

# OMRON

OMRON

SYSMAC CS1 Programmable Controllers

New Controllers  
Take Center Stage  
at the Factory

# SYSMAC CS1

Programmable Controllers



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# A New Revolution

Factories are facing an age of challenges: Supporting product and quantity changes, Short deadlines, Reducing costs, Increasing quality for PLP and ISO requirements, and More. A company's chances of surviving depend on how well it can handle these challenges.

OMRON now provides a valuable means to help you meet these challenges: The SYSMAC CS1 Series of Programmable Controllers. Windows-run tools for rapid software design and development combined with Flexible Networking accelerate the handling of both factory information and standardization. These are PLCs designed to handle a new age in factory automation.

## Windows Support Software

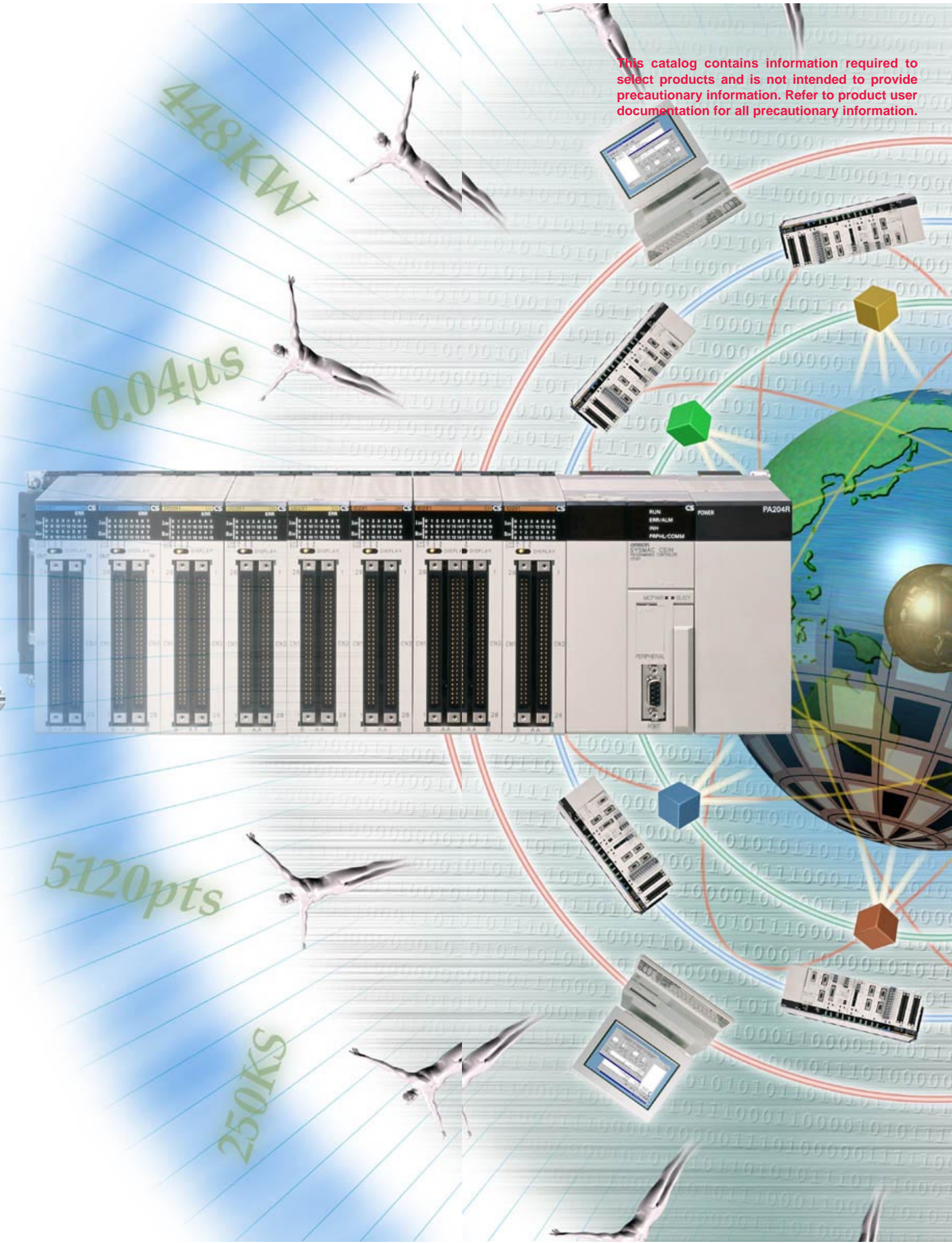
### Consistent Windows-based Development Environment Increases Design and Development Efficiency

The SYSMAC CS1 Series provides a Windows software development environment that greatly accelerates factory control system standardization. Develop software using various Windows tools, or edit multiple projects at the same time. However you use it, the Windows Support Software will increase overall efficiency from system design and program development through debugging, maintenance, and operation.

