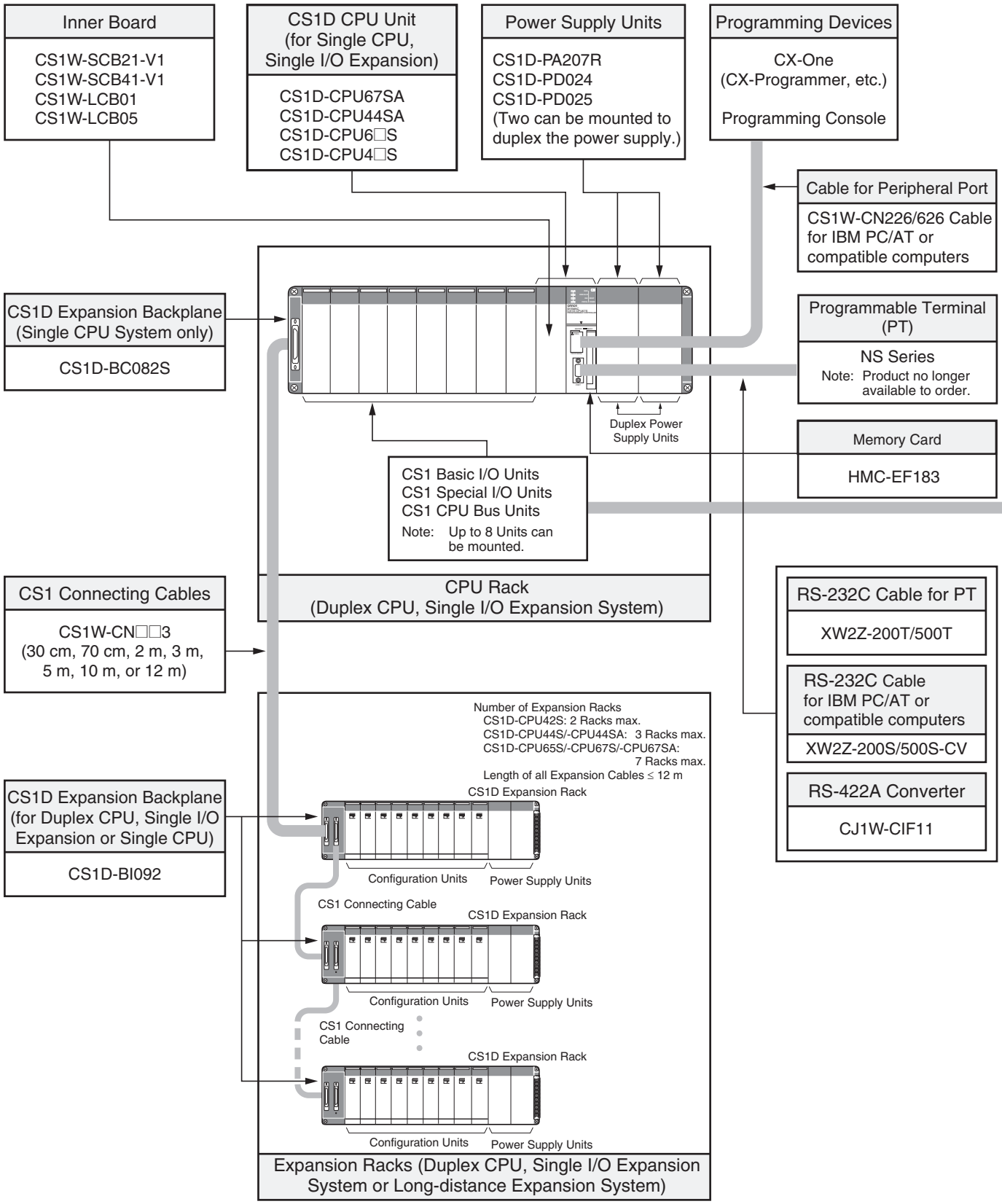
Basic System

SYSTEM 3 | CS1D Single CPU System



Configuration Units

Basic I/O Units				
8 I/O points	**16 I/O points**	**32 I/O points**	**64 I/O points**	**96 I/O points**
Input Units				
---	• DC Input Units CS1W-ID211 • AC Input Units CS1W-IA111 CS1W-IA211	• DC Input Units CS1W-ID231	• DC Input Units CS1W-ID261	• DC Input Units CS1W-ID291
Output Units				
• Triac Output Units CS1W-OA201 • Relay Output Units (independent commons) CS1W-OC201	• Transistor Output Units CS1W-OD21□ • Triac Output Units CS1W-OA211 • Relay Output Units CS1W-OC211	• Transistor Output Units CS1W-OD23□	• Transistor Output Units CS1W-OD26□	• Transistor Output Units CS1W-OD29□
I/O Units				
---	---	---	32 inputs and 32 outputs • DC Input/Transistor Output Units CS1W-MD26□ • TTL I/O Units CS1W-MD561	48 inputs and 48 outputs • DC Input/Transistor Output Units CS1W-MD29□
Other Units				
---	• Interrupt Input Units CS1W-INT01 • High-speed Input Units CS1W-IDP01	B7A Interface Units • 32 inputs CS1W-B7A12 • 32 outputs CS1W-B7A02 • 16 inputs and 16 outputs CS1W-B7A21	B7A Interface Units • 32 inputs and 32 outputs CS1W-B7A22	---

Special I/O Units, CPU Bus Units, and Inner Boards			
Temperature Sensor Input Units (Process Analog I/O Units) • CS1W-PTS□□ Analog Input Units • Analog Input Units CS1W-AD041-V1 CS1W-AD081-V1 CS1W-AD161 • Process Analog Input Units such as Isolated-type DC Input Units CS1W-PDC□□ CS1W-PTW01 CS1W-PTR0□ Analog