SECTION 1
Handling Communications Boards

This section provides an outline of the functions of the Communications Boards, the installation method, the system configuration, and the system setup.

1-1 Functions

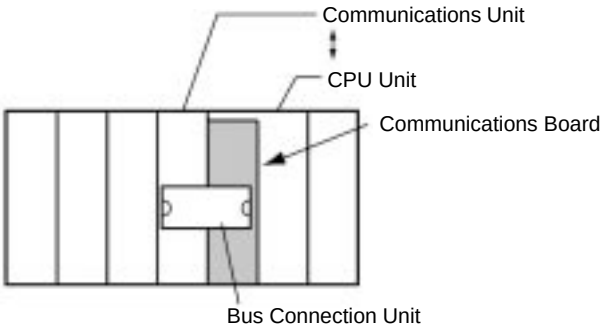
The Communications Boards are optional boards that can be installed in the option slot of various C200HX/C200HG/C200HE CPU Units (CPU□5-E, CPU□4-E, CPU□3-E, CPU□2-E).

1-1-1 Features

The following features are provided by mounting a Communications Board in the option slot of a CPU Unit.

Connection to Communications Units via CPU Bus

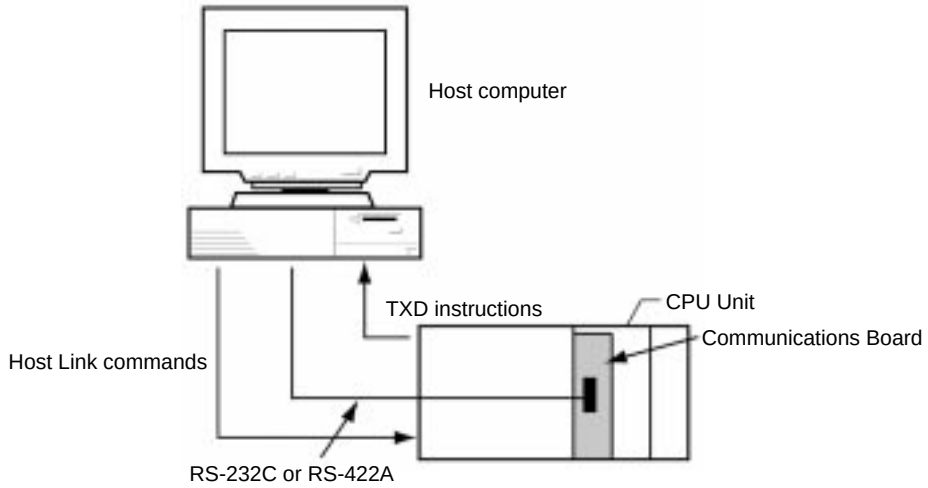
The CPU Unit can be connected to Controller Link, SYSMAC LINK, SYSMAC NET or other Communications Units via a Bus Connection Unit.



Expanded Communications

Host Link Communications: 1:N

The PC can be controlled from a host computer (personal computer or Programmable Terminal (PT)) to read/write I/O memory, control the operating mode of the PC, etc. The PC can also use the TXD instruction to send specified words in I/O memory to a host.

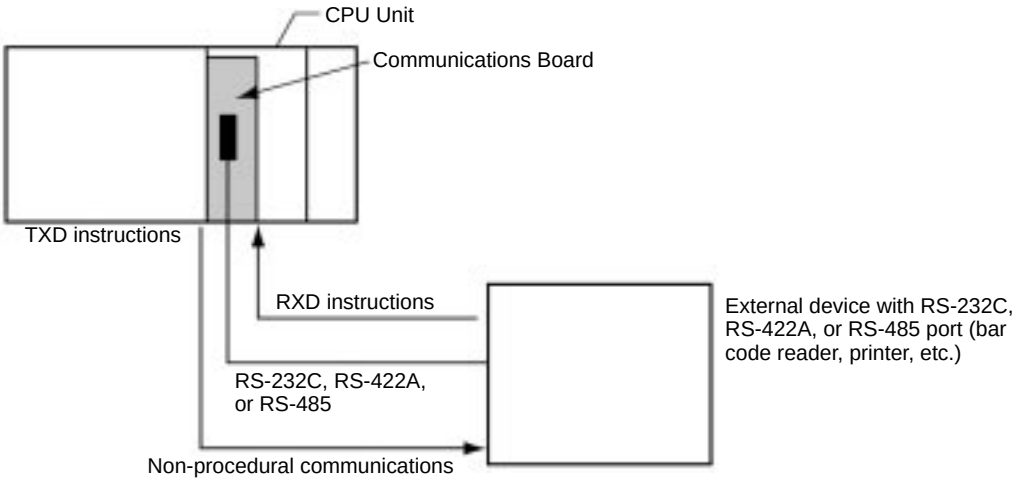


Note The RP Host Link command can be used for C200HX//HE/HE-CPU□□-ZE CPU Units only when a V1 Communications Board is mounted.

Non-procedure Communications

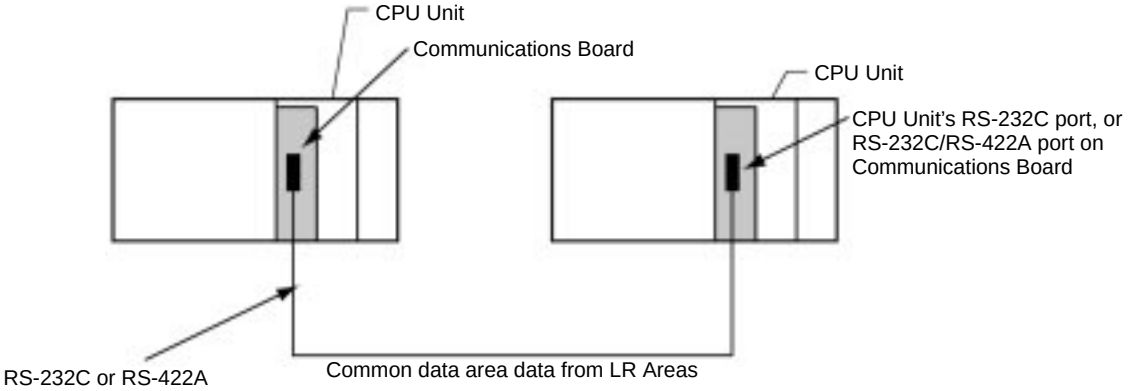
Simple (no-protocol) data transfers are possible using the communications port I/O instructions (TXD and RXD) to input data from a bar code reader, output data

to a printer, etc. The usage of start and end codes can be specified and RTS and CTS signals can be controlled.



