Machine performance improved with high-speed, high-precision, flexible motion control.

Position Control Units

Two Types of Outputs and Control of 1, 2, or 4 Axes

Select from 1-axis, 2-axis, and 4-axis models with either open-collector output or line-driver output to suit a number of different applications.

A Variety of Positioning Functions

There are 2 operating modes: direct operation (position, speed, acceleration, and deceleration) and step mode. The latter is effective for setting target positions, speeds, and acceleration rates immediately or during operation, and memory operations, which are stored in the ladder program to be used for operation. These are also a variety of positioning functions, such as interrupt feeding, which is effective for header control, and timed interrupt, which is useful in emergencies.

Advanced Motion Control Units

Easy System Construction

Up to 30 physical axes and two virtual axes, making a total of 32, can be controlled, and the servo interface is handled by high-speed servo communications (MECHATROLINK-II, a registered trademark of Yamaha Motor Co., Ltd.). This is possible to control multiple axes with one setting.

Easy Data Control

High-speed servo communications let you read programs and parameter settings from CX-Programmer on a PC. You can also read and track the operating status of parameter settings inside the Servo Driver.

Easy Motion Control

Motion control, including positioning, synchronous control (position, speed, and torque), can be handled by the Servo Interface. Eight motion tasks can be used for simultaneous motion program execution.

Motion Control Units

Easy Programming with G Language and Multitasking

The Motion Control Units use G language to ensure easy programming. The Units have a large programming capacity of up to 100 programs and 2,000 program blocks, and allow independent operation of 4 tasks.

High-speed Interlocks

Interrupt programs can be executed from the motion control program using D codes (interrupt codes). Easy, fast interlocks ensure greater production efficiency. Synchronous control (electronic gears, electronic cams) is also possible.

Customizable Counter Units

A Whole New Concept

A high-speed PLC with 20 I/O points, 2-axis high-speed counter, and 2 pulse or analog outputs have all been combined into 1 Unit. The Customizable Counter Units allow easy execution of complicated applications, with custom programming of the ladder program.

Design Costs Reduced by Modularization

Ladder programs and I/O instructions to be in-vehicle shared by designers can be transferred from the main CPU Unit to the Units, allowing “modularization.” This enables designers to work in parallel to 80 Units can be used, enabling easy system expansion in the future.

Motion Applications with High-speed Response

A wide range of interrupt functions and superior response performance enable motion applications requiring high-speed response using pulse I/O.
The evolution of the SYSMAC CS1 accelerates DCS downsizing.

OMRON PLC-based Process Control brings major innovations to process automation.

- DCS functionality in a PLC
- Analog units with signal conversion functions
- A scalable system configuration
- Function block programming
- Sequence programming using either step ladders or sequence tables
- A direct link to HMI products

Provides an exceptionally open environment with PLC-based process control to advance standardization and IT integration of the process control system.

DiversifiedLoop Control is even easier to use. Programming becomes even easier with function-block programming. Packed with complete DCS functionality, the CS1s are programmed with function blocks designed specifically for process control. A flow sheet, function blocks are packed and interconnected made using a graphic interface. A wide array of control methods, from basic PID control to cascade and feed-forward control, are possible.

PLC-based Process Control Application Examples

- In-line Blending in a Food Plant
- Batch Control in a Chemical Plant

- Advanced PID Control with user-defined function blocks
- Duplex operation supported
- Complete maintenance functions

- Smart Process Control

- Major Innovations to Process Automation
DeviceNet Creates Many Advantages for Development and Design, for Production and Startup, and for Operation and Maintenance.

Advantages in Development and Design

Hardware Advantages
- Many compatible components for more options and easier system design.
- No restrictions on Master, enabling equipment modularity at the site.

Software Advantages
- Simple software standardization with profiles specified for each component.
- Open network construction eliminates the need to consider communications protocols, allowing program development using ladder diagrams only.

Advantages in Production and Startup

Hardware Advantages
- Assembly time shortened by standardization and modularization.
- No restrictions on Master, enabling equipment modularity at the site.

Software Advantages
- Simple wiring checking process to prevent wiring mistakes.
- Simple implementation of distributed equipment, reducing equipment manufacturing and distributed IO for remote control.

Startup Advantages
- Simple assembly at delivery site.
- Simple settings and communications network planning.
- Establishing communications with components plug-and-play simplicity.
- Simple identification of faults with complete monitoring tools.

Advantages in Operation and Maintenance

Operation Advantages
- Recipe control quickly improves yields, preventing maintenance to avoid system shutdowns and increase operating rates.
- Simple layout changes.
- Lines can be constructed for modular equipment manufacturing.

Maintenance Advantages
- Easy identification of fault locations reduces time to restore operations.
- A wide variety of data can be collected from components, aiding predictive maintenance.
- Simple plug-and-play replacement using connectors.
- Online replacement for maintenance without stopping the system.

The SYSMAC CS1 with DeviceNet capabilities get you even closer to the production site.
Greater Compatibility with PLCs
Multilingual Globalization for Greater Machine Flexibility

Faster Networking on the Factory Floor with the SYSMAC CS1 and NS-series Programmable Terminals

Ladder Monitor Function
See the NS-EXT01 Ladder Monitor system program in a Memory Card (the NS-EXT01 is sold separately) and install the Memory Card into a PLC or into the NS-series PT or switch box. You can then access the Ladder Monitor screen, which displays programming information in a list format. This makes it possible to display ladder programs created with the CX-Programmer.

Programming Console Function
You can use the programming console function to display and check ladder programs from the NS-series PT. The switch box function can be accessed directly from the screen of the NS-series PT. Operations can be performed on-site, all the way from editing, input settings, and alarm settings. (Each label can also be changed.)

Switch Box Function
The Switch Box function has been added to the NS-series PT System Monitor. The Switch Box function makes it possible to perform load switching between the factory floor and the NS-series PT. It also makes it possible to perform load switching between the factory floor and the NS-series PT. This allows you to connect to an Ethernet or, for high-speed communications without a computer.