Output Units • Analog Output Units CS1W-DA041 CS1W-DA08V CS1W-DA08C • Isolated-type Analog Output Units (Process Analog I/O Units) CS1W-PMV01 CS1W-PMV02 Analog I/O Units • CS1W-MAD44 Isolated-type Pulse Input Unit (Process Analog I/O Unit) • CS1W-PPS01 Loop Control Boards • CS1W-LCB01 • CS1W-LCB05	• High-speed Counter Units CS1W-CT021 CS1W-CT041 • Customizable Counter Units CS1W-HCP22-V1 CS1W-HCA□2-V1 CS1W-HIO01-V1 • Position Control Units CS1W-NC1□3 CS1W-NC2□3 CS1W-NC4□3 • MECHATROLINK-II-compatible Position Control Units CS1W-NC271 CS1W-NC471 CS1W-NCF71 • Motion Control Units CS1W-MC221-V1 CS1W-MC421-V1	• Serial Communications Boards CS1W-SCB21-V1 CS1W-SCB41-V1 • Serial Communications Units CS1W-SCU21-V1 CS1W-SCU31-V1 • EtherNet/IP Units CS1W-EIP21 CS1W-EIP21S • Ethernet Units CS1W-ETN21 CS1D-ETN21D • Controller Link Units CS1W-CLK23 CS1W-CLK13 CS1W-CLK53 • SYSMAC LINK Units CS1W-SLK11 CS1W-SLK21 • FL-Net Units CS1W-FLN22 • DeviceNet Units CS1W-DRM21-V1 • CompoNet Master Units CS1W-CRM21	• ID Sensor U Units CS1W-V680C11 CS1W-V680C12 CS1W-V600C11 CS1W-V600C12 • GPIB Interface Units CS1W-GPI01 • High-speed Data Storage Units CS1W-SPU01-V2 CS1W-SPU02-V2

Note: Including models no longer available to order.

Basic System

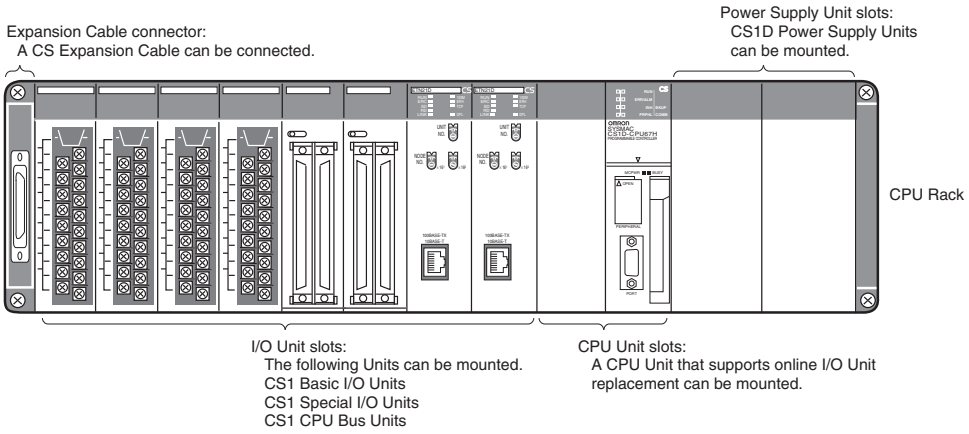
SYSTEM 3	CS1D Single CPU System

This system configuration is ideal when you want to replace a Power Supply Unit or other Units online or improve redundancy in the Communications section.