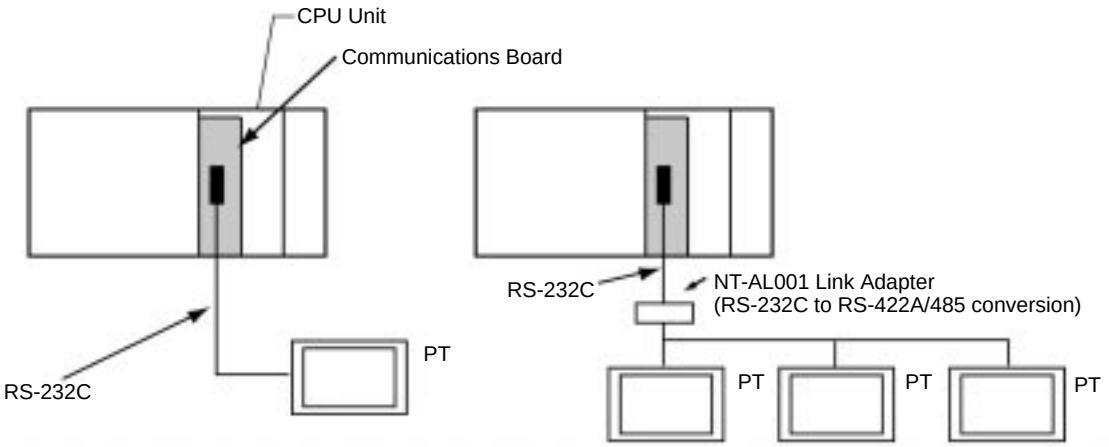
1:1 Links

Common data areas can be created in the LR Area without using PC Link Units by connecting two PCs 1:1 via the RS-232C port.



NT Links: 1:1 or 1:N

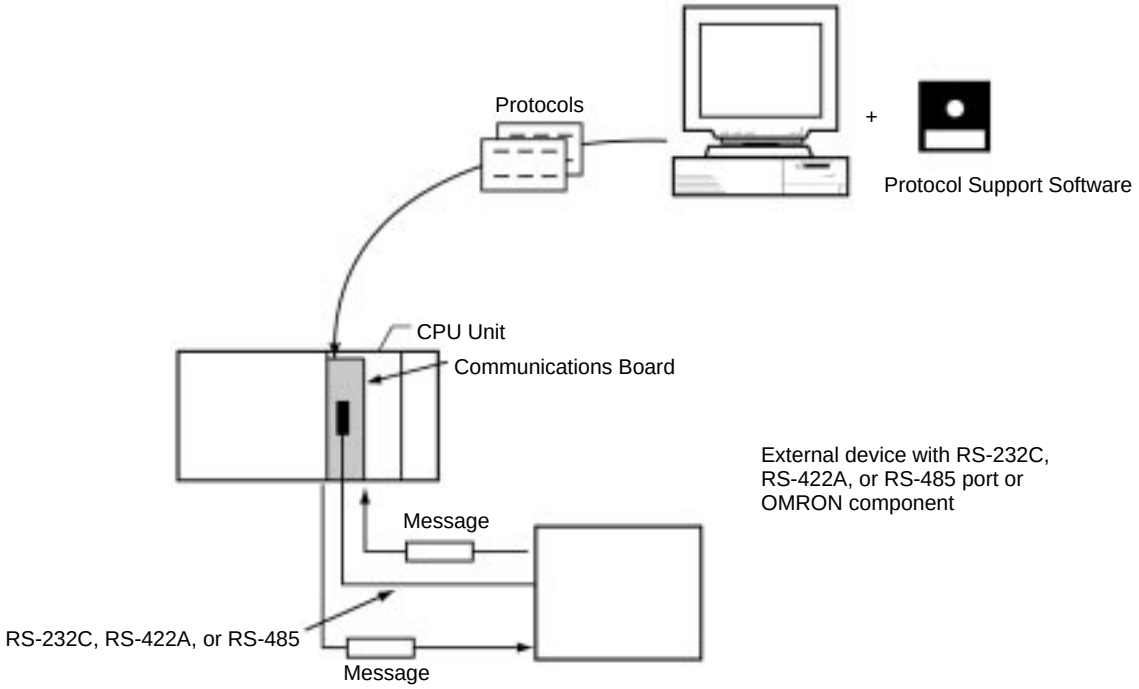
A PC can be connected to one or more PTs (Programmable Terminals) via an RS-232C port to enable data transfer via NT Link commands.



Protocol Macros

Data transfer procedures called protocols can be easily created using the Protocol Support Software (sold separately). Procedures can be designed to match

the communications specifications of the external devices that are being communicated with (half duplex or start-stop sync). The protocols that are created are loaded to the Communications Board to enable data transfer with the external devices simply by executing the PMCR instruction from the PC. There are also many system protocols provided with the Communications Boards and Protocol Support Software to enable communications with OMRON Temperature Controllers, Panel Meters, Intelligent Signal Processors, Bar Code Readers, Modems, etc. The system protocols can also be modified for other applications according to user needs.



Note The following protocol macro functionality has been added to the V1 Communications Boards. The following are possible only for the C200HW-COM□□-EV1 Communications Boards.

- SUM2 (SUM of two's complement) and CRC-16 can be used for error checking.
- The Repeat Counter N Present Value, a Sequence End Flag, and a Sequence Abort Flag are provided in the SR area.
- The check code can be placed after the terminator in the message sequence. (Supported by SYSMAC-PST and CX-Protocol.)
- The upper and lower bytes of the error check code can be swapped. (Supported by SYSMAC-PST and CX-Protocol.)

1-1-2 Protocols

The Communications Board supports the following protocols.

