MITSUBISHI

A8GT-RS2
Serial communication Interface module

Mitsubishi Graphic Operation Terminal
User's Manual

Thank you for choosing the Mitsubishi General Purpose PC Graphic Operation Terminal 800 series. To ensure correct use of this equipment, please read this manual carefully before operating it.

GOT MELSEC

MODEL	A8GT-RS2-U-E
MODEL CODE	13JL27

IB-NA-66786-A (97.7)MEE

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•SAFETY PRECAUTIONS•

(Read these precautions before using.)

When using Mitsubishi equipment, thoroughly read this manual and the associated manuals introduced in this manual. Also pay careful attention to safety and handle the module properly.

These precautions apply only to Mitsubishi equipment. Refer to the CPU module user's manual for a description of the PC system safety precautions.

These •SAFETY PRECAUTIONS• classify the safety precautions into two categories: "DANGER" and "CAUTION".

⚠DANGER	**Procedures which may lead to a dangerous condition and cause death or serious injury if not carried out properly.**
⚠CAUTION	**Procedures which may lead to a dangerous condition and cause superficial to medium injury, or physical damage only, if not carried out properly.**

Depending on circumstances, procedures indicated by **⚠CAUTION** may also be linked to serious results.

In any case, it is important to follow the directions for usage.

Store this manual in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user.

[DESIGN PRECAUTIONS]

⚠ DANGER

- Some faults of the GOT, this unit or connection cables may keep the outputs on or off. An external monitoring circuit should therefore be provided to check for output signals which may lead to a serious accident.
  Otherwise, misoutput or misoperation can cause an accident.

[INSTALLATION PRECAUTIONS]

⚠ DANGER

- Before mounting or dismounting this module to or from the GOT main unit, always switch off the GOT power externally in all phases.
  A failure to do so could cause the module to break down or malfunction.
- Before connecting the communication cable to this module, always switch off the GOT and programmable controller CPU powers externally in all phases.
  A failure to do so could cause the module to break down or malfunction.

[INSTALLATION PRECAUTIONS]

⚠CAUTION

- Use this module in the environment given in the general specifications of the GOT User's Manual.
  A failure to do so could cause an electric shock, fire, malfunction, product damage or deterioration.
- Securely plug and screw the communication cable in the connectors of the communication module and programmable controller CPU.
  Otherwise, a contact fault could cause misinput or misoutput.
- When mounting this module to the GOT main unit, load it along the threaded guides of the GOT's installation position and securely tighten the module fixing screws to the specified torque range.
  Undertightening could cause a drop, short or malfunction.
  Overtightening could cause a drop, short or malfunction due to damaged screws or module.

[STARTING AND MAINTENANCE PRECAUTIONS]

⚠DANGER

- Before starting cleaning or terminal screw retightening, always switch off the GOT power externally in all phases.
  A failure to do so could cause an electric shock.
  Undertightening could cause a drop, short or malfunction.
  Overtightening could cause a drop, short or malfunction due to damaged screws or module.

⚠CAUTION

- Do not disassemble or modify this module. This could cause breakdown, malfunction, injury or fire.
- Do not touch the conductive and electronic parts of this module directly. Otherwise, the module could malfunction or break down.
- This module is made of resin. Do not drop it or subject it to hard impact. These could cause breakdown.

[DISPOSAL PRECAUTIONS]

⚠CAUTION

- When disposing of this product, treat it as industrial waste.

Revisions

* The manual number is noted at the lower left of the back cover.

Print Date	*Manual Number	Revision
July.1997	IB (NA)-66786-A	First printing

About This Manual

The following are manuals related this product. Request for the manuals as needed according to the chart below.