Connect to Ethernet or, for high-speed communications, with PLCs and Controller Link. PT Network Capabilities Are More Powerful Than Ever Before.

Multilingual Version to Develop for Various Demands

- Create Chinese or Korean screens on your Windows system.
- Support multiple languages with the same screen data.
- Create the source language text and let translators handle the other languages.

Multi-language Input with Japanese Windows
When Windows 2000 or XP is being used, Simplified Chinese, Traditional Chinese, and Japanese are supported. And by using the Default Language setting, the language that appears in English text can be input in NS-Designer. Select the desired language with Global IME and input text in a different language. You can also use this program together with NS-Designer. CHUGOKU SHOKUGYOU and KAWANISHI MANUFACTURING CHUGOKU CHUGOKU SHOKUGYOU have registered a translated Chinese menu, Japanese menu, Japanese menu, and alarm settings. (Each label can also be changed.)

Label Switching to Select from Multiple Languages
Up to 16 groups of labels (labels 0 - 15) can be registered for functional objects such as labels, buttons, labels, and alarm settings. Each label can correspond to a different language, for example, label 0 = Japanese, label 1 = Simplified Chinese, label 2 = Korean, label 3 = English, etc. Once all of the labels have been input in the NS-Designer, you can easily change the language. For multilingual input functions, all of the labels can be switched to a different language at once by specifying the corresponding label number from the PLC.

Use Screen Import/Export Functions to Separate Translation Work
Property information for labels and other objects in screen data created using the NS-Designer can be exported to external files in CSV format for use in Excel and other programs. The screens can be created in the source language and then labels and other text exported to CSV files, which can be re-used translations for conversion to other languages. The translated CSV files can be imported into the desired languages into NS-Designer.
**Dramatic improvements in on-site information management achieved with data collection functions.**

The SYSMAC CS1 and ONC are accelerating advances in the production site.

**A High Level of Support for On-site Information Management**

The Open Network Controller's (ONC) high-level information processing functions, such as Web server functions and file management, enable significant reductions in design cost. Also, using NX-Server for NexNet ONC Edition, data on the DeviceNet network can be collected independently of I/O control at the CS1-series PLC. The ONC is capable of a high-level of interaction with the CS1 Series.

**Use High-level Languages with Primary Production Information**

Using the ONC in combination with optional software (purchased separately), such as the Data Collection/Distribution Software or the RemoteKit Software, enables the processing, accumulation, and distribution of primary production site information. If a higher level of information processing is required, user applications can be created using high-level languages, such as Visual Basic, Java, C, or Perl (available soon). By transferring information after secondary processing at the production site end, distribution of the workload between the CS1 and production management database enables a smooth flow of information.

**Expanded Role as CS1 Computer Unit**

Using an expandable ONC model with a CS1 bus interface (ITNC-EIS01-CST and ITNC-EIX01-CST) allows connection to the CS1 via a high-speed CS1 bus. The ONC acts as a CS1 Computer Unit allowing the CS1 to be used in applications not possible with a CS1 PLC alone. (Refer to CS1 Bus Interface Board [Cat. No. V212] for details.)

**Example of Production Management and Remote Monitoring System Created with the CS1 Series**

- **Production line**
- **Production line**
- **Production line**
- **Production line**

**Primary information at the production site**

**Secondary processing by ONC**

**Effective use with production management applications**

- **PC/WS**
- **Internal LAN**
- **Internet**
- **Intranet**
- **Public telephone line**

**Production management with database**

- **ONC**
- **ONC**
- **ONC**
- **ONC**

**Expanded Role as CS1 Computer Unit**

- **PC**
- **Internal LAN**
- **Internal LAN**
- **Internal LAN**

**Remote Kit Software**

- **Operation settings from Web**

The ONC, in combination with the CS1 bus interface (ITNC-EIS01-CST and ITNC-EIX01-CST), allows connection to the CS1 via a high-speed CS1 bus. The ONC acts as a CS1 Computer Unit allowing the CS1 to be used in applications not possible with a CS1 PLC alone. (Refer to CS1 Bus Interface Board [Cat. No. V212] for details.)

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A Complete Lineup of Units for Optimum Control.
With the CS1 PLCs, Memory Cards and specified ranges of the EM Area can be used as file memory. File memory can be used to store the entire user program, I/O memory contents, and/or parameter area contents.

<table>
<thead>
<tr>
<th>File memory</th>
<th>Memory type</th>
<th>Capacity</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory Cards</td>
<td>Flash memory</td>
<td>30 MB</td>
<td>HMC-EF372</td>
</tr>
<tr>
<td></td>
<td></td>
<td>64 MB</td>
<td>HMC-EF672</td>
</tr>
<tr>
<td>EM File Memory</td>
<td>RAM</td>
<td>EM Area capacity of CPU Unit (Max. capacity for CS1H-CPU67: 832 KB).</td>
<td>From the specified bank in the EM area of I/O memory to the last bank (specified in PC Setup).</td>
</tr>
</tbody>
</table>

**Note:** Memory Card Adapter: HMC-AP001 (The Memory Card Adapter can be used to mount Memory Cards in PC card slots to use the Cards on a personal computer.)
## CPU Units