The CS1D-CPU□□SA CPU Unit supports FB, ST and SFC programming.

■CPU Rack

System Configuration



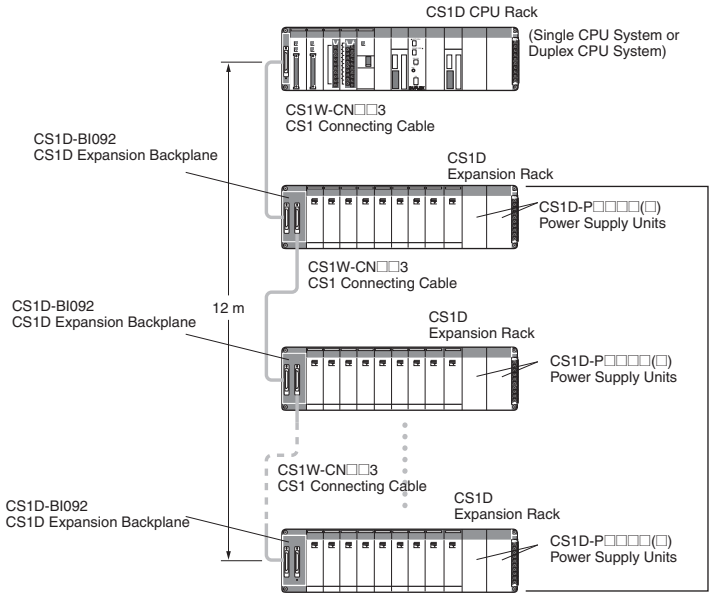
List of Required Devices

Rack	Unit name	Number required
CPU Rack	CS1D-BC082S CPU Backplane (for Single CPU Systems)	1 Backplane
	CS1D-PA207R/CS1D-PD02□ Power Supply Unit	2 Units (Just 1 Unit can also be used.)
	CS1D-CPU67SA/CS1D-CPU44SA/CS1D-CPU6□S/CS1D-CPU4□S CPU Unit	1 Unit
	Maximum number of Configuration Units	8 Units

■Single I/O Expansion Racks

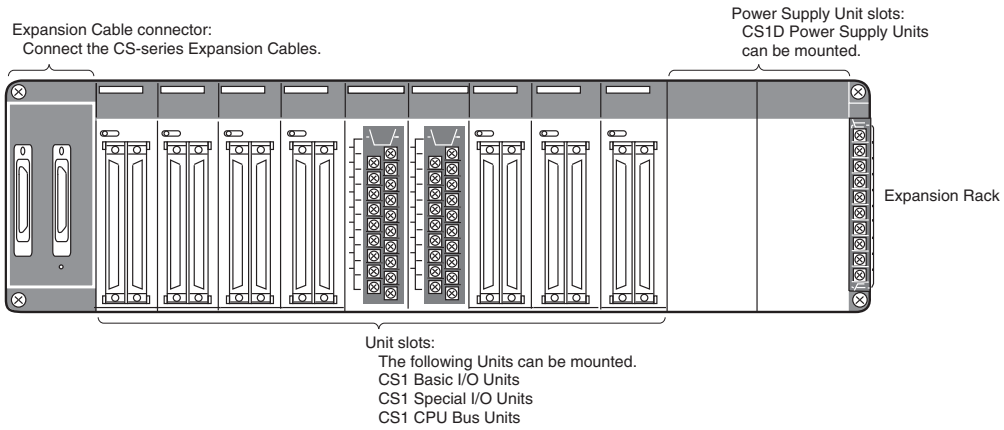
Like the CS1-series PLCs, it is possible to connect Expansion Racks and expand the PLC system just by connecting Expansion Cables. The Single CPU System supports the same functions as Duplex CPU Single I/O Expansion System. Special I/O Control Units and I/O Interface Units are not required.