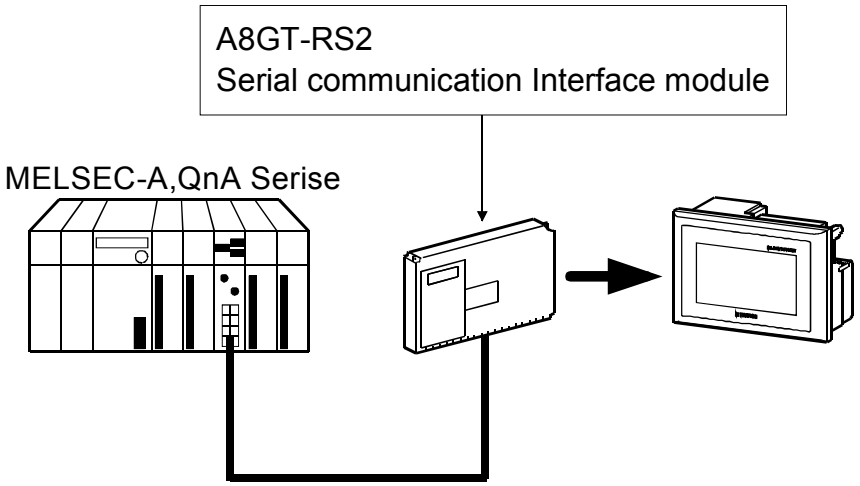
Related Manual

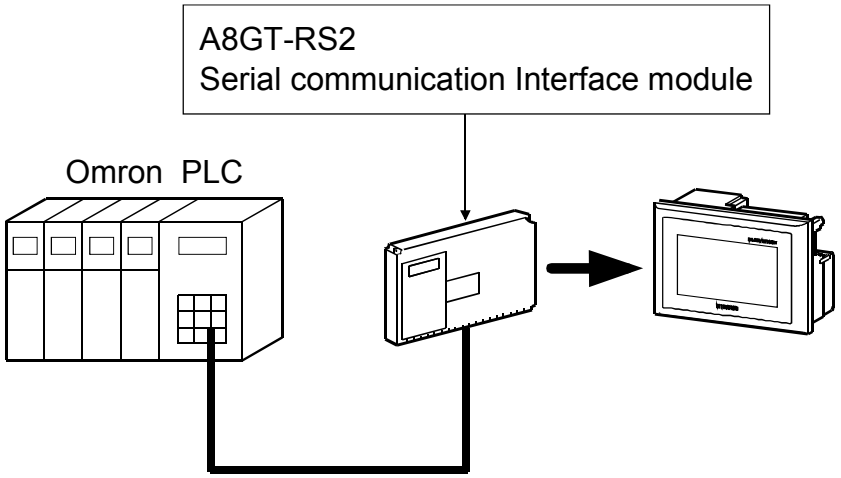
Manual Name	Manual No. (Type Code)
A870GOT Graphic Operation Terminal User's Manual (Supplied in the A870GOT packing)	IB-66628 (13J830)
AJ71QC24(-R2/R4) Serial Communication Module User's Manual (Details Manual) (Sold separately)	IB-66612 (13J825)
Computer Link/Multidrop Link Module User's Manual (Computer Link Functions/Printer Functions Manual) (Sold separately)	SH-3511 (13JE77)

Table of Contents

1 Overview

This user's manual provides the specifications, system configurations, name of parts and their settings, and installation method of the A8GT-RS2 serial communication module (referred to as the serial communication module).
The serial communication module is used to connect the A870/A810 GOT graphic operation terminal(referred to as the serial communication module) with the MELSEC-A or QnA series computer link module or other manufacturer's programmable controller through RS-232C communication.





POINT
When using this module ,there are restrictions on the hardware and software of the GOT main unit used. For details of the hardware and software that may be used ,refer to the performance specifications.

2 Accessories

After opening the container, check that the following products are present.

Description	Quantity
Serial communication module	1
This manual	1

For the general specification ,refer to the User's Manual of the GOT in use.

3 Specifications

The following table lists the performance specifications of the serial communication module:

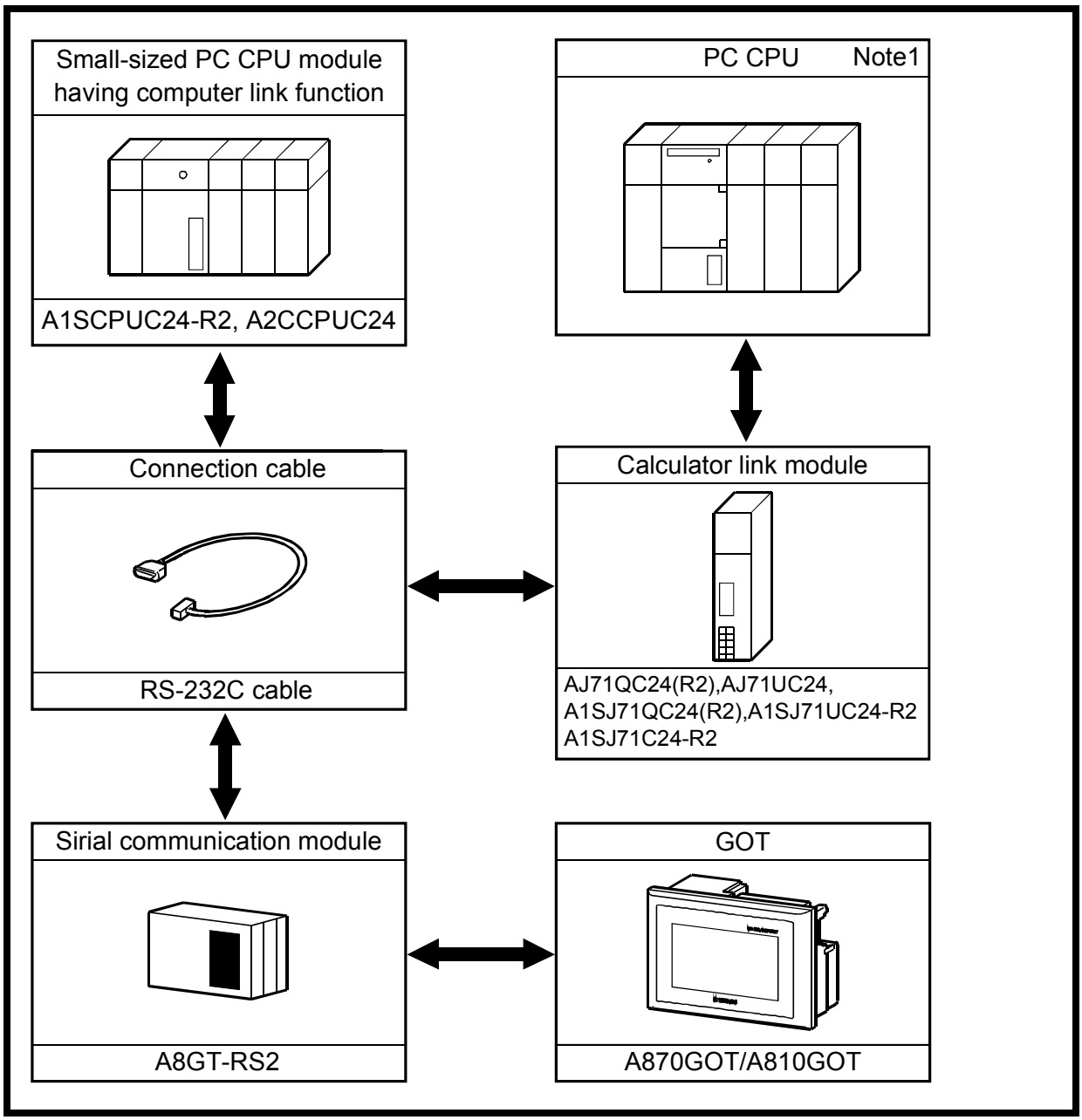
Item	Specifications	
Interface connector	9-pin D sub(mail),inch screw type Daiichi Electronic Industry make	
Weight	150g(0.33lb)	
External dimensions mm(inch)	99(3.9)×149(5.87)×34(1.34)	
Compatible software package	SW2NIW-GOT800PSET (SW2NIW-A8GOTP version J or later) (SW2NIW-A8SYSP version J or later)	
Compatible hardware	A8GT-70GOT-EW/EB	Hardware version Q or later
	A8GT-70GOT-SW/SB	Hardware version S or later
	A8GT-70GOT-TW/TB	Hardware version H or later
	A8GT-10GOT-CS/C	No specific restrictions