<table>
<thead>
<tr>
<th>Model</th>
<th>I/O bits</th>
<th>Program capacity</th>
<th>Data memory capacity (See Note.)</th>
<th>Instruction processing speed</th>
<th>Built-in ports</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS1H-CPU67H/CS1D-CPU67S</td>
<td>5,120 bits (Up to 7 Expansion Racks)</td>
<td>250K steps</td>
<td>448K words</td>
<td>LD: 0.02 μs</td>
<td>peripheral port and RS-232C port. Memory Cards Inner Boards, such as Serial Communications Board Only a Loop Control Board (CS1D-LCB05D) can be mounted in a CS1D CPU Unit. No other Inner Boards can be used.</td>
<td></td>
</tr>
<tr>
<td>CS1H-CPU66H</td>
<td>120K steps</td>
<td>256K words</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1H-CPU65H/CS1D-CPU65S</td>
<td>60K steps</td>
<td>128K words</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1H-CPU64H</td>
<td>30K steps</td>
<td>64K words</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1H-CPU63H</td>
<td>20K steps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1G-CPU45H</td>
<td>5,120 bits (Up to 7 Expansion Racks)</td>
<td>60K steps</td>
<td>128K words</td>
<td>LD: 0.04 μs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1G-CPU44H/CS1D-CPU44S</td>
<td>1,280 bits (Up to 3 Expansion Racks)</td>
<td>30K steps</td>
<td>64K words</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1G-CPU43H</td>
<td>960 bits (Up to 2 Expansion Racks)</td>
<td>20K steps</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1G-CPU42H/CS1D-CPU42S</td>
<td>10K steps</td>
<td>10K steps</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1D-CPU65H</td>
<td>5,120 bits (Up to 7 Expansion Racks)</td>
<td>60K steps</td>
<td>128K words</td>
<td>Basic instructions: 0.02 μs min. Special instructions: 0.04 μs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1D-CPU67H</td>
<td>250K steps</td>
<td>448K words</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The available data memory capacity is the sum of the Data Memory (DM) and the Extended Data Memory (EM).
CS1 CPU Unit Descriptions

### Specifications

#### Common Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control method</td>
<td>Stored program</td>
</tr>
<tr>
<td>I/O control method</td>
<td>Cyclic scan and immediate processing are both possible.</td>
</tr>
<tr>
<td>Programming</td>
<td>Ladder diagram</td>
</tr>
<tr>
<td>Instruction length</td>
<td>1 to 7 steps per instruction</td>
</tr>
<tr>
<td>Ladder instructions</td>
<td>Approx. 400 (3-digit function codes)</td>
</tr>
<tr>
<td>Execution time</td>
<td>Basic instructions: 0.02 μs min., Special instructions: 0.04 μs min.</td>
</tr>
<tr>
<td>Number of tasks</td>
<td>288 (256 of which are also used as interrupt tasks)</td>
</tr>
<tr>
<td>Cyclic tasks are executed each cycle and are controlled with TKON(820) and TKOF(821) instructions. The following 4 types of interrupt tasks are supported: Power OFF tasks: 1 max., Scheduled interrupt tasks: 2 max., I/O interrupt tasks: 32 max., External interrupt tasks: 256 max.</td>
<td></td>
</tr>
<tr>
<td>Interrupt types</td>
<td>Scheduled Interrupts: Interrupts generated at a time scheduled by CPU Unit’s built-in timer.</td>
</tr>
<tr>
<td>I/O Interrupts: Interrupts from Interrupt Input Units.</td>
<td></td>
</tr>
<tr>
<td>Power OFF Interrupts: Interrupts executed when CPU Unit’s power is turned OFF.</td>
<td></td>
</tr>
<tr>
<td>External I/O Interrupts: Interrupts from Special I/O Units, CS1 Special Units, or Inner Board.</td>
<td></td>
</tr>
<tr>
<td>Note: Interrupts cannot be used with a CS1D CPU Unit.</td>
<td></td>
</tr>
</tbody>
</table>

#### Function Blocks

(See note 1.)

<table>
<thead>
<tr>
<th>Area</th>
<th>Languages supported for use in function block definitions: Ladder programming language and structured text</th>
</tr>
</thead>
<tbody>
<tr>
<td>(The CIO Area can be used as work bits if not used as shown here.)</td>
<td></td>
</tr>
<tr>
<td>I/O Area</td>
<td>5,120: CIO 000000 to CIO 031915 (320 words from CIO 0000 to CIO 0319)</td>
</tr>
<tr>
<td>Setting of first rack words can be changed from default (CIO 0000) so that CIO 0000 to CIO 0999 can be used.</td>
<td></td>
</tr>
<tr>
<td>I/O bits are allocated to Basic I/O Units, such as CS1 Basic I/O Units, C200H Basic I/O Units, and C200H Group-2 High-density I/O Units.</td>
<td></td>
</tr>
<tr>
<td>Link Area</td>
<td>3,200 (200 words): CIO 10000 to CIO 119915 (words CIO 1000 to CIO 1199)</td>
</tr>
<tr>
<td>Link Area</td>
<td>CS1 CPU Bus Unit Area</td>
</tr>
<tr>
<td>Special I/O Unit Area</td>
<td>15,360 (960 words): CIO 200000 to CIO 295915 (words CIO 2000 to CIO 2959)</td>
</tr>
<tr>
<td>Special I/O Unit Area</td>
<td>8,196 (512 words): CIO 000000 to CIO 051115 (words CIO 0000 to CIO 0511)</td>
</tr>
<tr>
<td>C200H Special I/O Unit Area</td>
<td>8,196 (512 words): CIO 000000 to CIO 051115 (words CIO 0000 to CIO 0511)</td>
</tr>
<tr>
<td>C200H Special I/O Unit Area</td>
<td>8,196 (512 words): CIO 000000 to CIO 051115 (words CIO 0000 to CIO 0511)</td>
</tr>
<tr>
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<td>8,196 (512 words): CIO 000000 to CIO 051115 (words CIO 0000 to CIO 0511)</td>
</tr>
<tr>
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<td>8,196 (512 words): CIO 000000 to CIO 051115 (words CIO 0000 to CIO 0511)</td>
</tr>
<tr>
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<td>8,196 (512 words): CIO 000000 to CIO 051115 (words CIO 0000 to CIO 0511)</td>
</tr>
<tr>
<td>C200H Special I/O Unit Area</td>
<td>8,196 (512 words): CIO 000000 to CIO 051115 (words CIO 0000 to CIO 0511)</td>
</tr>
</tbody>
</table>

#### Note:

When using work bits in programming, use bits in Work Area first before using bits from other areas.
## CS1 CPU Unit Descriptions

### Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holding Area</td>
<td>8,192 bits (512 words): H00000 to H51115 (words H000 to H511)</td>
</tr>
<tr>
<td></td>
<td>Holding bits are used to control execution of program, and maintain their ON/OFF status when the PLC is turned OFF or operating mode is changed.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Words H512 to H1535 are allocated to the Function Block Holding Area and are used only for the function block instance area (internally allocated variable area).</td>
</tr>
<tr>
<td>Auxiliary Area</td>
<td>Read only: 7,168 bits (448 words): A00000 to A44715 (words A000 to A447) Read/write: 8,192 bits (512 words): A44800 to A95915 (words A448 to A959)</td>
</tr>
<tr>
<td></td>
<td>Auxiliary bits are allocated specific functions.</td>
</tr>
<tr>
<td>Temporary Area</td>
<td>16 bits (TR00 to TR15) Temporary bits are used to store ON/OFF execution conditions at program branches.</td>
</tr>
<tr>
<td>Timer Area</td>
<td>4,096: T00000 to T4095 (used for timers only)</td>
</tr>
<tr>
<td>Counter Area</td>
<td>4,096: C0000 to C4095 (used for counters only)</td>
</tr>
<tr>
<td>DM Area</td>
<td>32K words: D00000 to D32767</td>
</tr>
<tr>
<td></td>
<td>Used as a general-purpose data area for reading and writing data in word units (16 bits). Words in DM Area maintain their status when PLC is turned OFF or operating mode is changed.</td>
</tr>
<tr>
<td></td>
<td>Internal Special I/O Unit DM Area: D20000 to D22559 (100 words × 96 Units). Used to set parameters.</td>
</tr>
<tr>
<td></td>
<td>CS1 CPU Bus Unit DM Area: D30000 to D31599 (100 words × 16 Units). Used to set parameters.</td>
</tr>
<tr>
<td></td>
<td>Inner Board DM Area: D32000 to D32099. Used to set parameters for Inner Boards.</td>
</tr>
<tr>
<td></td>
<td>The DM Area is a general-purpose data area that is read and written by word (16 bits). The contents of the DM Area is maintained when the PLC is turned OFF or operating mode is changed.</td>
</tr>
<tr>
<td>EM Area</td>
<td>32K words per bank, 13 banks max.: E0_00000 to EC_32767 max. (Not available on some CPU Units.)</td>
</tr>
<tr>
<td></td>
<td>Used as a general-purpose data area for reading and writing data in word units (16 bits). Words in EM Area maintain their status when PLC is turned OFF or operating mode is changed.</td>
</tr>
<tr>
<td></td>
<td>The EM Area is divided into banks, and addresses can be set by either of following methods.</td>
</tr>
<tr>
<td></td>
<td>Changing current bank using EMBC(281) instruction and setting addresses for current bank.</td>
</tr>
<tr>
<td></td>
<td>Setting bank numbers and addresses directly.</td>
</tr>
<tr>
<td></td>
<td>EM data can be stored in files by specifying number of first bank. (EM file memory)</td>
</tr>
<tr>
<td>Data Registers</td>
<td>DR0 to DR15. Store offset values for indirect addressing. Data registers can be used independently in each task. One register is 16 bits (1 word).</td>
</tr>
<tr>
<td>Index Registers</td>
<td>IR0 to IR15. Store PLC memory addresses for indirect addressing. Index registers can be used independently in each task. One register is 32 bits (2 words).</td>
</tr>
<tr>
<td>Task Flag Area</td>
<td>32 (TK0000 to TK0031). Task Flags are read-only flags that are ON when corresponding cyclic task is executable and OFF when corresponding task is not executable or in standby status.</td>
</tr>
<tr>
<td>Trace Memory</td>
<td>4,000 words (500 data trace samples at the maximum sample size of 31 bits and 6 words)</td>
</tr>
<tr>
<td>File Memory</td>
<td>Memory Cards: Compact flash memory cards can be used (MS-DOS format).</td>
</tr>
<tr>
<td></td>
<td>EM file memory: Part of EM Area can be converted to file memory (MS-DOS format).</td>
</tr>
<tr>
<td></td>
<td>OMRON Memory Cards with 15-MB, 30-MB, or 48-MB capacities can be used.</td>
</tr>
</tbody>
</table>

**Note:**
1. Supported for CPU Unit Ver. 3.0 or later only.
2. Up to 16 C200H Special I/O Units can be used in one PLC, and with some C200H Special I/O Units, the limit is 10 Units. There are some I/O Units that are classified as Special I/O Units.
CS1 CPU Unit Descriptions

