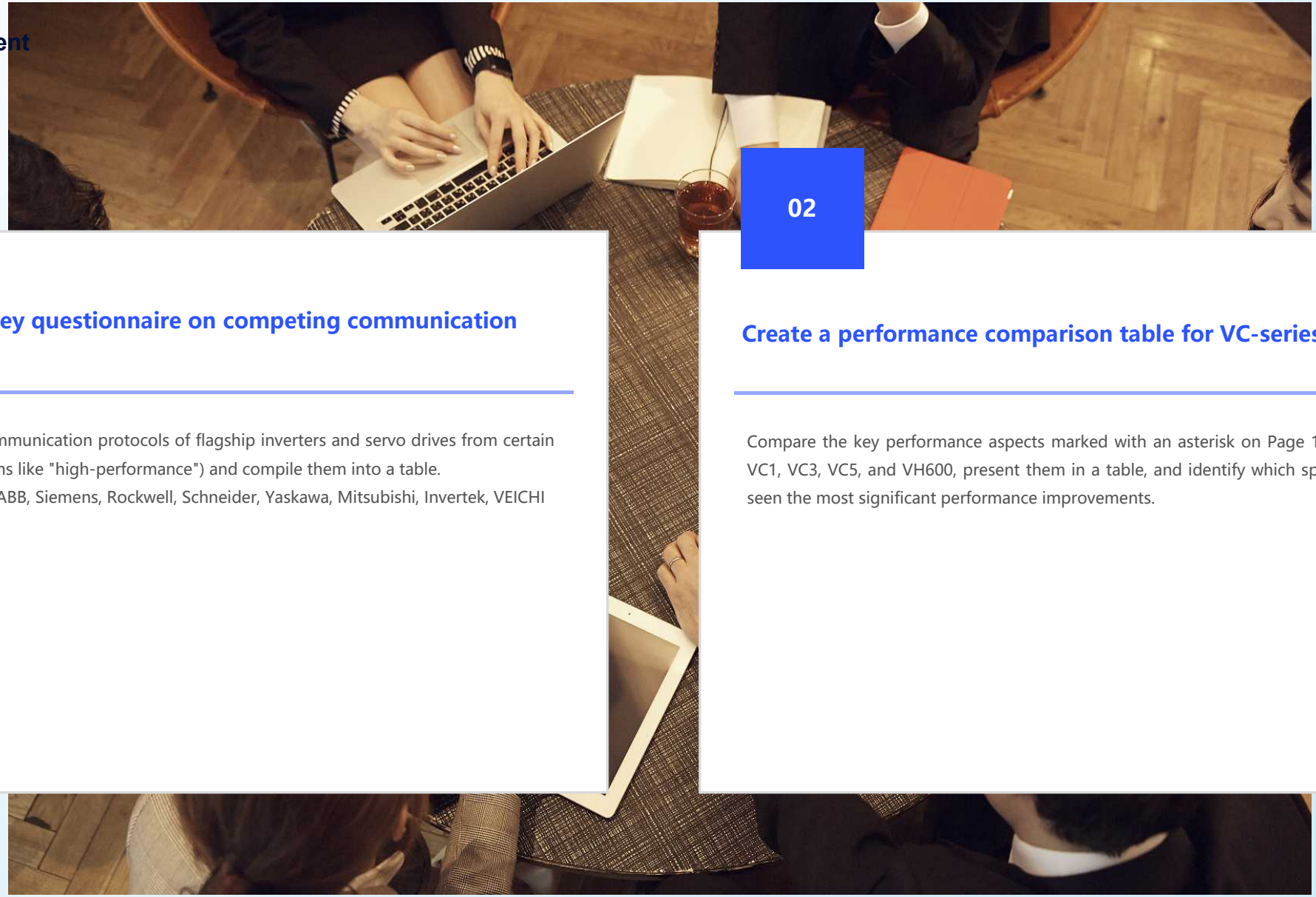
- Excellent performance with strong expandable features
- High cost-performance ratio with a wide range of options available
- Lightweight, compact, and aesthetically pleasing, meeting mainstream market demands



major defect

- As it is a new product, it has not yet been widely shipped to the market.

school assignment



01

Create a survey questionnaire on competing communication protocols

Search for the communication protocols of flagship inverters and servo drives from certain brands (using terms like "high-performance") and compile them into a table.
Required brands: ABB, Siemens, Rockwell, Schneider, Yaskawa, Mitsubishi, Invertek, VEICHI

02

Create a performance comparison table for VC-series PLCs

Compare the key performance aspects marked with an asterisk on Page 14 of the PPT for VC1, VC3, VC5, and VH600, present them in a table, and identify which specific areas have seen the most significant performance improvements.

Task Template

brand	Flagship inverter model	Supported communication protocols	Flagship servo driver model	Supported communication protocols
ABB				
Schneider				
siemens				
.....				

01

model	VC1	VC3	VC5	VC600
Default number of input/output points (I/O Points)				
Maximum number of slave stations				
I/O type				
CPU handling capacity				
Communication Capability				
Scalability				
environmental suitability				
programming language				
power requirement				

02

VEICHI DRIVE FOR EVER 伟创电气

Thank you for watching.

Thank you