For the general specification ,refer to the User's Manual of the GOT in use.

4 System Configuration

4.1 System Configuration for Connection with MELSEC-A or QnA Series Computer Link

4.1.1 System Configuration



Note1:For the system configuration on the computer link module side, refer to the user's manual of the computer link module used.

4.1.2 Hardware Setting for the Computer Link Module

(1) For A1SJ71UC24-R2,A1SJ71C24-R2

1)Mode setting switch

Always set this switch to position 1(format 1 protocol mode).

2)Transmission specifications setting switches

Setting Switch	Setting Switch	Setting Switch Position							
		ON				OFF			
SW04	Setting of write enable/disable during run	enable				disable			
	Transmission speed(BPS)	300	600	1200	2400	4800	9600	19200	Re-serv
SW05	Transmission speed setting	OFF	ON	OFF	ON	OFF	ON	OFF	ON
SW06		OFF	OFF	ON	ON	OFF	OFF	ON	ON
SW07		OFF	OFF	OFF	OFF	ON	ON	ON	ON
SW08	Data bit setting	8bits				7bits			
SW09	Setting of yes/no for parity	Yes				No			
SW10	Setting of even/odd parity	even				odd			
SW11	Stop bit setting	2bits				1bit			
SW12	Setting of yes/no for sum check	Yes				No			

(2) For A1SCPUC24-R2

1)Mode setting switch

Always set this switch to position 1(format 1 protocol mode)

2)Transmission specifications setting switches

Setting Switch	Setting Item	Setting Switch Position							
		ON				OFF			
1	Setting of write enable/disable during run	enable				disable			
	Transmission speed(BPS)	300	600	1200	2400	4800	9600	19200	Re-serve
2	Transmission speed setting	OFF	ON	OFF	ON	OFF	ON	OFF	ON
3		OFF	OFF	ON	ON	OFF	OFF	ON	ON
4		OFF	OFF	OFF	OFF	ON	ON	ON	ON
5	Data bit setting	8bits				7bits			
6	Setting of yes/no for parity	Yes				No			
7	Setting of even/odd parity	even				odd			
8	Stop bit setting	2bits				1bit			
9	Setting of yes/no for sum check	Yes				No			

(3) For A2CCPUC24

1)Mode setting switch

Always set this switch to position 1(format 1 protocol mode)

2)Transmission specifications setting switches

Setting Switch	Setting Item		Setting Switch Position							
			ON				OFF			
	Transmission speed(BPS)		300	600	1200	2400	4800	9600	19200	Re-serv
SW11	Transmission speed setting		OFF	ON	OFF	ON	OFF	ON	OFF	ON
SW12			OFF	OFF	ON	ON	OFF	OFF	ON	ON
SW13			OFF	OFF	OFF	OFF	ON	ON	ON	ON
SW14	Data bit setting		8bit				7bit			
SW15	Setting of yes/no for parity		Yes				No			
SW16	Setting of even/odd parity		Even				Odd			
SW17	Stop bit setting		2bit				1bit			
SW18	Setting of yes/no for sum check		Yes				No			
SW19	Main channel setting		RS-422/RS-485				RS-232C			
SW20	Setting of write enable/disable during run		Enable				Disable			

(4)For AJ71UC24

1)Mode setting switch

Always set this switch to position 1(format 1 protocol mode)

2)Transmission specifications setting switches

Setting Switch	Setting Item		Setting Switch Position							
			OFF				ON			
SW11	Main channel setting		RS-232C				RS-422/485			
SW12	Data bit setting		7bit				8bit			
	Transmission speed(BPS)		300	600	1200	2400	4800	9600	19200	Re-serv
SW13	Transmission speed setting		OFF	ON	OFF	ON	OFF	ON	OFF	ON
SW14			OFF	OFF	ON	ON	OFF	OFF	ON	ON
SW15			OFF	OFF	OFF	OFF	ON	ON	ON	ON
SW16	Setting of yes/no for parity		No				Yes			
SW17	Setting of even/odd parity		Odd				Even			
SW18	Stop bit setting		1bit				2bits			
SW21	Setting of yes/no for sum check		No				Yes			
SW22	Setting of write enable/disable during run		Disable				Enable			
SW23	Computer link/multidrop link selection		Multidrop link				Computer link			