System Configuration



Maximum Expansion Racks

Model	Maximum No. of Racks
CS1D-CPU67SA **CS1D-CPU6□S**	7 Racks
CS1D-CPU44SA **CS1D-CPU44S**	3 Racks
CS1D-CPU42S	2 Racks



List of Required Devices

Rack	Unit name		Number required
CPU Rack	Maximum number of Configuration Units	Duplex CPU, Single I/O Expansion System	5 Units
		Single CPU System	8 Units

Rack	Unit name	Number required
Expansion Rack	CS1D-BI092 Expansion Backplane (for Duplex CPU Single I/O Expansion Systems or Single CPU Systems)	1 Backplane
	CS1D-PA207R/CS1D-PD02□ Power Supply Unit	2 Units (Just 1 Unit can also be used.)
	Maximum number of I/O Units (Duplex CPU Single I/O Expansion System or Single CPU System)	9 Units

Limitations on the System Configuration

Note: 1. These Racks cannot be used in a Duplex CPU Dual I/O Expansion System.

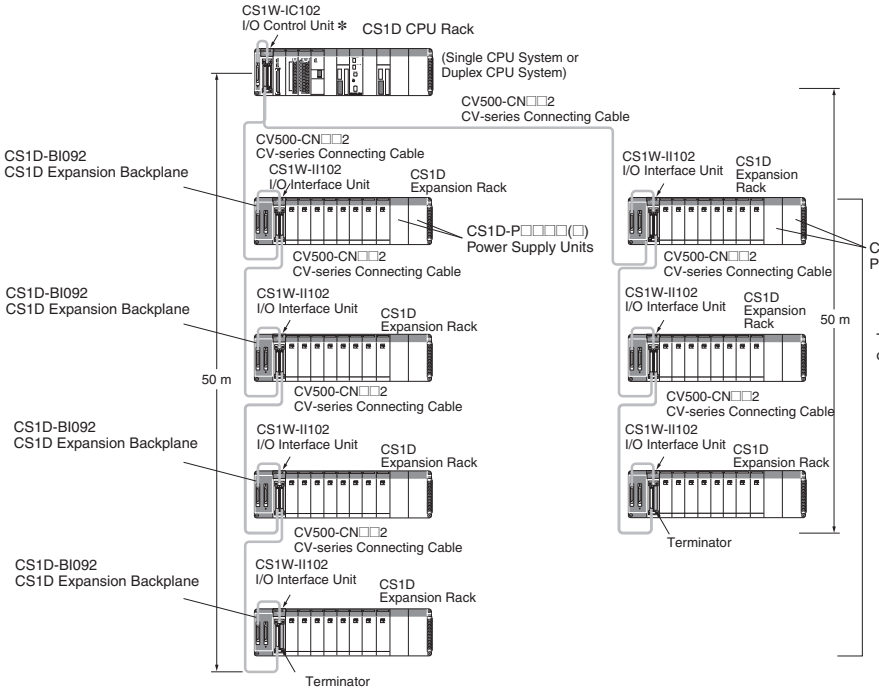
2. The following functions cannot be used: Duplex Expansion Cables, Online replacement of a Duplex Unit, Online replacement of Units without a Programming Device, and Online addition of I/O Units and Expansion Backplanes. If any of these functions are required, a Duplex CPU, Dual I/O Expansion System must be used.

3. CS1W-PNT21 units can be used in the configuration with CS1D (duplex system) but do NOT support HOT SWAPPING function. (CS1W-PNT21 is a spcific product released in a specific area.)

■CS1D Long-distance Expansion Racks

A Long-distance Expansion System can connect a Rack at a distance of up to 50 m. The Long-distance Expansion System functions can be used in the Duplex CPU Single I/O Expansion System and Single CPU System. Special I/O Control Units and I/O Interface Units are used.