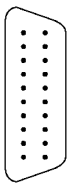
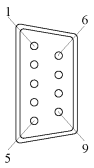
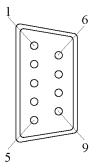
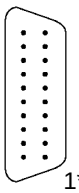
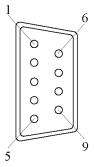
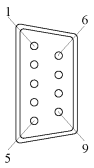
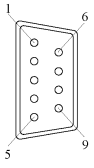
Protocol	Device	Connection configuration	Outline	Communications instruction
Host Link	PC ← → Personal computer or PT	1 to 1 or 1 to N	Communications procedure between a host personal computer and PCs. Can monitor operation status of PC or bit status from a personal computer. Can transfer data stored in the IOM area of PC to a host personal computer using the TXD instruction.	Host Link commands or TXD instruction
Non-procedure	PC ← → Personal computer or Component	1 to 1	Can achieve simple communications sequences using communications port I/O instructions (TXD, RXD), including data input from a bar code reader and data output to a printer. Can control RS, CS, ER, and DR control signals using the instructions.	TXD and RXD instructions
1 to 1 link	PC ← → PC	1 to 1	Connects two PCs on a one to one basis. The PCs share LR Area data.	---
NT Link	PC ← → PT	1 to 1 or 1 to N	Achieves data communications by connecting PCs and PTs on a one to one basis or one to N basis.	---
Protocol macros	PC ← → Various components	1 to 1 or 1 to N	Can transmit messages by defining a specific communications sequences. Can register up to 1,000 communications sequences. The Protocol Support Software is used to create communications sequences (macros).	PMCR instruction

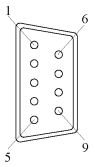
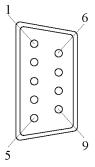
Note Refer to the operation/system manuals for details on the Host Link procedure, non-procedure communication, 1:1 links, and NT Links. This manual provides details on only protocol macros.

1-1-3 Communications Board Models

The following Communications Boards are available.

The features that are to be used from among those listed below as “YES” for any particular Communications Board is specified in the PC Setup at startup.

Type	Physical specification		Function					
			CPU bus	Host Link	Non-procedure	1:1 link	NT Link (1:1, 1:N)	Protocol macros
C200HW-COM01	Communications Unit connection port	 1*	YES	–	–	–	–	–
C200HW-COM02-V1 2*	RS-232C port		–	YES	YES	YES	YES	–
C200HW-COM03-V1 2*	RS-422A/485 port		–	YES	YES	YES	YES	–
C200HW-COM04-EV1 3*	Communications Unit connection port	 1*	YES	–	–	–	–	–
	RS-232C port		–	YES	YES	YES	YES	YES
C200HW-COM05-EV1 3*	RS-232C port		–	YES	YES	YES	YES	YES
	RS-232C port		–	YES	YES	YES	YES	YES

Type	Physical specification		Function					
			CPU bus	Host Link	Non-procedure	1:1 link	NT Link (1:1, 1:N)	Protocol macros
C200HW-COM06-EV1 3*	RS-232C port		–	YES	YES	YES	YES	YES
	RS-422A/485 port		–	YES	YES	YES	YES	YES

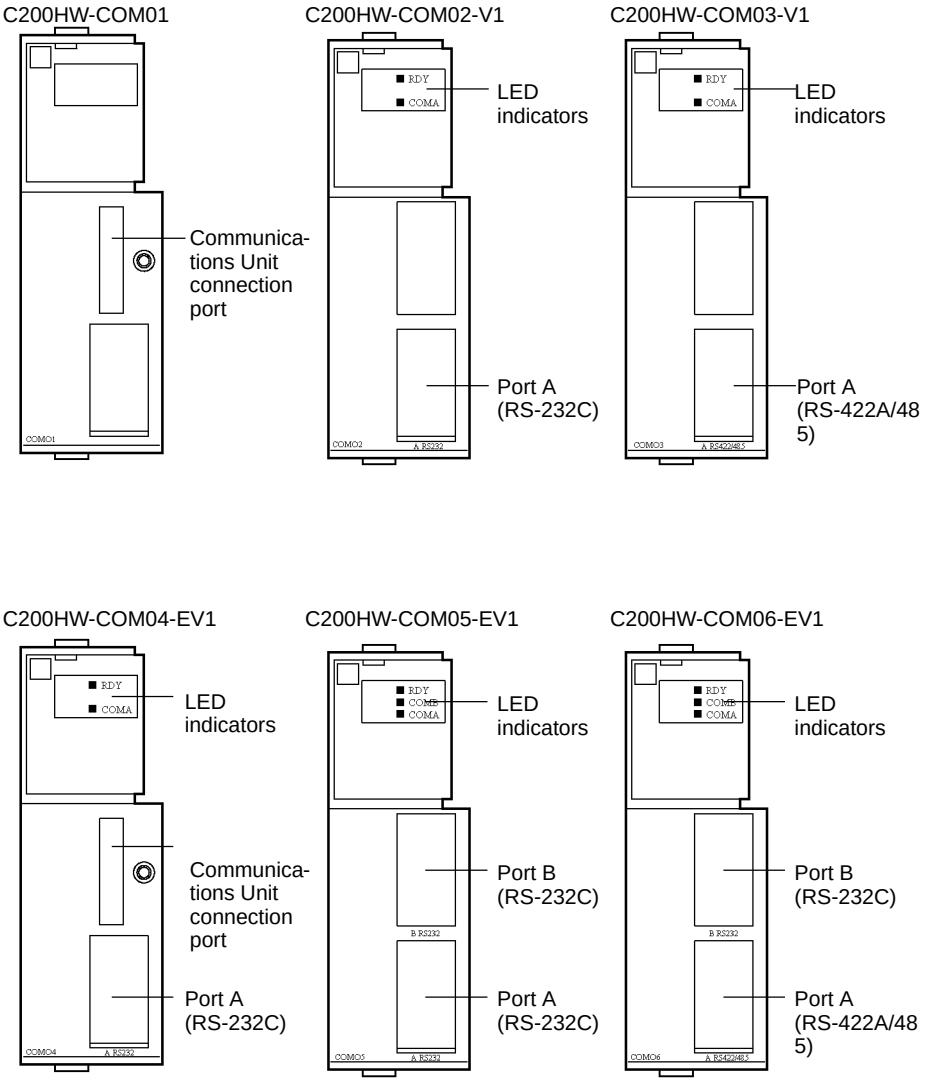
1* Interface to C200HW-CE001/CE002 Bus Connection Unit for Link Units such as Controller Link, SYSMAC LINK, or SYSMAC NET Link Units.