(5) For AJ71QC24(R2),A1SJ71QC24(R2)

1)Mode setting switch

Always set this switch to position 5(format 5 protocol mode)

2)Transmission specifications setting switches

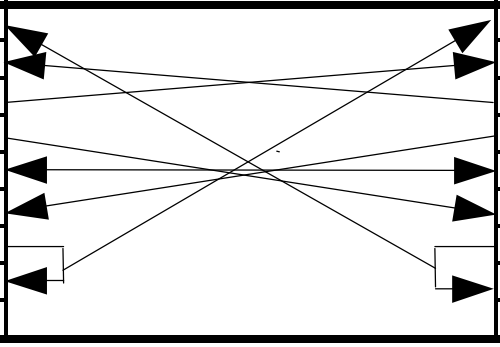
Setting Switch CH1 position CH2 position	Setting Item		Setting Switch Position						
			OFF			ON			
SW02	Data bit setting		7bits			8bits			
SW03	Setting of yes/no parity bit		No			Yes			
SW04	Setting of even/odd parity		Odd			Even			
SW05	Stop bit setting		1bit			2bits			
SW06	Setting of yes/no for sum check		No			Yes			
SW07	Setting of write enable/disable during run		Disable			Enable			
SW09 • SW12	Transmission speed setting	Transmission	300	600	900	2400	4800	9600	1920
		SW09	OFF	ON	OFF	ON	OFF	ON	OFF
		SW10	OFF	OFF	ON	ON	OFF	OFF	ON
		SW11	OFF	OFF	OFF	OFF	ON	ON	ON
		SW12	OFF	OFF	OFF	OFF	OFF	OFF	OFF

4.1.3 Connection cable

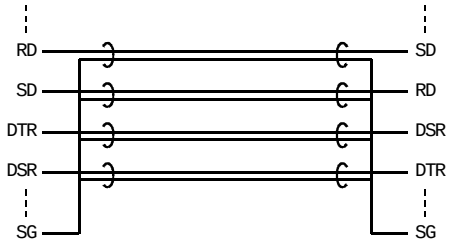
Use the following connection diagrams and connectors to connect the RS-232C cable between the serial communication module and computer link module or small-sized programmable controller CPU module having computer link function.
(Max. cable length:15m)

(1) Connection diagram

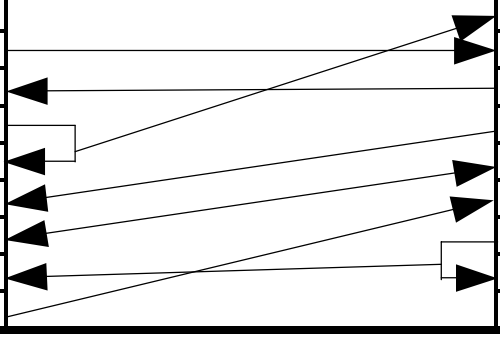
1)For the computer link module side connector having D sub 9 pins
(A1SJ71QC24(R2),A1SJ71UC24-R2,A1SJ71C24-R2,A1SCPUC24-R2,A2CCPUC24)

Computer link module side		Cable connection and signal direction	GOT side	
Signal name	Pin no.		Pin no.	Signal name
CD	1		1	CD
RD(RXD)	2		2	RD(RXD)
SD(TXD)	3		3	SD(TXD)
DTR(ER)	4		4	DTR(ER)
SG	5		5	SG
DSR(DR)	6		6	DSR(DR)
RS(RTS)	7		7	RS(RTS)
CS(CTS)	8		8	CS(CTS)
————	9		9	————

*1:If the A1SJ71QC24(R2) connected cannot be monitored properly due to external noise, connect the connection cable's each signal and SG in pairs, with the exception of SG and FG.



2)For the computer link module side connector having D sub 25 pins
(AJ71QC24(R2),AJ71UC24)

Computer link module side		Cable connection and signal direction	G controller unit side	
Signal name	Pin no.		Pin no.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
DSR(DR)	6		6	DSR(DR)
SG	7		7	RS(RTS)
CD	8		8	CS(CTS)
DTR(ER)	20		9	————