### Function Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parallel processing modes</td>
<td>The CS1G and CS1H CPU Units support processing modes in which the program is executed in parallel with peripheral processing.</td>
</tr>
<tr>
<td>Battery-free operation</td>
<td>The user program and system program can be automatically backed up flash memory is mounted.</td>
</tr>
<tr>
<td>Constant cycle time</td>
<td>1 to 32,000 ms (Unit: 1 ms)</td>
</tr>
<tr>
<td>Cycle time monitoring</td>
<td>Possible (Unit stops operating if cycle is too long): 1 to 40,000 ms (Unit: 10 ms)</td>
</tr>
<tr>
<td>I/O refreshing</td>
<td>Cyclic refreshing, immediate refreshing, refreshing by IORF(097).</td>
</tr>
<tr>
<td>I/O memory holding when changing operating modes</td>
<td>Possible (Depends on ON/OFF status of IOM Hold Bit in Auxiliary Area.)</td>
</tr>
<tr>
<td>Load OFF</td>
<td>All outputs on Output Units can be turned OFF.</td>
</tr>
<tr>
<td>Input time constant setting</td>
<td>Time constants can be set for inputs from CS1 Basic I/O Units. The time constant can be increased to reduce influence of noise and chattering or it can be decreased to detect shorter pulses on inputs. (CS1 Basic I/O Units only)</td>
</tr>
<tr>
<td>Mode setting at power-up</td>
<td>Possible</td>
</tr>
<tr>
<td>Memory Card functions</td>
<td>Automatic reading programs from Memory Card (autoboot).</td>
</tr>
<tr>
<td>Memory Card Storage Data</td>
<td>User program: Program file format (binary)</td>
</tr>
<tr>
<td>PC System Setup:</td>
<td>Data file format (binary)</td>
</tr>
<tr>
<td>I/O Memory:</td>
<td>Data file format (binary), text format, CSV format</td>
</tr>
<tr>
<td>Memory Card Read/Write</td>
<td>User program instructions, Peripheral Devices (such as Programming Console), Host Link computer.</td>
</tr>
<tr>
<td>Filing</td>
<td>Memory Card and EM (Extended Data Memory) Area can be handled as files.</td>
</tr>
<tr>
<td>Debugging</td>
<td>Force-set/reset, differential monitoring, data tracing (scheduled, each cycle, or when instruction is executed), instruction error tracing.</td>
</tr>
<tr>
<td>Online editing</td>
<td>One or more program blocks in user programs can be overwritten when CPU Unit is in PROGRAM or MONITOR mode. This function is not available for block programming areas.</td>
</tr>
<tr>
<td>Error check</td>
<td>User-defined errors (i.e., user can define fatal errors and non-fatal errors)</td>
</tr>
<tr>
<td>The FPD(269) instruction can be used to check execution time and logic of each programming block.</td>
<td></td>
</tr>
<tr>
<td>Error log</td>
<td>Up to 20 errors are stored in error log. Information includes error code, error details, and time error occurred.</td>
</tr>
<tr>
<td>Serial communications</td>
<td>Built-in peripheral port: Peripheral Device (including Programming Console), Host Links, NT Links</td>
</tr>
<tr>
<td>Built-in RS-232C port: Peripheral Device (excluding Programming Console), Host Links, no-protocol communications, NT Links</td>
<td></td>
</tr>
<tr>
<td>Communications Board (sold separately): Protocol macros, Host Links, NT Links</td>
<td></td>
</tr>
<tr>
<td>Clock</td>
<td>Provided on all models.</td>
</tr>
<tr>
<td>Power OFF detection time</td>
<td>10 to 25 ms (not fixed)</td>
</tr>
<tr>
<td>Power OFF detection delay time</td>
<td>0 to 10 ms (user-defined, default: 0 ms)</td>
</tr>
<tr>
<td>Memory protection</td>
<td>Held Areas: Holding bits, contents of Data Memory and Extended Data Memory, and status of counter Completion Flags and present values.</td>
</tr>
<tr>
<td>Note:</td>
<td>If IOM Hold Bit in Auxiliary Area is turned ON, and PC Setup is set to maintain IOM Hold Bit status when power to PLC is turned ON, contents of CIO Area, Work Area, part of Auxiliary Area, timer Completion Flag and PVs, Index Registers, and Data Registers will be saved.</td>
</tr>
<tr>
<td>Sending commands to a Host Link computer</td>
<td>FINS commands can be sent to a computer connected via Host Link System by executing Network Communications Instructions from PLC.</td>
</tr>
<tr>
<td>Remote programming and monitoring</td>
<td>Host Link communications can be used for remote programming and remote monitoring through a Controller Link System or Ethernet network.</td>
</tr>
<tr>
<td>Eight-level communications</td>
<td>(See note 2.)</td>
</tr>
<tr>
<td>Host Link communications can be used for remote programming and remote monitoring from devices on networks up to seven levels away (Controller Link Network, Ethernet Network, or other network).</td>
<td></td>
</tr>
<tr>
<td>Storing comments in CPU Unit</td>
<td>I/O comments can be stored in Memory Cards, EM file memory, or in the Comment MemoryArea (See note 1.) contained in the CPU Unit's flash memory.</td>
</tr>
<tr>
<td>Program check</td>
<td>Program checks are performed at beginning of operation for items such as no END instruction and instruction errors. The CX-Programmer can also be used to check programs.</td>
</tr>
<tr>
<td>Control output signals</td>
<td>RUN output: The contacts will turn ON (close) while CPU Unit is operating. These terminals are provided on C200HW-PA204R and C200HW-PA209R Power Supply Units.</td>
</tr>
<tr>
<td>Battery life</td>
<td>5 years at 25°C (Depending on the ambient operating temperature and communications conditions, 1.1 years min. Battery Set: CS1W-BAT01) (See note 3.)</td>
</tr>
<tr>
<td>Self-diagnostics</td>
<td>CPU errors (watchdog timer), I/O verification errors, I/O bus errors, memory errors, and battery errors.</td>
</tr>
<tr>
<td>Other functions</td>
<td>Storage of number of times power has been interrupted, the times of the interrupts, and system operation time (in Auxiliary Area).</td>
</tr>
</tbody>
</table>