2* The RP command (program read) can be used in Host Link Mode when V1 Communications Boards are used with C200HX/C200HG/C200HE-CPU□□-ZE CPU Units. The RP command cannot be used with the previous version of Communications Boards (those without "V1" in the model number.

3* The following protocol macro functionality has been added to the V1 Communications Boards. The following are possible only for the C200HW-COM□□-(E)V1 Communications Boards.

- SUM2 (SUM of two's complement) and CRC-16 can be used for error checking.
- The Repeat Counter N Present Value, a Sequence End Flag, and a Sequence Abort Flag are provided in the SR area.
- The check code can be placed after the terminator in the message sequence.
- The upper and lower bytes of the error check code can be swapped.

Note When using a 1:N Host Link, 1:N NT Link, or a protocol macro using a RS-232C port, a RS-232C-to-RS-422A/485 Link Adapter (NT-AL001) is required.



Note

1. V1 Communications Boards are compatible with C200HX/HG/HE-CPU□□-ZE CPU Units.
2. EV1 Communications Boards are compatible with C200HX/HG/HE-CPU□□-ZE CPU Units and have improved protocol macro functionality.

1-1-4 DIP Switch Settings

To use port A (RS-422A/485) on the C200HW-COM03-V1 or C200HW-COM06-EV1, the DIP switches on the Communications Board must be set according to the application conditions.

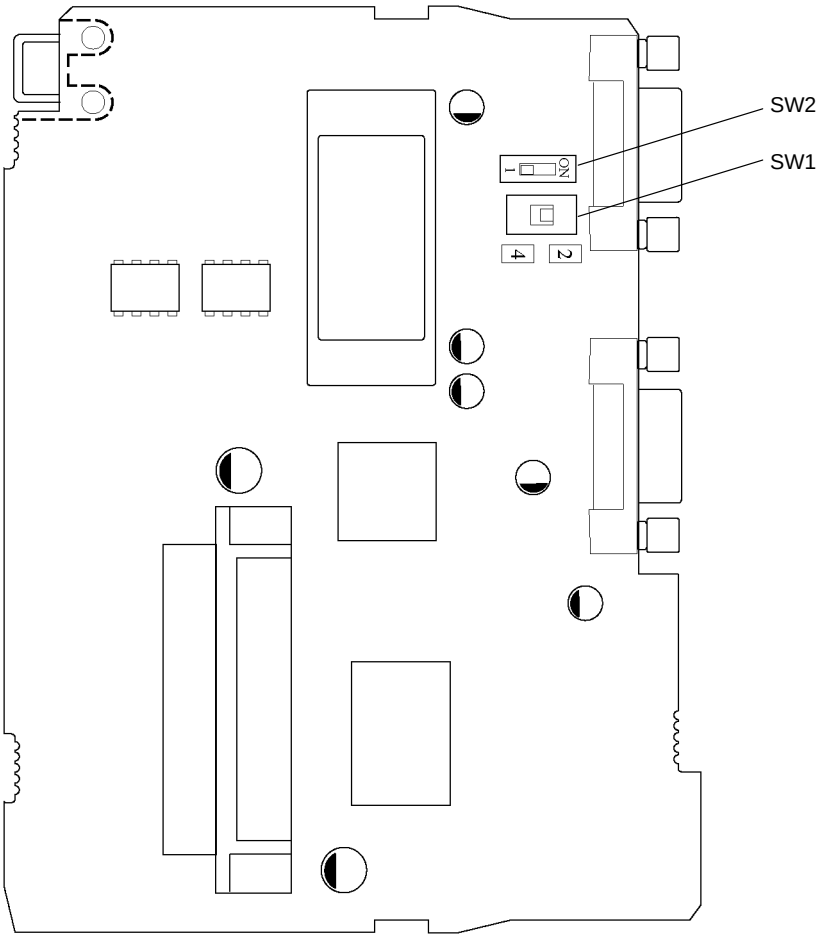
RS-422A/485 Cable (SW1)

Set DIP switch SW1 as follows according to the type of the RS-422A/485 cable being used:

2-wire: Set to 2
4-wire: Set to 4

Terminator (SW2)

When a Communications Board is the terminator for a 1:N link during communications, turn ON this switch on the last Board and turn OFF this switch on the rest of the Boards.



The factory settings are as follows.

DIP switch SW1: 2 (2-wire)

DIP switch SW2: 1 (Terminator OFF)

1-1-5 Applicable CPU Units

The following table lists the models of CPU Units to which Communications Boards can be installed in the option slot.

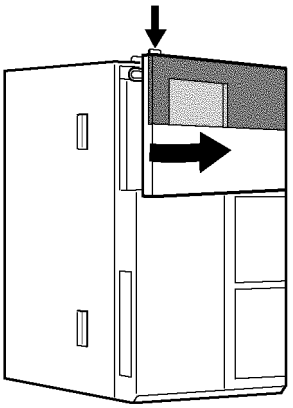
C200HX	C200HG	C200HE
C200HX-CPU64-E	C200HG-CPU63-E	C200HE-CPU42-E
C200HX-CPU54-E	C200HG-CPU53-E	C200HE-CPU32-E
C200HX-CPU44-E	C200HG-CPU43-E	
C200HX-CPU34-E	C200HG-CPU33-E	
C200HX-CPU85-ZE	C200HG-CPU63-ZE	C200HE-CPU42-ZE
C200HX-CPU65-ZE	C200HG-CPU53-ZE	C200HE-CPU32-ZE
C200HX-CPU64-ZE	C200HG-CPU43-ZE	
C200HX-CPU54-ZE	C200HG-CPU33-ZE	
C200HX-CPU44-ZE		
C200HX-CPU34-ZE		

1-1-6 Installation

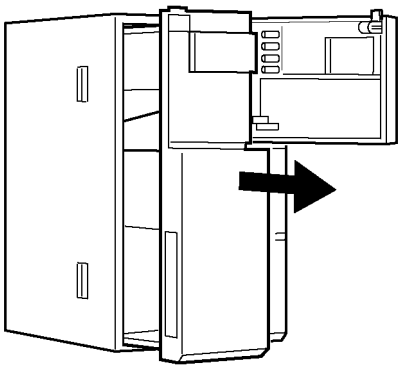
The following describes how to install a Communications Board in the option slot of the CPU Unit.

⚠ Caution Always turn off the power supply before installing or removing a Communications Board. If the power supply is kept ON while a Communications Board is being installed or removed, operational errors can occur in the CPU Unit, internal devices may be destroyed, or communications may fail.