(2) Connector and connector cover

- GOT side connector

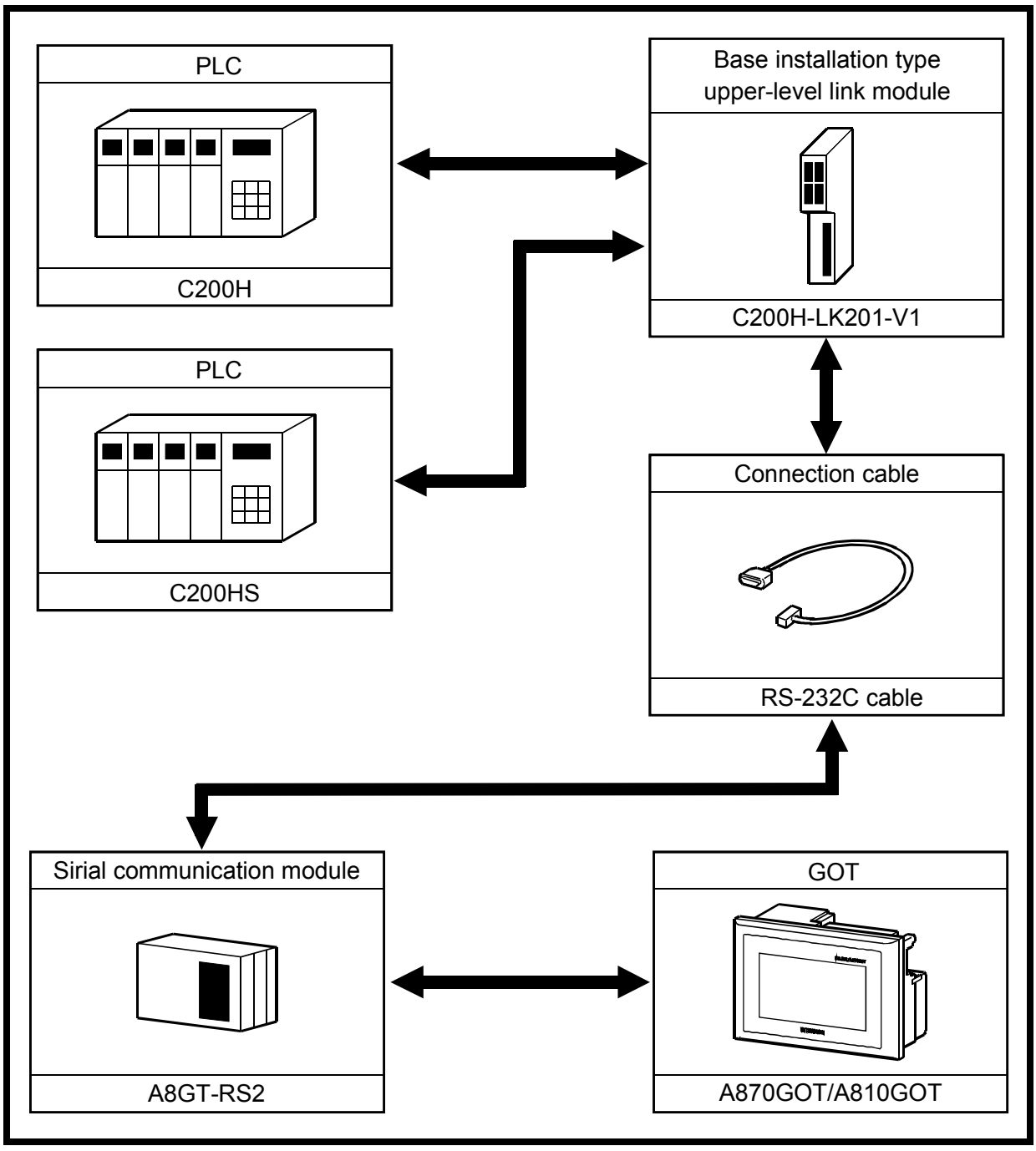
  The serial communication module uses the following RS-232C interface connector. Use a mating connector which matches this connector:
  9-pin D sub (mail),inch screw type
  Daiichi Electronic Industry make

- Computer link module side connector

  Refer to the User's manual of the computer link module used.

4.2 System Configuration for Connection with OMRON's Programmable Controller (C200H or C200HS Series)

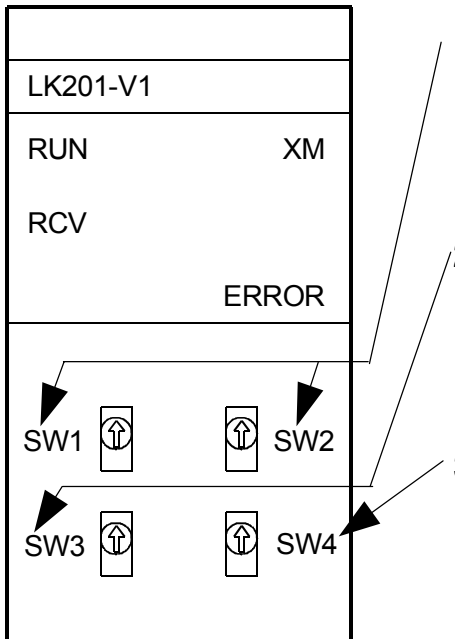
4.2.1 System Configuration



4.2.2 Setting the upper-level link module(C200H-LK201-V1) switches

When using the upper-level link module (C200H-LK201-V1),perform the switch setting shown below.

Front panel switch setting

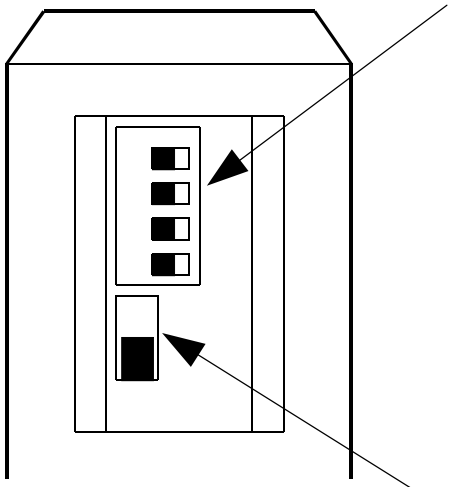


1) Setting for SW1 and SW2(Device No.setting)
Set as follows:
SW1:0,SW2:0(Set to device No.00.)