## Flexible Networking

### Create Seamless Networks to Promote Factory Information Applications

The SYSMAC CS1 Series also supports Flexible Networking. The CS1 Series supports Ethernet, Controller Link Networks, and DeviceNet (CompoBus/D Networks), as well as protocol macros. These networks can be used flexibly to create transparent information networks and facilitate application of factory information.



# Contents

▶ A Complete Lineup of Units for Optimum Control	10
▶ CPU Unit Components	12
▶ Connection with Peripheral Devices	13
▶ Specifications	14
▶ Basic System Configuration	19
▶ Mounting Dimensions	24
▶ Features	25
Better Basic Performance	25
Better Design/Development Efficiency	28
Useful Functions	30
Simple, Easy-to-Understand Programs	38
Seamless Communications between Information and Control Systems	40
Better Connectivity and Compatibility	44
Maintenance and Management	47
A Complete Range of Special I/O Units	53
▶ I/O Allocations	55
▶ Current Consumption	58
▶ Instructions	61
▶ Unit Descriptions	72
I/O Units	72
Interrupt Input Unit	74
Analog Timer Unit (Interrupt Input Unit)	74
Analog Input Units	75
Analog Output Units	76
Analog I/O Units	77
Temperature Sensor Units	76
Temperature Control Units	80
Heat/Cool Control Unit	81
PID Control Units	82
Fuzzy Logic Unit	83
Cam Positioner Unit	84
Position Control Units	85
Motion Control Unit	86
High-speed Counter Units	87
ID Sensor Units	88
Serial Communications Board	90
Serial Communications Units	
ASCII Units	91
Protocol Macros	92
Communications Networks	93
Ethernet Unit	94
Controller Link Units and Controller Link Support Board	95
CompoBus/D (DeviceNet) Units	96
Multiple I/O Terminal	98
CompoBus/S Master Unit	101
▶ Communications Middleware	103
Compolet	103
▶ Programming Terminals	105
▶ Mechatronics	109
▶ Programming Devices	115
▶ Ordering Guide	117

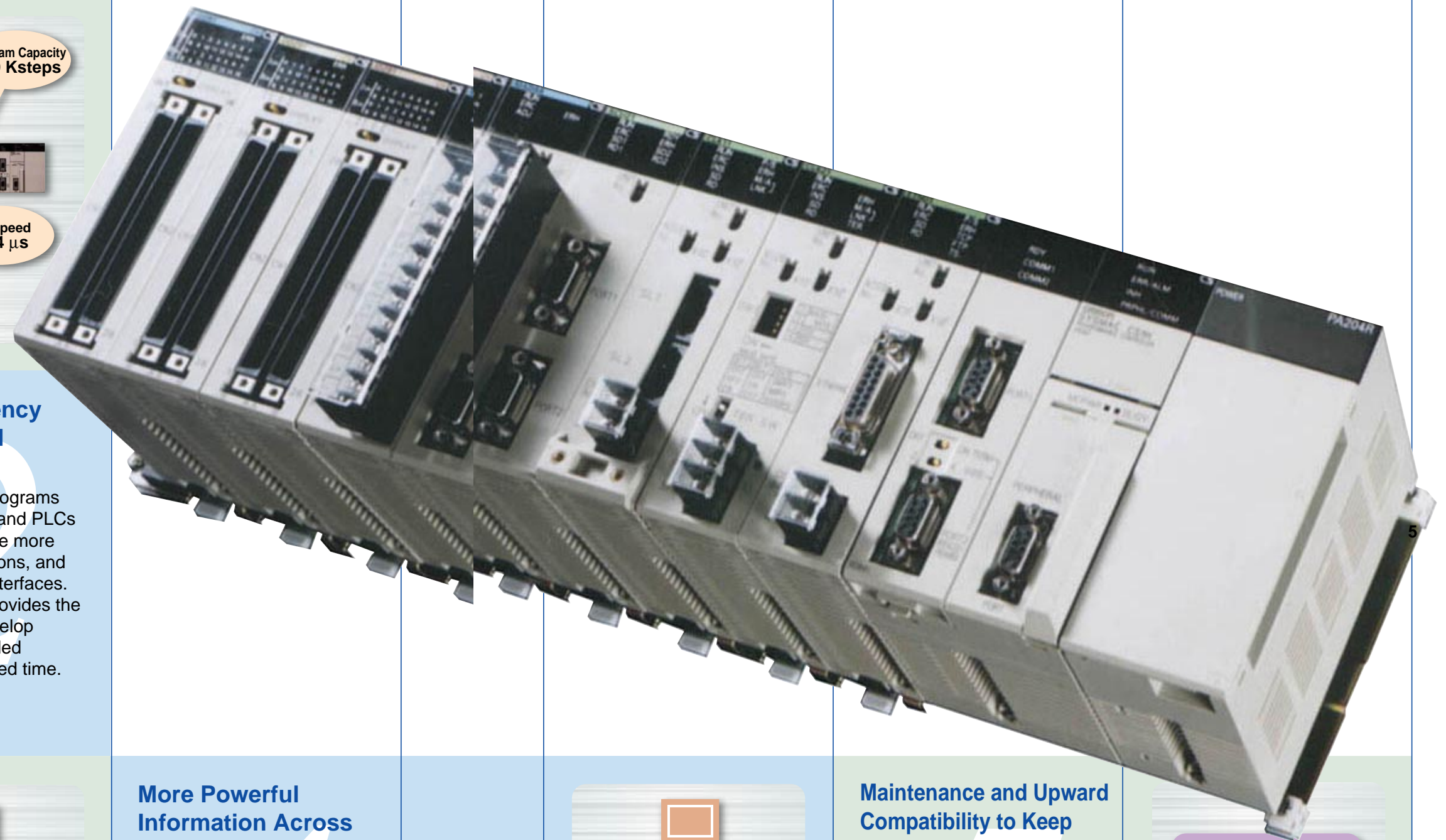
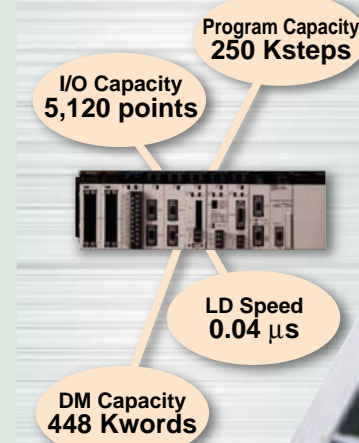