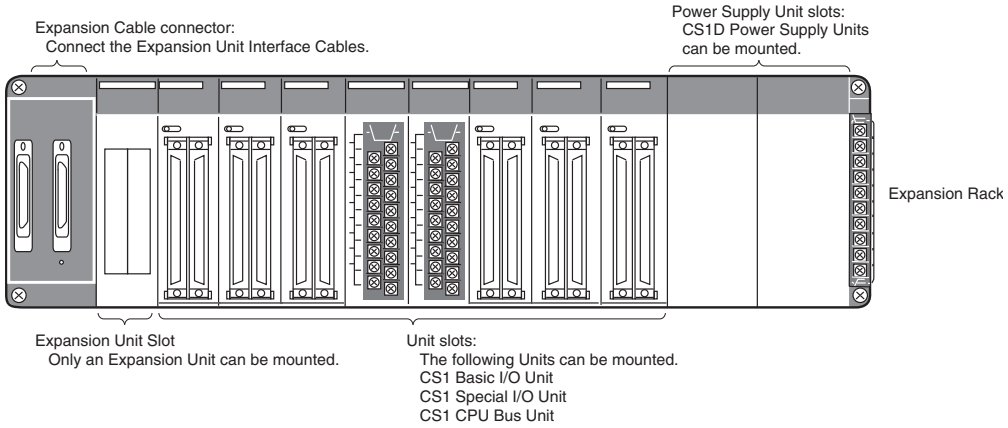
System Configuration



Maximum Expansion Racks

Model	Maximum No. of Racks
CS1D-CPU67SA **CS1D-CPU6□S**	7 Racks
CS1D-CPU44SA **CS1D-CPU44S**	3 Racks
CS1D-CPU42S	2 Racks

✻ If even one CV500-CN□□2 Cable for Long-distance Expansion is used in the PLC system, an I/O Control Unit is required in the source CS1 Rack.



List of Required Devices

Rack	Unit name		Number required
CPU Rack	CS1W-IC102 I/O Control Unit (for Duplex CPU Single I/O Expansion Systems and Single CPU Systems)		1 Unit
	Maximum number of Configuration Units	Duplex CPU Single I/O Expansion System	4 Units
		Single CPU System	7 Units

Rack	Unit name	Number required
Expansion Rack	CS1D-BI092 Expansion Backplane (for Duplex CPU Single I/O Expansion Systems or Single CPU Systems)	1 Backplane
	CS1D-PA207R/CS1D-PD02□ Power Supply Unit	2 Units (Just 1 Unit can also be used.)
	CS1W-II102 I/O Interface Unit (for Duplex CPU Single I/O Expansion Systems or Single CPU Systems)	1 Unit
	Maximum number of Configuration Units	8 Units

Limitations on the System Configuration

Note: 1. These Racks cannot be used in a Duplex CPU Dual I/O Expansion System.

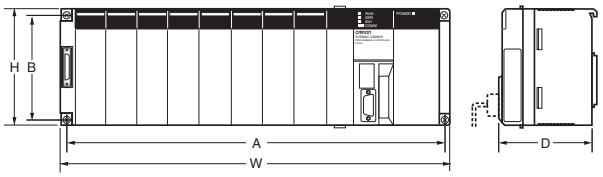
2. The following functions cannot be used: Duplex Expansion Cables, Online replacement of a Duplex Unit, Online replacement of Units without a Programming Device, and Online addition of I/O Units and Expansion Backplanes. If any of these functions are required, a Duplex CPU, Dual I/O Expansion System must be used.

3. CS1W-PNT21 units can be used in the configuration with CS1D (duplex system) but do NOT support HOT SWAPPING function. (CS1W-PNT21 is a spcific product released in a specific area.)

Dimensions

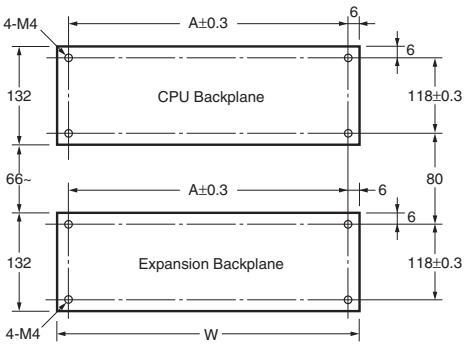
(Unit: mm)

■External Dimensions



Name	Model	A	B	W	H	D
CS1D CPU Backplane	CS1D-BC042D CS1D-BC052 CS1D-BC082S	491	118	505	132	123
CS1D Expansion Backplane	CS1D-BI82D CS1D-BI092	491	118	505	132	123

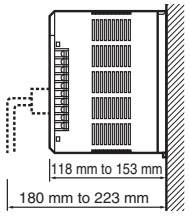
■Backplane Mounting Dimensions



Name	Model	A	W
CS1D CPU Backplane	CS1D-BC042D	491	505
	CS1D-BC052		
	CS1D-BC082S		
CS1D Expansion Backplane	CS1D-BI082D		
	CS1D-BI092		

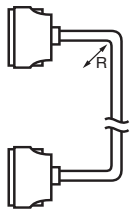
■Mounting Height

The mounting height of CPU Racks and Expansion Racks is 118 to 123 mm, depending on I/O Units mounted. If Programming Devices or connecting cables are attached, the additional dimensions must be taken into account. Allow sufficient clearance in the control panel in which the PLC is mounted.