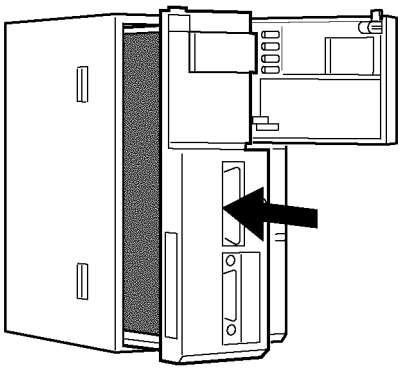
1, 2, 3... 1. Open the Memory Cassette cover.



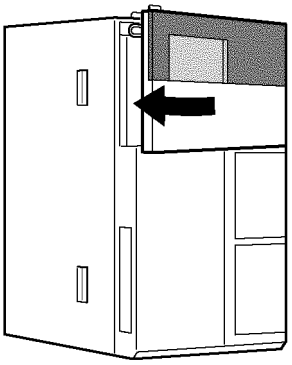
2. Remove the Communications Board cover.



3. Slide in the Communications Board in slit and press it all the way to the back.



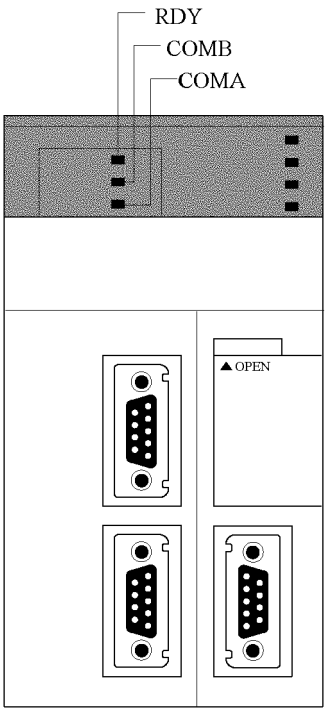
4. Close the Memory Cassette cover.



1-1-7 Indicators

The status of the Communications Board is displayed on the LED indicators on the front of the CPU Unit.

Indicator	Color	Status	Meaning	Contents
RDY	Green	OFF	Not Ready	Communications Board hardware error
		Flash	Setting error	The system setup or the contents of the protocol data contains an error.
		ON	Ready	The Communications Board is operating normally and communications are enabled.
COMB	Orange	Flash	Communicating	Port B is being used for communications (ON when there is data).
COMA	Orange	Flash	Communicating	Port A is being used for communications (ON when there is data)



Note The above description is based on the C200HW-COM05-EV1 and C200HW-COM06-EV1.

1-1-8 Communications Board Specifications

Item	C200HW-COM01	C200HW-COM02-V1	C200HW-COM03-V1	C200HW-COM04-EV1	C200HW-COM05-EV1	C200HW-COM06-EV1
Current consumption at 5 V	0.03 A	0.1 A	0.2 A	0.1 A	0.1 A	0.2 A
External dimensions	42.5 × 134 × 98 mm (W × H × D)					
Weight	100 g max.	100 g max.	105 g max.	110 g max.	110 g max.	115 g max.
Standard accessories	---	Plug: XM2A-0901 (OMRON) × 1 Hood: XM2S-0911 (OMRON) × 1			Plug: XM2A-0901 (OMRON) × 2 Hood: XM2S-0911 (OMRON) × 2	

1-1-9 Basic Specifications

The basic specifications will be determined by the basic specifications of the C200HX/HG/HE(-Z) PC used.

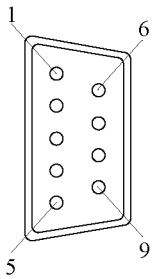
1-1-10 Communications Specifications

The following tables provide the communications specifications of RS-232C and RS-422A/485 ports.

RS-232C Port

Item	Specification
Communications method	Half duplex
Synchronization	Start-stop
Baud rate	1,200/2,400/4,800/9,600/19,200 bps
Transmission method	Point-to-point
Transmission distance	15 m max.
Interface	Complies with EIA RS-232C

Connector Pin Assignment



Pin No.	Signal name	Abbreviation	Signal direction
1	Safety ground	FG	–
2	Send data	SD	Output
3	Receive data	RD	Input
4	Send request	RS	Output
5	Send enabled	CS	Input
6	Power supply	5V	–
7	Dataset ready	DR	Input
8	Data terminal ready	ER	Output
9	Signal ground	SG	–
Shell	Safety ground	FG	–

Connectors

Plug: XM2A-0901 (OMRON) or equivalent
Hood: XM2S-0911 (OMRON) or equivalent

Note One plug and one hood are provided.

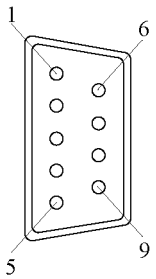
Recommended Cable

AWG28 ×⁄5P IFVV-SB (manufactured by FUJIKURA DENSEN)
CO-MAVV-SB 5P××AWG28 (manufactured by HITACHI DENSEN)
Line length: 15 m max.

RS-422A/485 Port

Item	Specification
Communications method	Half duplex
Synchronization	Start-stop
Baud rate	1,200/2,400/4,800/9,600/19,200 bps
Transmission method	Point-to-multipoint
Transmission distance	500 m max.
Interface	Complies with EIA RS-422A/485

Connector Pin Assignment



Pin No.	Signal name	Abbreviation	Signal direction
1	Send data –	SDA	Output
2	Send data +	SDB	Output
3	Unused	NC	–
4	Unused	NC	–
5	Unused	NC	–
6	Receive data –	RDA	Input
7	Unused	NC	–
8	Receive data +	RDB	Input
9	Unused	NC	–
Shell	Safety ground	FG	–

Note When the 2-wire communications is set, use 1 and 2, or 6 and 8.

Connectors

Plug: XM2A-0901 (OMRON) or equivalent
Hood: XM2S-0911 (OMRON) or equivalent

Note One plug and one hood are provided.

Recommended Cable

AWG28 ×5P IFVV-SB (manufactured by FUJIKURA DENSEN)
CO-MAVV-SB 5P×××AWG28 (manufactured by HITACHI DENSEN)
Line length: 500 m max.