# Five Revolutionary Trends Provided by the SYSMAC CS1 Series for Factory Standardization and Information Application

# CS1

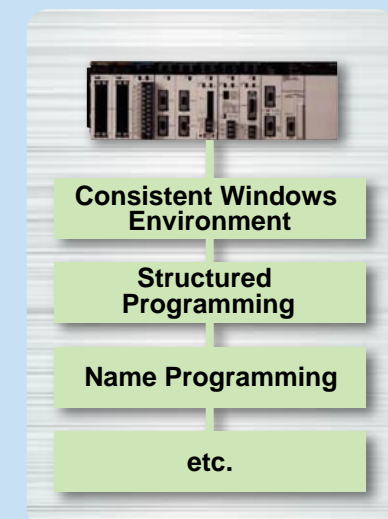
## Better Basic Performance

The greater capacity and more complex control required from PLCs for constant product and quantity changes and short deadlines create a demand for improved basic performance. The CS1 Series provides more than sufficient speed and capacity in CPU performance, memory, and expandability to meet not only today's needs, but also future needs. [See p 25](#)



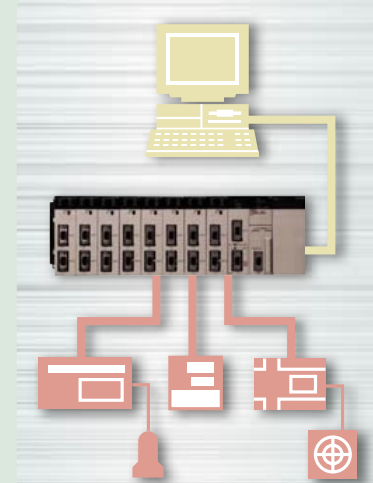
## Higher Efficiency in Design and Development

The size of PLC programs continues to grow and PLCs are asked to handle more data, communications, and human-machine interfaces. The CS1 Series provides the functionality to develop efficient, value-added programs in a limited time. [See p 28](#)



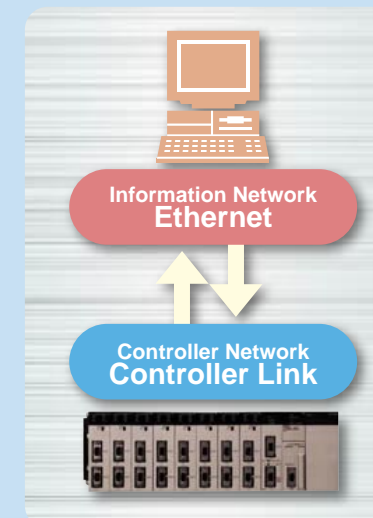
## Greater Connectivity and Compatibility

The amount of data a PLC must process has greatly increased as peripherals have become more intelligent. The CS1 Series provides multiple ports to connect peripherals in serial communications. It also provides far greater compatibility with peripherals. [See p 48](#)