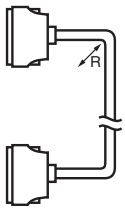
Note: When using Expansion Racks, the total length of the I/O Connecting Cables must be less than 12 m. When bending an I/O Connecting Cables, provide at least the minimum bending radius shown in the following diagrams.

CS1 Connecting Cable



Note: Cable thickness: 8.6 mm dia.

Long-distance Expansion Rack I/O Connecting Cable



Note: Cable thickness: 10 mm dia.

Basic System

SYSTEM 3	CPU Rack (Single CPU System)

The CPU Rack requires a CS1D CPU Backplane (for a Single CPU System), one or two CS1D Power Supply Units, and a CS1D CPU Unit (for a Single CPU System). If the length of the Connecting Cables exceeds 12 m, a Long-distance Expansion System must be used and a Long-distance I/O Control Unit must be mounted.

■CS1D CPU Units

Name	Specifications						Current consumption (A)		Model
	Number of I/O points	Program capacity	Data Memory	Programming	Duplex CPUs	Interrupt functions	5 V system	26 V system	
CS1D CPU Unit for Single CPU Systems 	5,120 points (7 Racks)	250 Ksteps	448 Kwords (DM: 32 Kwords, EM: 32 Kwords × 13 banks)	Ladder, FB, ST, SFC	---	OK	0.82 ✻1	---	CS1D-CPU67SA
	1,280 points (3 Racks)	30 Ksteps	64 Kwords (DM: 32 Kwords, EM: 32 Kwords × 1 bank)				0.82 ✻1	---	CS1D-CPU44SA
	5,120 points (7 Racks)	250 Ksteps	448 Kwords (DM: 32 Kwords, EM: 32 Kwords × 13 banks)	Ladder			0.82 ✻1	---	CS1D-CPU67S ✻2
	5,120 points (7 Racks)	60 Ksteps	128 Kwords (DM: 32 Kwords, EM: 32 Kwords × 3 banks)				0.82 ✻1	---	CS1D-CPU65S ✻2
	1,280 points (3 Racks)	30 Ksteps	64 Kwords (DM: 32 Kwords, EM: 32 Kwords × 1 bank)	Ladder			0.78 ✻1	---	CS1D-CPU44S ✻2
	960 points (2 Racks)	10 Ksteps	64 Kwords (DM: 32 Kwords, EM: 32 Kwords × 1 bank)				0.78 ✻1	---	CS1D-CPU42S ✻2

✻1. NT-AL001 Link Adapters consume an additional 0.15 A each when used.
✻2. Product no longer available to order.

■CS1D Power Supply Units

Two Power Supply Units can be mounted in each Backplane (Rack) to duplex the power supplies.

When duplexing the power supplies, always use the same model of CS1D Power Supply Unit (CS1D-P□□□□).

When selecting a Power Supply Unit, verify that one Unit can satisfy the Rack's entire current consumption.

Name	Power supply voltage	Output capacity			Options		Model
		5 VDC output capacity	26 VDC output capacity	Total	24 V DC service power supply	RUN output	
AC Power Supply Unit 	100 to 120 V AC or 200 to 240 V AC	7 A	1.3 A	35 W	No	Yes	CS1D-PA207R
DC Power Supply Unit 	24 V DC	4.3 A	0.56 A	28 W	No	No	CS1D-PD024
		5.3 A	1.3 A	40 W			CS1D-PD025

■CS1D CPU Backplane

Name	Specifications			Current consumption (A)		Model
	Applicable systems	Number of Power Supply Units	Number of I/O Units	5 V system	26 V system	
CS1D CPU Backplane 	Single CPU System only	2 Units max. (for duplex operation)	8 slots max.	0.17	---	CS1D-BC082S

Note: C200H-series Units cannot be mounted.