2) Setting for SW3(Transmission speed setting)
Set as follows:
SW3:6(Set to 19.2KBPS.)

3) Setting forSW4(Command level/parity/transmission code setting) set as follows:
SW4:2(Parity: even, transmission code: ASCII 7-bit, stop bit:2)

Back panel switch setting



4) Setting for 5V supply switch
When using the Z3RN-A-5 optical interface, set this switch to the ON(5V supplied) position.
When not using the optical interface, always set it

SW No.	ON	OFF
1	Not used(Set to OFF)	
2		
3	1:N procedure	1:1 procedure
4	5V supplied	5V not supplied

5) CTS select switch
Set this switch in the 0V position to keep CTS on or in the external signals. Normally, set it in the 0V position

4.2.3 About the connection cable

Use the following connection diagram and connectors to connect the cable between the upper-level link module and serial communication module.(Max. cable length :15m(49.25feet))

(1)Connection diagram

Omron side		Cable connection and	G controller unit side	
Signal	Pin No		Pin	Signal
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
————	6		6	DSR(DR)
SG	7		7	RS(RTS)
————	8		8	CS(CTS)
ER	20		9	————

(2) Connector and connector cover

- GOT side connector

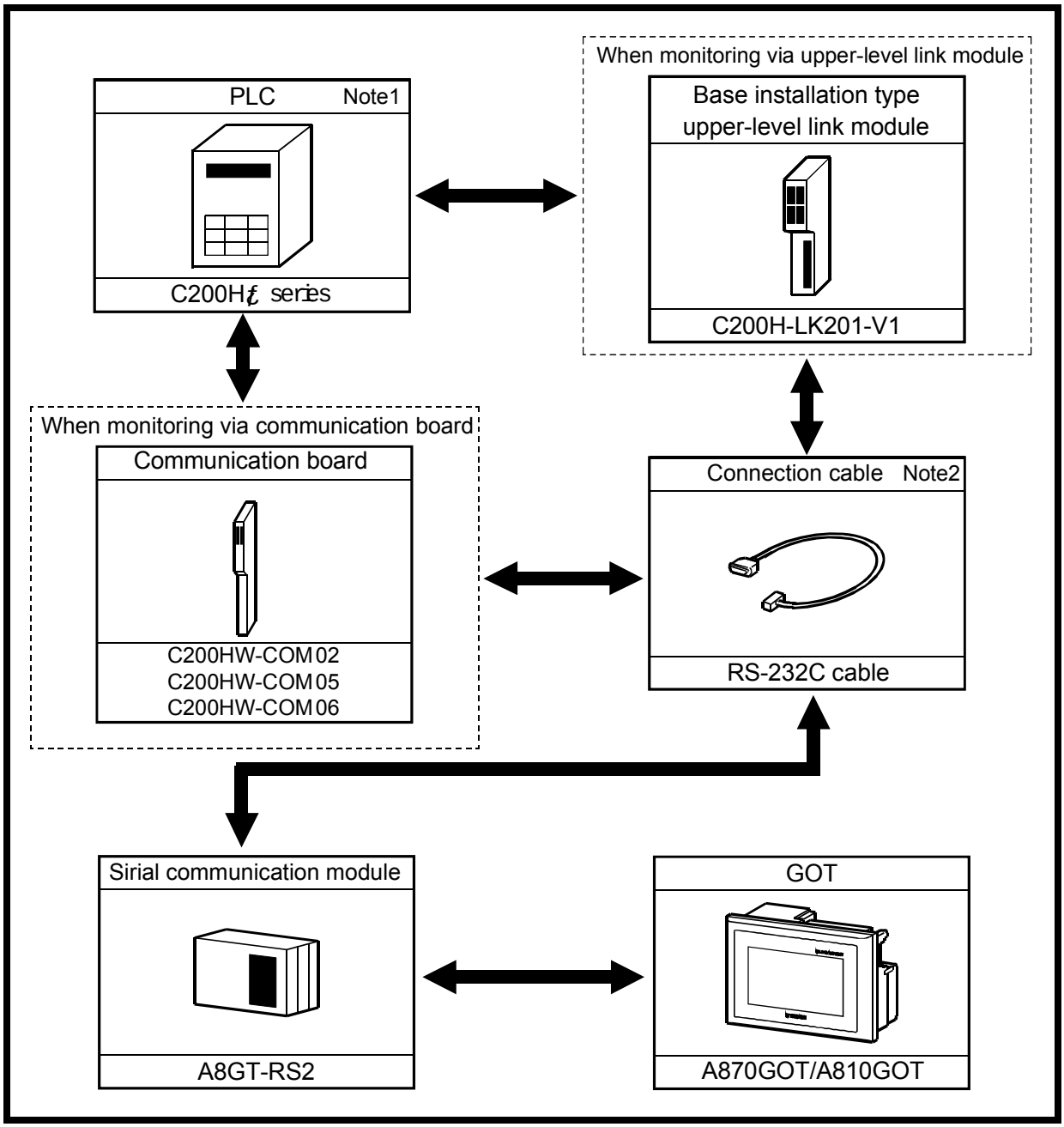
  The serial communication module uses the following RS-232C interface connector. Use a mating connector which matches this connector:
  9-pin D sub (mail),inch screw type
  Daiichi Electronic Industry make