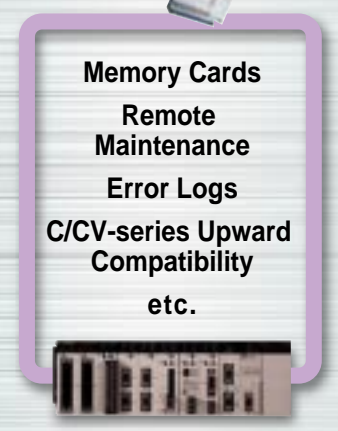
## More Powerful Information Across Networks

Seamless message communications across multiple OA and FA networks are vital to using factory information. The CS1 Series supports communications across three network levels, even different types of networks, such as information networks and controller networks. [See p 44](#)



## Maintenance and Upward Compatibility to Keep You Out of Trouble

Faster trial operation, shorter downtimes, and reductions in expenses for maintenance trips, as well as system operation and maintenance efficiency, are vital to the future of factory automation. The CS1 Series provides more advanced management functions and superior upward compatibility. [See p 51](#)





# SYSMAC CS1 Factory Automation Solutions

# CS1

## Better Basic Performance to Revolutionize Control

### Fastest PLC Processing Speed in Industry

The development of a dedicated LSI to execute instructions and the application of a high-speed RISC microcomputer make CS1-series PLCs 2.5 times faster than previous OMRON PLCs. A wide variety of special instructions can be executed as easily as the basic instructions. Furthermore, programming task control enables execution of only required programming, further increasing processing speed.

**Processing Speed: 2.5 Times**  
(Ex.: LD Instruction)

SYSMAC  
C200HX/HG/HE

0.1  $\mu$ s

SYSMAC CS1

0.04  $\mu$ s

**Program Capacity: 4 Times**

SYSMAC  
C200HX/HG/HE

63.2 Kwords

SYSMAC CS1

250 Ksteps

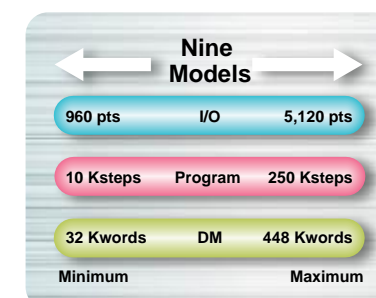
### Larger Capacity CPU for Ample Control Power

The CS1 CPUs boast amazing capacity with up to 5,120 I/O points, 250 Ksteps of programming, 448 Kwords of data memory (including expanded data memory), and 4,096 timers/counters (each). With ample programming capacity, CS1 PLCs easily handle added-value applications and other advanced data processing.

### Complete Lineup for All Applications

A total of nine CPU Unit models provides for a range of applications, from small-scale systems to large. The product lineup also includes high-capacity Power Supply Units and High-density I/O Units (96 pts). Memory Cards and Serial Communications Boards are also available and can be used with any CPU Unit to

build a flexible system that meets your needs.