1-1-11 Communications Modes and Transmission Paths

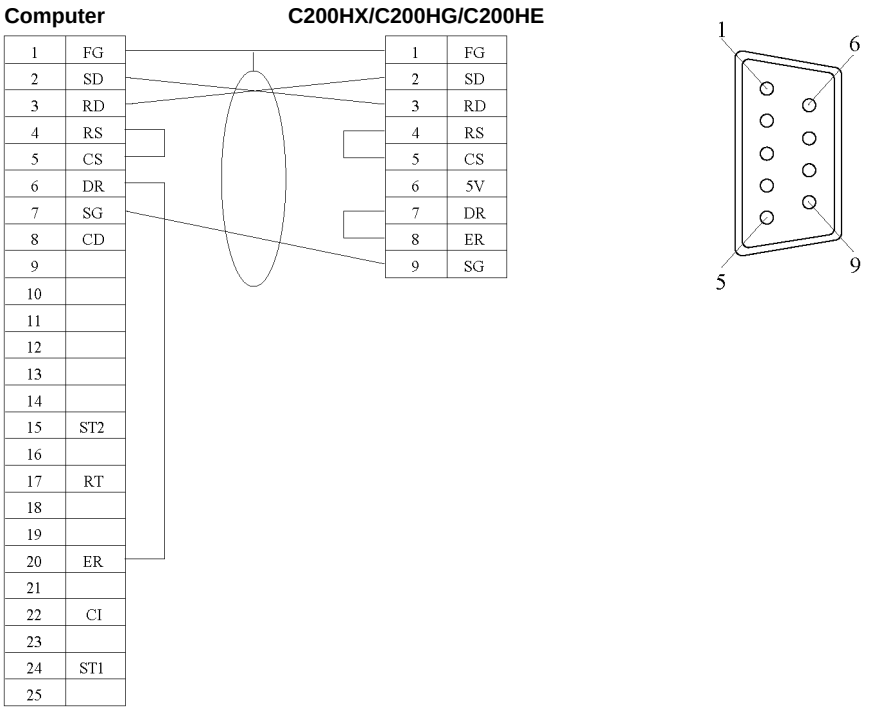
The following table shows the transmission paths that can be used for each of the communications modes.

Communications mode	RS-232C	4-wire 1:1	4-wire 1:N	2-wire 1:1	2-wire 1:N
1:N Host Link	YES	YES	YES	NO	NO
Non-procedure	YES	YES	YES	NO	NO
1:1 link	YES	YES	NO	NO	NO
1:1 NT Link	YES	YES	NO	NO	NO
1:N NT Link	NO	YES	YES	YES	YES
Protocol macros	YES	YES	YES	YES	YES

1-2 Hardware Connections

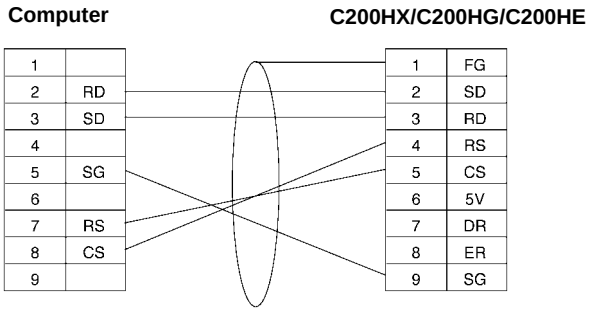
The connections of the Communications Board to an external device with a RS-232C or RS-422A/485 port are shown below.

Host Link Connections



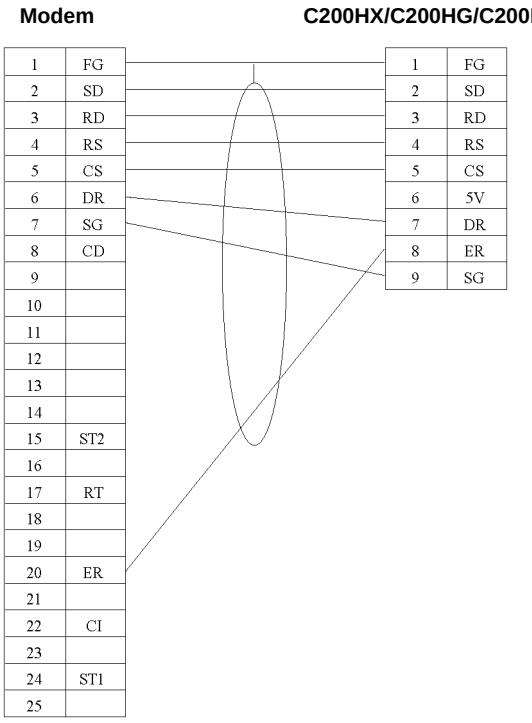
Computer Connections (Cross Connection)

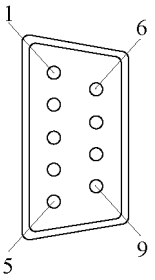
IBM PC/AT or Compatible Computer



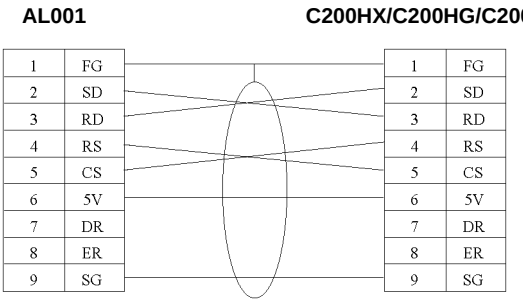
Modem Connections (Straight)

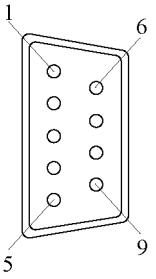
Same for the 3G2A9-AL004-E Link Adapter





RS-422A/485 Link Adapter Connections (NT-AL001)





1-3 PC Setup

Various parameters in the PC Setup relating to the Communications Board must be specified in advance for each RS-232C (or RS-422A/485) port to perform communications using the Communications Board. The Communications Board settings that are allocated to the PC Setup in the DM Area of the PC are shown in the following table.

Note
1. Specify the Communications Board system settings using the DM monitor function of the SYSMAC Support Software or System Settings of the Protocol Support Software. When the settings are incorrect (outside of the range or contradiction errors), the system will operate with the initial settings (default values). However, setting data remains in DM as it is.
2. The system error FAL-9C and a FAL-9B will be generated if errors are detected.