- Omron side connector

  Use the connector supplied with the upper-level link module and the communication board

4.3 System Configuration for Connection with OMRON's Programmable Controller (C200H•Series)

4.3.1 System Configuration



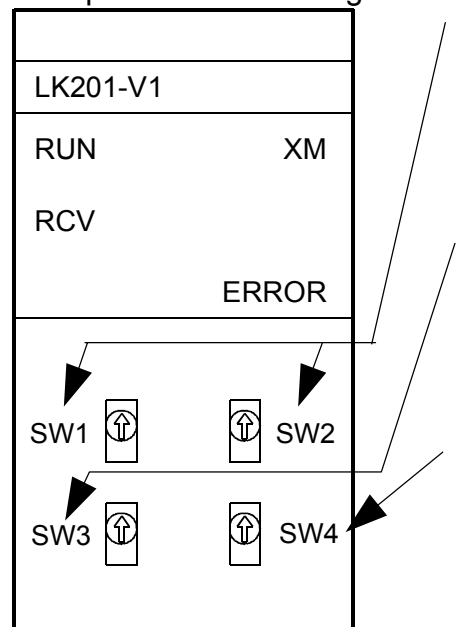
Note1:The communication board cannot be installed to the C200HE-CPU11.Install the board via upper-level link module.

Note2:The pin assignment of the connection cable is different for the communication board and for upper-level link module.

4.3.2 Setting the upper-level link module(C200H-LK201-V1) switches

When using the upper-level link module (C200H-LK202-V1),perform the switch setting shown below.

Front panel switch setting

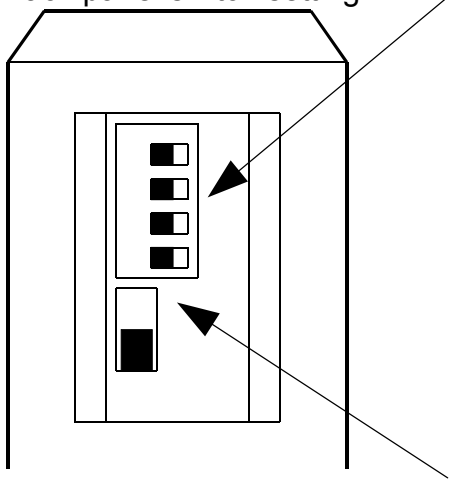


1) Setting for SW1 and SW2(Device No.setting)
Set as follows:
SW1:0,SW2:0(Set to device No.00.)

2) Setting for SW3(Transmission speed setting)
Set as follows:
SW3:6(Set to 19.2kBPS.)

3) Setting forSW4(Command level/parity/transmission code setting) set as follows:
SW4:2(Parity: even, transmission code: ASCII 7-bit, stop bit:2)

Back panel switch setting



4) Setting for 5V supply switch
When using the Z3RN-A-5 optical interface, set this switch to the ON(5V supplied) position.
When not using the optical interface, always set it

SW No.	ON	OFF
1	Not used(Set to OFF)	
2		
3	1:N procedure	1:1 procedure
4	5V supplied	5V not supplied

5) CTS select switch
Set this switch in the 0V position to keep CTS on or in the external signals. Normally, set it in the 0V position

43210.wmf

4.3.3 About the communication board initialization program

When using the communication board, write the following values to the following devices and perform initialization for port A of the communication board.
For device applications and initialization program, refer to the manual of the communication board used.

Device name	Value to write	Device name	Value to write
DM6550 to DM6554	Write unnecessary	DM6555	0001H
DM6556	0304H	DM6557	0000H
DM6558	0000H	DM6559	0000H

4.3.4 About the connection cable

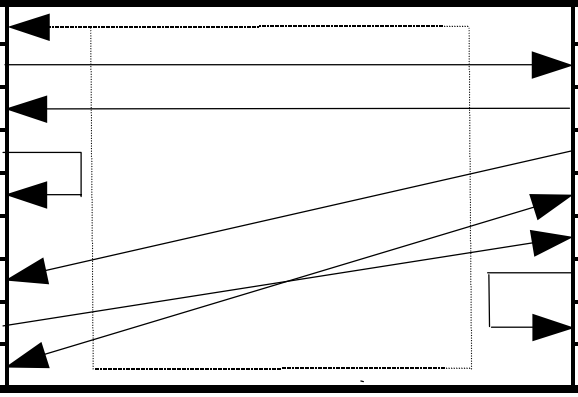
Use the following connection diagrams and connectors to connect the cable between the serial communication module and programmable controller via the upper-level link module or communication board.
(Max. cable length: 15m(49.25feet))

(1) Connection diagram

1)Upper-level link module

Omron side		Cable connection and signal direction	GOT side	
Signal	Pin No		Pin	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
———	6		6	DSR(DR)
SG	7		7	RS(RTS)
———	8		8	CS(CTS)
ER	20		9	———

2)Communication board

Omron side		Cable connection and signal direction	GOT side	
Signal	Pin No		Pin	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
————	6		6	DSR(DR)
SG	7		7	RS(RTS)
————	8		8	CS(CTS)
ER	9		9	————