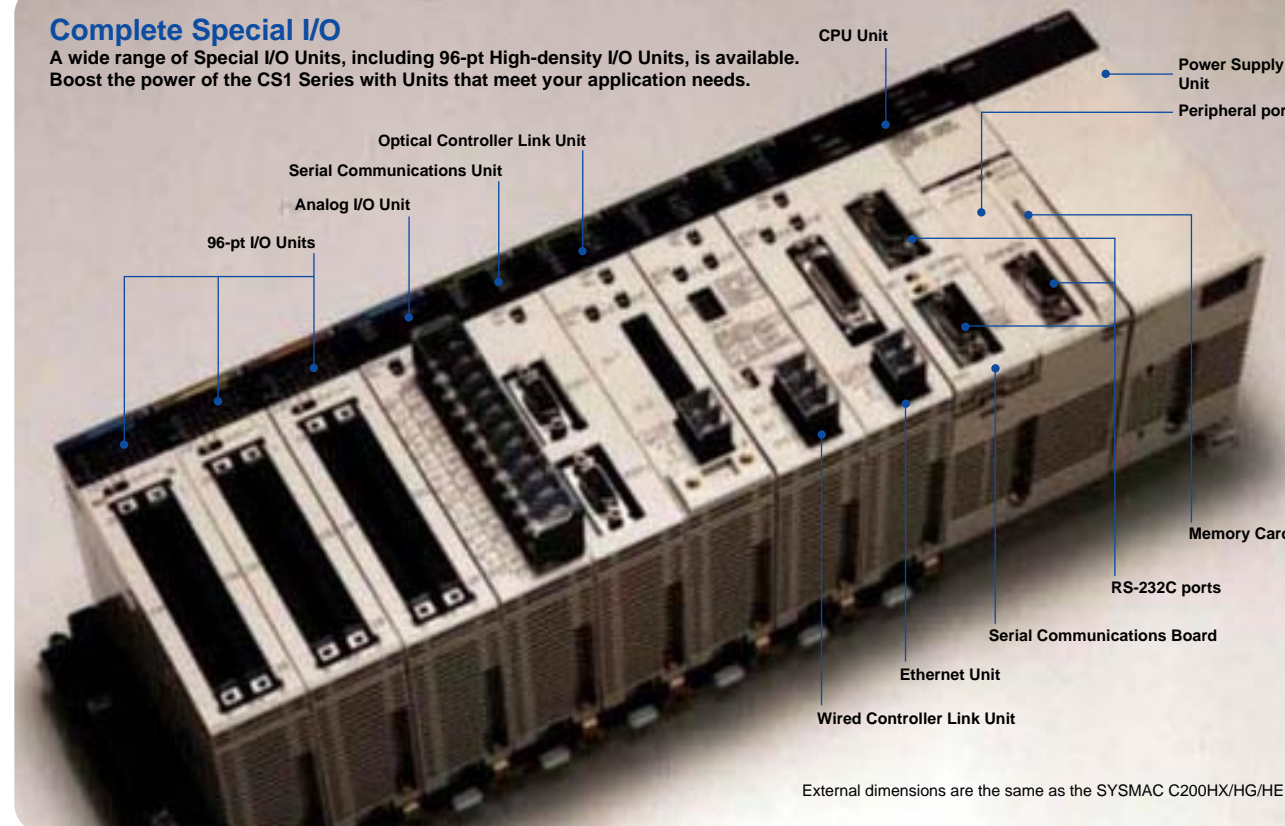


### Better Information Processing with Index Registers and Data Processing Instructions

Repeat loops (FOR-NEXT), index registers, data registers, text string instructions (e.g., LEN\$, LEFT\$, MID\$), record processing, table data operations, and many other instructions provide the power you need to handle factory information efficiently.

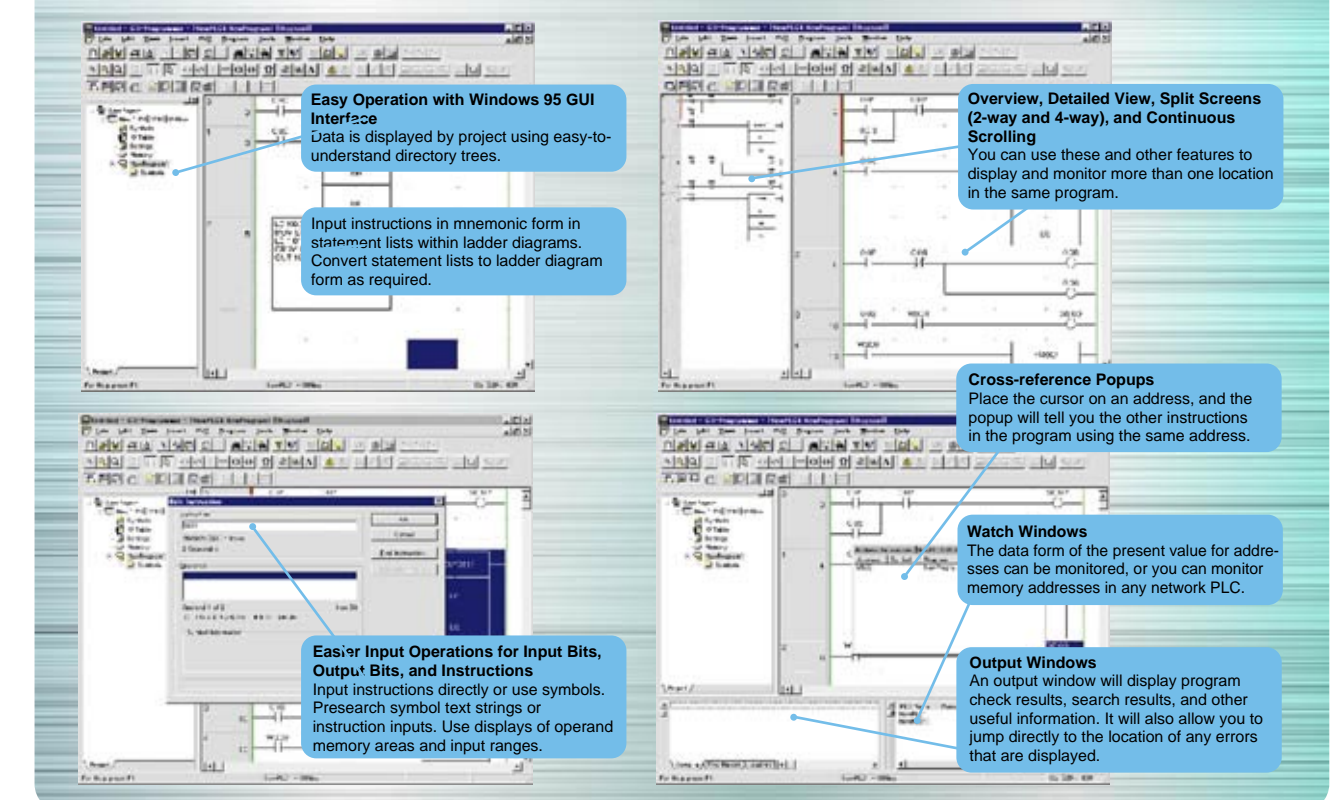
### Complete Special I/O

A wide range of Special I/O Units, including 96-pt High-density I/O Units, is available. Boost the power of the CS1 Series with Units that meet your application needs.