**Note:**
1. Supported for CPU Unit Ver. 3.0 or later only.
2. Supported for CPU Unit Ver. 2.0 or later only. (Three-level communications are supported for Pre-Ver. 2.0 CPU Units.)
3. Use a Replacement Battery that is within two years of its date of manufacture.
### General Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Supply Unit</strong></td>
<td></td>
</tr>
<tr>
<td>C200HW-PA204</td>
<td></td>
</tr>
<tr>
<td>C200HW-PA204S</td>
<td></td>
</tr>
<tr>
<td>C200HW-PA204R</td>
<td></td>
</tr>
<tr>
<td>C200HW-PA209R</td>
<td></td>
</tr>
<tr>
<td>C200HW-PD024</td>
<td></td>
</tr>
<tr>
<td>C200HW-PD106R</td>
<td></td>
</tr>
<tr>
<td><strong>Supply voltage</strong></td>
<td></td>
</tr>
<tr>
<td>100 to 120 VAC or 200 to 240 VAC, 50/60 Hz</td>
<td>24 VDC</td>
</tr>
<tr>
<td>85 to 132 VAC or 170 to 264 VAC</td>
<td>100 VDC</td>
</tr>
<tr>
<td><strong>Operating voltage range</strong></td>
<td></td>
</tr>
<tr>
<td>85 to 143 VDC</td>
<td></td>
</tr>
<tr>
<td><strong>Power consumption</strong></td>
<td></td>
</tr>
<tr>
<td>120 VA max.</td>
<td>180 VA max.</td>
</tr>
<tr>
<td>40 W max.</td>
<td>50 W max.</td>
</tr>
<tr>
<td><strong>Inrush current</strong></td>
<td></td>
</tr>
<tr>
<td>30 A max.</td>
<td>30 A max. /100 to 120 VAC</td>
</tr>
<tr>
<td>40 A max. /200 to 240 VAC</td>
<td>30 A max.</td>
</tr>
<tr>
<td><strong>Output capacity</strong></td>
<td></td>
</tr>
<tr>
<td>4.6 A, 5 VDC (including CPU Unit power)</td>
<td>9 A, 5 VDC (including CPU Unit power)</td>
</tr>
<tr>
<td>0.625 A, 26 VDC, Total: 30 W</td>
<td>0.625 A, 26 VDC, Total: 30 W</td>
</tr>
<tr>
<td><strong>Output terminal</strong></td>
<td></td>
</tr>
<tr>
<td>Not provided</td>
<td>24 VDC load current consumption</td>
</tr>
<tr>
<td>Less than 0.3 A: +17%/-11% 0.3 A or greater: +10%/-11% (Lot No. 0197 or higher)</td>
<td>Not provided</td>
</tr>
<tr>
<td><strong>RUN output</strong> (See Note 1.)</td>
<td>Contact configuration: SPST-NO</td>
</tr>
<tr>
<td>Not provided</td>
<td>Contact configuration: SPST-NO</td>
</tr>
<tr>
<td>Contact configuration: SPST-NO</td>
<td></td>
</tr>
<tr>
<td>Switch capacity: 250 VAC, 2 A (resistive load)</td>
<td></td>
</tr>
<tr>
<td>250 VAC, 0.5 A (inductive load), 24 VDC, 2 A</td>
<td></td>
</tr>
<tr>
<td><strong>Insulation resistance</strong></td>
<td>20 MΩ min. (at 500 VDC) between AC external and GR terminals (See Note 1.)</td>
</tr>
<tr>
<td><strong>Dielectric strength</strong></td>
<td>2,300 VAC 50/60 Hz for 1 min between AC external and GR terminals (See Note 1.), leakage current: 10 mA max.</td>
</tr>
<tr>
<td>1,000 VAC 50/60 Hz for 1 min between AC external and GR terminals (See Note 1.), leakage current: 10 mA max.</td>
<td></td>
</tr>
<tr>
<td><strong>Noise immunity</strong></td>
<td>Conforms to IEC61000-4-4, 2 kV (power lines)</td>
</tr>
<tr>
<td><strong>Vibration resistance</strong></td>
<td>10 to 57 Hz, 0.075-mm amplitude, 57 to 150 Hz, acceleration: 9.8 m/s² in X, Y, and Z directions for 80 minutes (Sweep time 8 min x 10 = total time 80 min.)</td>
</tr>
<tr>
<td>CPU Unit mounted to a DIN track: 2 to 55 Hz, 2.9 m/s² in X, Y, and Z directions for 20 minutes</td>
<td></td>
</tr>
<tr>
<td><strong>Shock resistance</strong></td>
<td>147 m/s², 3 times each in X, Y, and Z directions</td>
</tr>
<tr>
<td><strong>Ambient operating temperature</strong></td>
<td>0 to 55°C</td>
</tr>
<tr>
<td><strong>Ambient operating humidity</strong></td>
<td>10% to 90% (with no condensation)</td>
</tr>
<tr>
<td><strong>Atmosphere</strong></td>
<td>Must be free from corrosive gases.</td>
</tr>
<tr>
<td><strong>Ambient storage temperature</strong></td>
<td>−20 to 75°C (excluding battery)</td>
</tr>
<tr>
<td><strong>Grounding</strong></td>
<td>Less than 100 Ω</td>
</tr>
<tr>
<td><strong>Enclosure</strong></td>
<td>Mounted in a panel.</td>
</tr>
</tbody>
</table>
### CS1 CPU Unit Descriptions

#### Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight</strong></td>
<td>All models are each 6 kg max.</td>
</tr>
<tr>
<td><strong>CPU Rack Dimensions (mm)</strong></td>
<td>2 slots: 198.5 × 157 × 123 (W x H x D)</td>
</tr>
<tr>
<td></td>
<td>3 slots: 260 × 130 × 123 (W x H x D)</td>
</tr>
<tr>
<td></td>
<td>8 slots: 435 × 130 × 123 (W x H x D)</td>
</tr>
<tr>
<td></td>
<td>10 slots: 505 × 130 × 123 (W x H x D)</td>
</tr>
<tr>
<td><strong>Safety measures</strong></td>
<td>Conforms to UL, CSA, cUUs, cUL, NK, Lloyd's, and EC directives.</td>
</tr>
<tr>
<td></td>
<td>Conforms to cULs</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>1. Disconnect the Power Supply Unit's LG terminal from the GR terminal when testing insulation and dielectric strength. Internal components will be damaged if testing is performed with these terminals connected.</td>
</tr>
<tr>
<td></td>
<td>2. Only when mounted to a Backplane.</td>
</tr>
<tr>
<td></td>
<td>3. Depth is 153 mm for C200HW-PA209R.</td>
</tr>
<tr>
<td></td>
<td>4. Enquire separately for general specifications of Process I/O Units.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Supply Unit</strong></td>
<td>CS1D-PA207R</td>
</tr>
<tr>
<td><strong>Supply voltage</strong></td>
<td>100 to 120 VAC or 200 to 240 VAC, 50/60 Hz</td>
</tr>
<tr>
<td><strong>Operating voltage range</strong></td>
<td>85 to 132 VAC or 170 to 264 VAC</td>
</tr>
<tr>
<td><strong>Power consumption</strong></td>
<td>150 VA max.</td>
</tr>
<tr>
<td><strong>Inrush current</strong></td>
<td>30 A max.</td>
</tr>
<tr>
<td><strong>Output capacity</strong></td>
<td>7 A, 5 VDC (including CPU Unit power)</td>
</tr>
<tr>
<td></td>
<td>1.3 A, 26 VDC</td>
</tr>
<tr>
<td></td>
<td>Total: 35 W</td>
</tr>
<tr>
<td><strong>Output terminal</strong></td>
<td>Not provided</td>
</tr>
<tr>
<td><strong>RUN output</strong></td>
<td>Contact configuration: SPST-NO</td>
</tr>
<tr>
<td></td>
<td>Switch capacity:</td>
</tr>
<tr>
<td></td>
<td>240 VAC, 2 A (resistive load)</td>
</tr>
<tr>
<td></td>
<td>120 VAC, 0.5 A (inductive load)</td>
</tr>
<tr>
<td></td>
<td>24 VDC, 2 A (resistive load)</td>
</tr>
<tr>
<td></td>
<td>24 VDC, 2 A (inductive load)</td>
</tr>
<tr>
<td><strong>Insulation resistance</strong></td>
<td>20 MΩ min. (at 500 VDC) between AC external and GR terminals (See Note 2.)</td>
</tr>
<tr>
<td><strong>Dielectric strength</strong></td>
<td>2,300 VAC 50/60 Hz for 1 min between AC external and GR terminals (See Note 2.)</td>
</tr>
<tr>
<td></td>
<td>Leakage current: 10 mA max.</td>
</tr>
<tr>
<td></td>
<td>1,000 VAC 50/60 Hz for 1 min between AC external and GR terminals (See Note 2.)</td>
</tr>
<tr>
<td></td>
<td>Leakage current: 10 mA max.</td>
</tr>
<tr>
<td><strong>Noise immunity</strong></td>
<td>Conforms to IEC61000-4-4, 2 kV (power lines)</td>
</tr>
<tr>
<td><strong>Vibration resistance</strong></td>
<td>10 to 57 Hz, 0.075-mm amplitude, 57 to 150 Hz, acceleration: 9.8 m/s² in X, Y, and Z directions for 80 minutes (Sweep time 8 min × 10 = total time 80 min.)</td>
</tr>
<tr>
<td><strong>Shock resistance</strong></td>
<td>147 m/s², 3 times each in X, Y, and Z directions</td>
</tr>
<tr>
<td><strong>Ambient operating temperature</strong></td>
<td>0 to 55°C</td>
</tr>
<tr>
<td><strong>Ambient operating humidity</strong></td>
<td>10% to 90% (with no condensation)</td>
</tr>
<tr>
<td><strong>Atmosphere</strong></td>
<td>Must be free from corrosive gases.</td>
</tr>
<tr>
<td><strong>Ambient storage temperature</strong></td>
<td>-20 to 75°C (excluding battery)</td>
</tr>
<tr>
<td><strong>Grounding</strong></td>
<td>Less than 100 Ω</td>
</tr>
<tr>
<td><strong>Enclosure</strong></td>
<td>Mounted in a panel.</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>All models are each 6 kg max.</td>
</tr>
</tbody>
</table>

**Note:**

1. Only when mounted to a CPU Backplane.
2. Disconnect the Power Supply Unit's LG terminal from the GR terminal when testing insulation and dielectric strength. Internal components will be damaged if testing is performed with these terminals connected.
CS1 CPU Unit Descriptions

CS1G/CS1H Basic System Configuration

CPU Rack

A CPU Rack consists of a CPU Unit, Power Supply Unit, CPU Backplane, Basic I/O Units, Special I/O Units, and CPU Bus Units. The Serial Communications Board and Memory Cards are optional.

Note: The Backplane depends on the type of CPU Rack, Expansion I/O Racks, and Slave Racks that are used.

Expansion Racks

Both C200H and CS1 Expansion Racks can be used.

- C200H Expansion I/O Racks can be connected to CPU Racks, CS1 Expansion Racks, or other C200H Expansion I/O Racks.
- CS1 Expansion Racks can be connected to CPU Racks or other CS1 Expansion Racks.

An Expansion Rack consists of a Power Supply Unit, a CS1 or C200H Expansion I/O Backplane, Basic I/O Units, Special I/O Units, and a CS1 CPU Bus Units.

Long-distance Expansion Racks

An I/O Control Unit and I/O Interface Units can be used to extend the normal limit of 12 m to 50 m for each of two series of CS1 Expansion Racks. The following Units can be mounted to Long-distance Expansion Racks: CS1 Basic I/O Units, CS1 Special I/O Units, and CS1 CPU Bus Units. (C200H Units cannot be mounted to Long-distance Expansion Racks.)
CS1 CPU Unit Descriptions

CS1G/CS1H Expansion Racks

Expansion Rack Patterns
The following diagrams show the 5 possible patterns of Expansion Racks.

CPU Rack with CS1 Expansion Racks

CPU Rack with CS1 Long-Distance Expansion Racks

CPU Rack + CS1 Expansion Rack + C200H Expansion Racks

CPU Rack + C200H Expansion Racks

Note: C200H Units cannot be mounted to Long-distance Expansion Racks.
CS1 CPU Unit Descriptions

CPU Rack with CS1 Expansion Rack and CS1 Long-Distance Expansion Racks

Note: CS10H Units cannot be mounted to Long-distance Expansion Racks. (They can be mounted to the CS1 Expansion Rack with the I/O Control Unit mounted.)
**CS1 CPU Unit Descriptions**

**CS1D System Configuration**

### CPU Rack

A CPU Rack consists of a Duplex CPU Backplane to which CPU Units, Power Supply Units, a Duplex Unit, CS1-series Basic I/O Units, CS1-series Special I/O Units, and CS1-series CPU Bus Units are mounted.

Memory Cards and Inner Boards to mount in the CPU Units are optional. (Inner Board cannot be mounted to the CS1D-CPU67H/P)

The CPU Units, Power Supply Units, Duplex CPU Backplane, and Duplex Unit are all designed specifically for CS1D PLCs.

**Note:** Different Backplanes are used for the CPU Rack and Expansion Racks. Be sure to use the correct Backplane.

### Expansion Racks

An Expansion Rack consists of an Expansion Backplane to which Power Supply Units, CS1-series Basic I/O Units, CS1-series Special I/O Units, and CS1-series CPU Bus Units are mounted.