Word	Bit	Mode	Details	Remarks
DM 6550	00 to 03	Host Link Non-procedure Protocol macro	Port B communications parameter, standard settings enable 0: Standard settings (default) → Start bits: 1 bit; Data length: 7 bits; Parity: Even; Stop bits: 2 bits; Baud rate: 9,600 bps 1: Individual settings → Settings in DM6551 used.	---
	04 to 07	Host Link Non-procedure 1:1 link	CTS control enable 0: Disabled (default) 1: CTS enabled	---
	08 to 11	1:1 link master 1:N NT Link	Port B 1:1 link master: Link words 0: LR00 to LR63 (default) 1: LR00 to LR31 2: LR00 to LR15 Port B 1:N NT Link: Maximum PT unit No. 1 to 7 (BCD) or 1 to 3 for C200HE-CPU□□-E	Cannot be changed 1:1 link is set.
	12 to 15	All modes	Port B mode 0: Host Link (default) 1: RS-232C non-procedure 2: 1:1 link slave 3: 1:1 link master 4: 1:1 NT Link 5: 1:N NT Link 6: Protocol macro	
DM 6551	00 to 07	Host Link Non-procedure Protocol macro	Port B baud rate (bps) 00:1200 (default) 02:4800 04:19200 01:2400 03:9600	Valid for individual settings only (see DM6550, bits 00 to 03)
	08 to 15	Host Link Non-procedure Protocol macro	Port B frame format (default: 00) 00: Start bits 1, Data length 7, Stop bits 1, Parity Even 01: 1, 7, 1, Odd 02: 1, 7, 1, None 03: 1, 7, 2, Even 04: 1, 7, 2, Odd 05: 1, 7, 2, None 06: 1, 8, 1, Even 07: 1, 8, 1, Odd 08: 1, 8, 1, None 09: 1, 8, 2, Even 10: 1, 8, 2, Odd 11: 1, 8, 2, None	

Word	Bit	Mode	Details	Remarks
DM 6552	00 to 15	Host Link Non-procedure	Port B send delay: 0000 (default) to 9999: Unit 10 ms	Check if RS-232C port communications are not possible (Max. delay; 99 s)
DM 6553	00 to 07	Host Link	Port B Host Link mode unit No. 00 (default) to 31 (unit No.)	
	08 to 11	Non-procedure	Port B non-procedure mode start code enable 0: Disabled (default); 1: Enabled	Valid when non-procedure mode start code is enabled in, DM6554, bits 00 to 07
	12 to 15	Non-procedure	Port B non-procedure mode end code enable 0: Disable (Specify the number of receive data items) (default) 1: Enable (Specify the end code) 2: CR, LF	If 0: DM6554 contains number of receive data items. If 1: DM6554 contains the end code. If 2: DM6554 may contain any data.
DM 6554	00 to 07	Non-procedure	Port B non-procedure mode start code 00 (default) to FF (binary)	Valid when non-procedure start code is enabled. Can be updated.
	08 to 15	Non-procedure	Port B When 0 is specified in DM6553: 12 to 15 Number of non-procedure receive data items (binary) 00: (default: 256 bytes) 01 to FF:(1 to 255 bytes) When 1 is specified in DM6553: 12 to 15 Non-procedure mode end code (binary) 00 (default) to FF	Invalid when non-procedure end code is enabled 00: Default (256 bytes)
DM 6555	00 to 03	Host Link Non-procedure Protocol macro	Port A communications parameter, standard settings enable 0: Standard settings (default) → Start bits: 1 bit; Data length: 7 bits; Parity: Even; Stop bits: 2 bits; Baud rate: 9,600 bps 1: Individual settings → Settings in DM6556 used.	---
	04 to 07	Host Link Non-procedure 1:1 link	CTS control enable 0: Disabled (default) 1: CTS enabled	---
	08 to 11	1:1 link master 1:N NT Link	Port A 1:1 link master: Link words 0: LR00 to LR63 (default) 1: LR00 to LR31 2: LR00 to LR15 Port A 1:N NT Link: Maximum PT unit No. 1 to 7 (BCD) or 1 to 3 for C200HE-CPU□□-E	Cannot be changed 1:1 link is set.
	12 to 15	All modes	Port A mode 0: Host Link (default) 1: RS-232C non-procedure 2: 1:1 link slave 3: 1:1 link master 4: 1:1 NT Link 5: 1:N NT Link 6: Protocol macro	

Word	Bit	Mode	Details	Remarks
DM 6556	00 to 07	Host Link Non-procedure Protocol macro	Port A baud rate (bps) 00:1200 (default) 02:4800 04:19200 01:2400 03:9600	Valid for individual settings only (see DM6555, bits 00 to 03)
	08 to 15	Host Link Non-procedure Protocol macro	Port A frame format (default: 00) Start bits / Data length / Stop bits / Parity 00: 1 7 1 Even 01: 1 7 1 Odd 02: 1 7 1 None 03: 1 7 2 Even 04: 1 7 2 Odd 05: 1 7 2 None 06: 1 8 1 Even 07: 1 8 1 Odd 08: 1 8 1 None 09: 1 8 2 Even 10: 1 8 2 Odd 11: 1 8 2 None	
DM 6557	00 to 15	Host Link Non-procedure	Port A send delay: 0000 (default) to 9999: Unit 10 ms	Check if RS-232C port communications are not possible (Max. delay; 99 s)
DM 6558	00 to 07	Host Link	Port A Host Link mode unit No. 00 (default) to 31 (unit No.)	
	08 to 11	Non-procedure	Port A non-procedure mode start code enable 0: Disabled (default); 1: Enabled	Valid when non-procedure mode start code is enabled in, DM6559, bits 00 to 07
	12 to 15	Non-procedure	Port A non-procedure mode end code enable 0: Disable (Specify the number of receive data items) (default) 1: Enable (Specify the end code) 2: CR, LF	If 0: DM6559 contains number of receive data items. If 1: DM6559 contains the end code. If 2: DM6559 may contain any data.
DM 6559	00 to 07	Non-procedure	Port A non-procedure mode start code 00 (default) to FF (binary)	Valid when non-procedure start code is enabled. Can be updated.
	08 to 15	Non-procedure	Port A When 0 is specified in DM6558: 12 to 15 Number of non-procedure receive data items (binary) 00: (default: 256 bytes) 01 to FF:(1 to 255 bytes) When 1 is specified in DM6558: 12 to 15 Non-procedure mode end code (binary) 00 (default) to FF	Invalid when non-procedure end code is enabled 00: Default (256 bytes)

1-4 SR Words and Bits

The following table shows assignment of SR words and bits to the Communications Board in the PC.