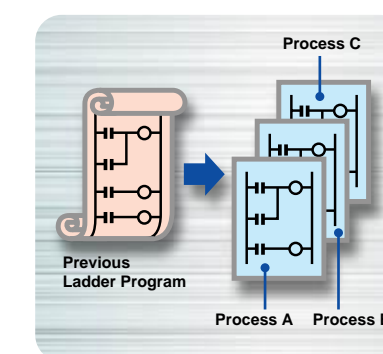
## Unified Development Environment to Revolutionize Design and Development

### Complete Monitoring and Debugging Functions for Easy Program Development



### Structured Programming Vastly Increases Design Efficiency

Although previously a PLC program was just one long program, something like a scroll, the CS1-series PLCs provide task programs that can be controlled individually. Separate programs (tasks) for different processing allow more than one programmer to develop and debug at the same time.



### Name Programming to Standardize Programs

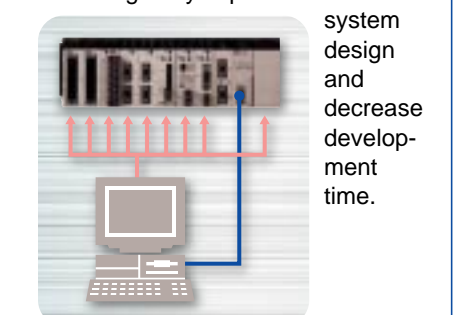
Programs can be written with names rather than allocated addresses, allowing programs to be developed before terminals are actually assigned to I/O or addresses. The CX-Programmer allows programs and I/O with names to be easily used in other systems: It's as easy as drag and drop.

### Unified Windows Development for Easy Operation

Various tools can be used in the Windows environment to cut and paste programming and other data between different programs while developing them simultaneously. Easy-to-use Windows operations (GUI) will allow you to quickly learn procedures to effortlessly start design and development work.

### Simultaneously Debug the CPU Unit and Special I/O Unit from one Host Link Connection

Connect a personal computer to one Host Link port on the CPU Unit, Serial Communications Unit, or Serial Communications Board and you're ready to use any or all of the Windows tools (CX-Programmer, CX-Protocol, etc.) for the required Units to greatly improve overall