The Power Supply Units and Expansion Backplane are designed specifically for CS1D PLCs.

CS1-series Expansion Backplanes and C200H Backplanes cannot be connected.

### Long-distance Expansion Racks

A Long-distance Expansion Rack consists of an Expansion Backplane to which an I/O Interface Unit, CS1-series Basic I/O Units, CS1-series Special I/O Units, and CS1-series CPU Bus Units are mounted. An I/O Control Unit is used to connect to the Long-distance Expansion Racks.

Using Long-distance Expansion Rack increases the normal limit of 12 m for the Rack to 50 m.

### CS1D PLCs

With a CS1D Duplex-CPU System, two CPU Units can be mounted to the CPU Rack for Duplex Mode operation (Duplex Mode), or just one CPU Unit can be mounted for Simplex Mode operation. In either case, a Duplex Unit is required.

With a CS1D Single-CPU System, just one CPU Unit is mounted and a Duplex Unit is not required.

Also, two Power Supply Units can be mounted to any Rack to increase redundancy. (Racks can also be operated with only one Power Supply Unit.) With any of these combinations, there are no further restrictions if the system configuration, e.g., the same number of Expansion Racks can be used as with the other CS1-series PLCs.

**Note:** C200H Basic I/O Units, C200H Special I/O Units, and C200H CPU Bus Units cannot be mounted on any Rack.
CS1 CPU Unit Descriptions

CS1D Expansion Rack Patterns

There are two patterns that can be used.

CPU Rack + Expansion I/O Racks

CPU Rack + Long-distance Expansion Racks

CS1D System Configuration
CS1 CPU Unit Descriptions

Mounting Dimensions

■ Dimensions

![Image of a CPU unit]

■ Backplanes

CPU Backplane with 2 Slots

![Image of a CPU backplane with 2 slots]

CPU Backplane with 3, 5, 8, or 10 Slots

![Image of a CPU backplane with 3, 5, 8, or 10 slots]

Note: Expansion Backplanes cannot be connected to 2-slot CPU Backplanes.

■ Mounting Height

The height of all Racks is from 118 to 153 mm depending on the Units that are mounted. Additional height is required to connect Peripheral Devices and Cables. Be sure to allow sufficient mounting height in the control panel containing the PLC.

### Mounting Dimensions

<table>
<thead>
<tr>
<th>Backplane</th>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>W</th>
<th>H</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Backplanes</td>
<td>CS1W-BC022/023 (2 slots)</td>
<td>172.3</td>
<td>145</td>
<td>198.5</td>
<td>157</td>
<td>123</td>
</tr>
<tr>
<td>CS1W-BC032/033 (3 slots)</td>
<td>246</td>
<td>118</td>
<td>260</td>
<td>132</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1W-BC052/053 (5 slots)</td>
<td>316</td>
<td>330</td>
<td>330</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1W-BC082/083 (8 slots)</td>
<td>421</td>
<td>435</td>
<td>435</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1W-BC102/103 (10 slots)</td>
<td>491</td>
<td>505</td>
<td>505</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1D-BC052 (for Duplex-CPU System)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1D-BC082S (for Single-CPU System)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CS1 Expansion Backplanes</th>
<th>Model</th>
<th>A</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS1W-BI032/033 (3 slots)</td>
<td>246</td>
<td>260</td>
<td></td>
</tr>
<tr>
<td>CS1W-BI052/053 (5 slots)</td>
<td>316</td>
<td>330</td>
<td></td>
</tr>
<tr>
<td>CS1W-BI082/83 (8 slots)</td>
<td>421</td>
<td>435</td>
<td></td>
</tr>
<tr>
<td>CS1W-BI102/103 (10 slots)</td>
<td>491</td>
<td>505</td>
<td></td>
</tr>
<tr>
<td>CS1D-BI092 (for CS1D PLC)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C200H Expansion I/O Backplanes</th>
<th>Model</th>
<th>A</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>C200HW-BI031 (3 slots)</td>
<td>175</td>
<td>189</td>
<td></td>
</tr>
<tr>
<td>C200HW-BI051 (5 slots)</td>
<td>245</td>
<td>259</td>
<td></td>
</tr>
<tr>
<td>C200HW-BI081-V1 (8 slots)</td>
<td>350</td>
<td>364</td>
<td></td>
</tr>
<tr>
<td>C200HW-BI101-V1 (10 slots)</td>
<td>420</td>
<td>434</td>
<td></td>
</tr>
</tbody>
</table>

Note: I/O Connecting Cables are 12 m long max. and require sufficient space to maintain the min. bending radius.
CS1-series Features

Better Basic Performance

*Large Program, Memory, and I/O Capacity; High-speed Instructions and Peripheral Servicing*

**Better Machine Performance with High-speed Processing**

CS1 PLCs provide ample speed for advanced machine interfaces, communications, and data processing.

**Execution Times from 20 ns**

Faster instruction processing includes 0.02 µs for LD and 0.18 µs for MOV. And special instructions are processed almost as fast as basic ones (e.g., as fast as 0.18 µs for some instructions).

**30 Times the Overall Cycle Speed**

The following examples are for 30K-step programs (basic instructions: 50%; MOV instructions: 30%; arithmetic operation instructions: 20%).

**4 Times the Peripheral Servicing and I/O Refresh Speed**

CS1 refresh time for 96 input points: 0.02 ms (15 times faster)
For 96 output points: 0.02 ms (10 times faster)
For 256 words for Communications Unit: 0.45 ms (4 times faster)

**Large Capacities to Do the Job**

CS1 PLCs also provide ample capacity for advanced machine interfaces, communications, and data processing.

**4 Times the Program Capacity**

Create programs with up to 250K steps.

**4.3 Times the I/O Capacity**

Handle up to 5,120 I/O points.

**4.5 Times the Data Memory**

Use up to 448K words of data memory (word data).

**16 Times the Number of Timers/Counters**

Program up to 4,096 timers and 4,096 counters.