Word	Bit(s)	Function name	Read/ Write
SR 268 Communications Board information for FAL9C	00	Hardware error for the Communications Board	R
	01	Port recognition error (hardware error)	R
	02	Protocol data error (protocol data checksum error due to memory corruption)	R
	03 to 10	Reserved for future expansion	R
	11	Port B protocol macro error (error relating PMCR)	R
	12	Port A protocol macro error (error relating PMCR)	R
	13 to 15	15: System setting error 14: Above error for port A 13: Above error for port B	R
SR 283	00 to 03	Port A error code 0:No error (all modes) 1:Parity error (all modes) 2:Framing error (all modes) 3:Overrun error (all modes) 4:FCS error (Host Link mode only) 5:Timeout error (1:1 NT Link, 1:N NT Link, 1:1 link master, 1:1 link slave mode) 6:Checksum error (1:1 NT Link, 1:N NT Link, 1:1 link master, 1:1 link slave mode) 7:Command error (Host Link mode only)	R
	04	ON for communication error at port A (all modes)	R
	05	Port A Send Ready Flag (Host Link, non-procedure mode)	R
	06	Port A Reception Completed Flag (Non-procedure mode)	R
	07	Non-procedure mode: Port A Reception Overflow Flag Protocol macro mode: Port A Sequence Abort Flag (see note 1)	R
	08 to 11	Port B error codes 0:No error (all modes) 1:Parity error (all modes) 2:Framing error (all modes) 3:Overrun error (all modes) 4:FCS error (Host Link mode only) 5:Time-out error (1:1 NT Link, 1:N NT Link, 1:1 link master, 1:1 link slave mode) 6:Checksum error (1:1 NT Link, 1:N NT Link, 1:1 link master, 1:1 link slave mode) 7:Command error (Host Link mode only)	R
	12	ON for communication error at port B (all modes)	R
	13	Port B Send Ready Flag (Host Link, non-procedure mode)	R
	14	Port B Reception Completed Flag (Non-procedure mode)	R
	15	Non-procedure mode: Port B Reception Overflow Flag Protocol macro mode: Port B Sequence Abort Flag (see note 1)	R
SR 284	00 to 07	1:N NT Link Mode: Port A Communications In-progress Flag for Unit PT0 to Port A Communications In-progress Flag for Unit PT7 Protocol Macro Mode: Port A Repeat Counter Present Value (see note 1)	R
	00 to 15	Port A Receive Counter (non-procedure mode)	R

Word	Bit(s)	Function name	Read/ Write
SR 285	00 to 07	1:N NT Link Mode: Port B Communications In-progress Flag for Unit PT0 to Port B Communications In-progress Flag for Unit PT7 Protocol Macro Mode: Port B Repeat Counter Present Value (see note 1)	R
	00 to 15	Port B Receive Counter (non-procedure mode)	R
SR 286	00	Port A Trace In-progress Flag (both continuous/short traces) (protocol macro mode) (see note 2)	R
	01	Port B Trace In-progress Flag (both continuous/short traces) (protocol macro mode) (see note 2)	R
	02 to 05	Reserved for future expansion.	R
	06	Port A Echoback Disabled Flag (for modem control in protocol macro mode; see note 3.)	R
	07	Port B Echoback Disabled Flag (for modem control in protocol macro mode; see note 3.)	R
	08 to 11	Port A Protocol macro error code (protocol macro mode) 0:No error 1:No protocol macro function 2:Sequence number error 3:Receive data write area exceeded (IOM area exceeded) 4:Protocol data error 5: Protocol macro executed during port initialization	R
	12 to 15	Port B Protocol macro error code (protocol macro mode) 0:No error 1:No protocol macro function 2:Sequence number error 3:Receive data write area exceeded (IOM area exceeded) 4:Protocol data error 5: Protocol macro executed during port initialization	R
SR 287	00 to 03	Port A Executed Reception Matrix Case No. (0 to F) (protocol macro mode)	R
	04 to 07	Port A Executed Step No. (0 to F) (protocol macro mode)	R
	08 to 14	Not used.	R
	15	Port A SR 287 Stored Flag 0:Not stored;1:Stored	R
SR 288	00 to 03	Port B Executed Reception Matrix Case No. (0 to F) (protocol macro mode)	R
	04 to 07	Port B Executed Step No. (0 to F) (protocol macro mode)	R
	08 to 14	Not used.	R
	15	Port B SR 288 Stored Flag 0:Not stored;1:Stored	R

Word	Bit(s)	Function name	Read/ Write
SR 289	00	Port A Restart Bit (all modes)	W
	01	Port B Restart Bit (all modes)	W
	02	Port A Continuous Trace Start/Stop Bit (protocol macro mode) (see note 2)	W
	03	Port B Continuous Trace Start/Stop Bit (protocol macro mode) (see note 2)	W
	04	Port A Short Trace Start/Stop Bit (protocol macro mode) (see note 2)	W
	05	Port B Short Trace Start/Stop Bit (protocol macro mode) (see note 2)	W
	06	Port A Echoback Disable Bit (for modem control in protocol macro mode; see note 3.)	W
	07	Port B Echoback Disable Bit (for modem control in protocol macro mode; see note 3.)	W
	08	Port A Instruction Execution Flag (at execution of instruction)	R
	09	Port A Step Error Processing Flag (protocol macro mode)	R
	10	Port A Sequence End Flag (protocol macro mode) (see note 1)	R
	11	Port A Abort Bit (protocol macro mode)	W
	12	Port B Execution Instruction Flag (at execution of instruction)	R
	13	Port B Step Error Processing Flag (protocol macro mode)	R
	14	Port B Sequence End Flag (protocol macro mode) (see note 1)	R
	15	Port B Abort Bit (protocol macro mode)	W

Note
1. Supported only by the C200HW-COM04/05/06-EV1 Communications Boards.
2. These flags can be used only from the Protocol Support Software. They cannot be used in the ladder-diagram program.
3. These bits/flags are only available for models with lot number 0140 or later. The meaning of lot numbers is shown below.