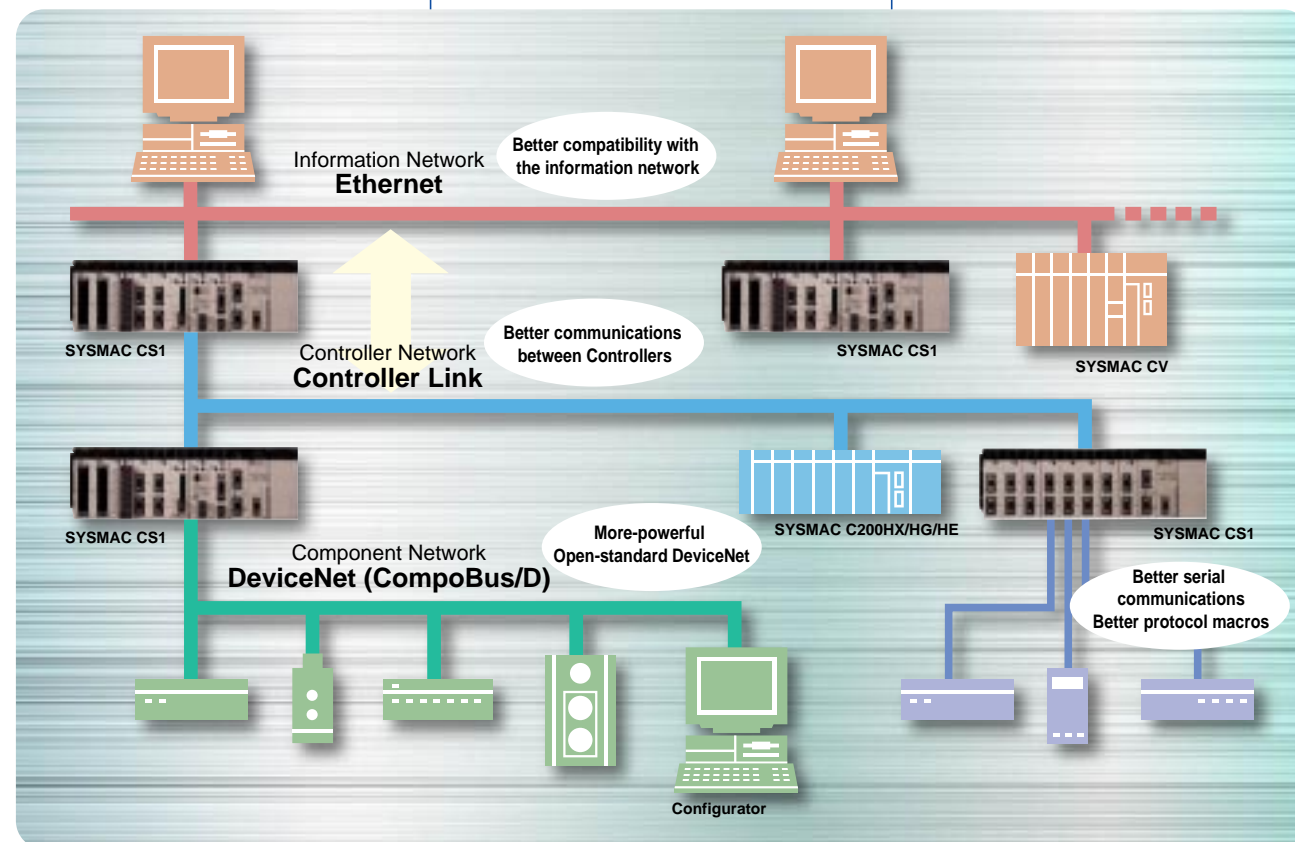




# SYSMAC CS1 Factory Automation Solutions *II*

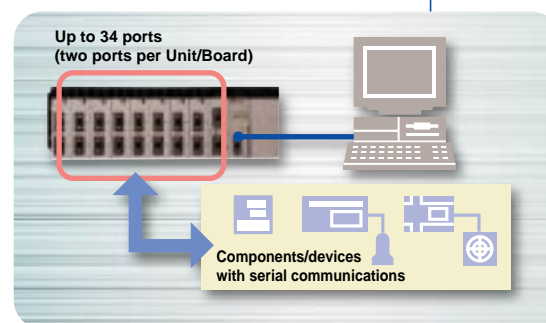
# CS1

## Better Serial Communications and Compatibility to Revolutionize Systems



### Greatly Expanded Protocol Macro Function

Each PLC supports up to 16 Serial Communications Units and one Serial Communications Board, each of which provides two serial ports. You can thus connect up to 34 devices with serial communications, and at speeds of up to 38.4 Kbps. Message length has been increased from 256 to 1,000 bytes to give communications more power than ever before.



### Seamless Networks and Inter-network Communications

Networks are available for every system level: Ethernet for information, Controller Link Network for controllers, and DeviceNet (CompoBus/D) for components. And communications between Ethernet and Controller Link Networks can be performed across three network levels as easily as if you were communicating on the same network.

### Better Ethernet Support

Ethernet is becoming an increasingly important standard for information networks. The Ethernet Unit supports up to eight socket interfaces each for TCP/IP and UDP/IP. It also supports FINS messages, FTP file

transfers, and mail notification so that you can now organically link production management with the production site.

### Better Controller Link Functions

A new Optical Controller Link Network joins the previous Wired Controller Link Network. You get greater data link capacity and communications distance to support more communications applications between Controllers.

### DeviceNet Multivendor Bus Support

The CS1 Series supports the DeviceNet field device network with CompoBus/D. The increasing number of devices that can be connected to this industry standard network provides a flexible means of building systems using such products as the MULTIPLE I/O TERMINAL.

## Superior Management Functions and Upward Compatibility to Revolutionize Maintenance and Operations

### Memory Cards for Data File Management

User programs, I/O memory, or system parameters can be converted to files and stored in Memory Cards or in EM file memory (in CPU Unit). You can also automatically read the user program and other data from the Memory Card to the CPU Unit at startup. Change programs on-site using only a Memory Card and Programming Console, or use Memory Cards to store variable tables or I/O comments.

Autoboot files, such as those used in PCMCIA cards with personal computers, cannot be used.

### Remote Maintenance

1. Program or monitor a remote PLC via a modem connection.
2. Program or monitor a network PLC via a Host Link connection.
3. Send e-mail for errors from PLCs connected to Ethernet.

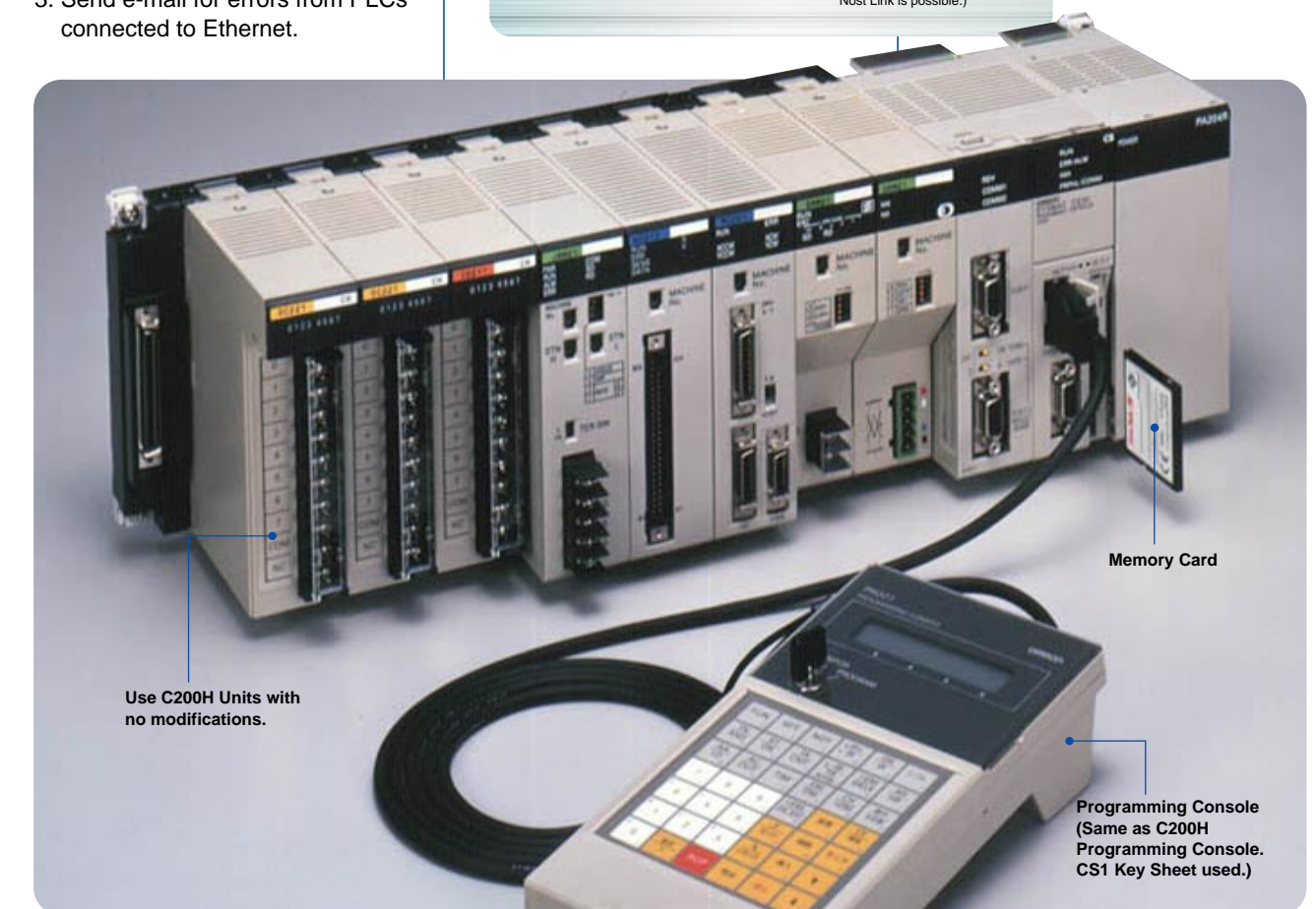
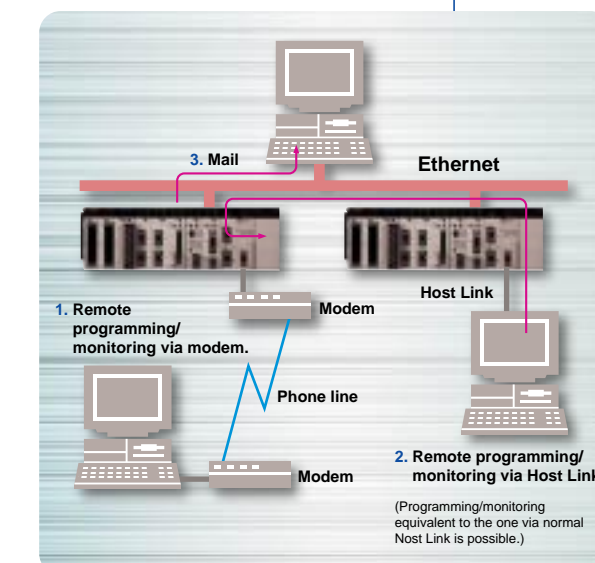
### Power Maintenance Functions

Error logs, power interruption time stamps, power interruption counts, power ON timers in 10-hr

increments: These and other maintenance functions provide what's needed to handle unexpected trouble.

### Support for SYSMAC C/CV-series Units

You can continue using the C200H Units, Programming Consoles, and programs to take advantage of your investment in C/CV-series PLCs.



# A Complete Lineup of Units for Optimum Control

# CS1