(2) Connector and connector cover

·GOT side connector

The serial communication module uses the following RS-232C interface connector. Use a mating connector which matches this connector:

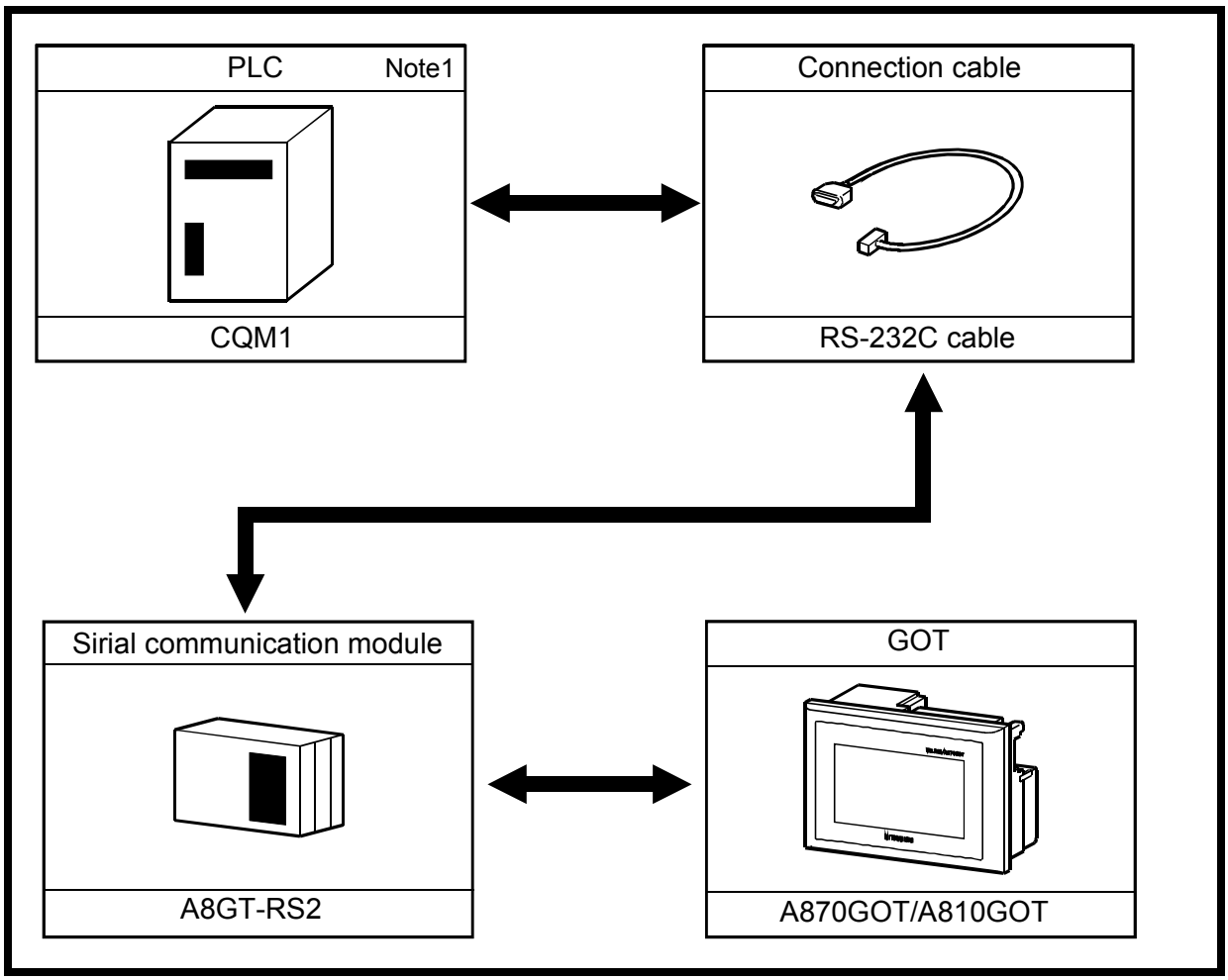
9-pin D sub (mail),inch screw type Daiichi Electronic Industry make.

·Omron side connector

Use the connector supplied with the upper-level link module and the communication board.

4.4 System Configuration for Connection with OMRON's Programmable Controller (CQM1)

4.4.1 System Configuration



Note1:Since the CQM1-cpu11 does not have the RS232C-interface , it cannot be connected.

4.4.2 About the CQM1 initialization

When using the RS232 port of the CQM1,write the values for the device indicated below. Perform initialization for the RS232C port of the CQM1 using
a peripheral tool or DM monitor.
Refer to the CQM1 Instruction Manual for details.

Device name	Value to write	Device name	Value to write
DM6645	0001H	DM6646	0304H
DM6647	0000H	DM6648	0000H
DM6649	0000H		

4.4.3 About the connection cable

Use the following connection diagram and connectors to connect the cable between the upper-level link module and serial communication module.
(Max. cable length :15m(49.25feet))

(1)Connection diagram

Omron side		Cable connection and	GOT side	
Signal	Pin No		Pin	Signal
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RSD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
———	6		6	DSR(DR)
———	7		7	RS(RTS)
———	8		8	CS(CTS)
GND	9		9	———

(2) Connector and connector cover

·GOT side connector

The serial communication module uses the following RS-232C interface connector. Use a mating connector which matches this connector:

9-pin D sub (mail),inch screw type Daiichi Electronic Industry make.

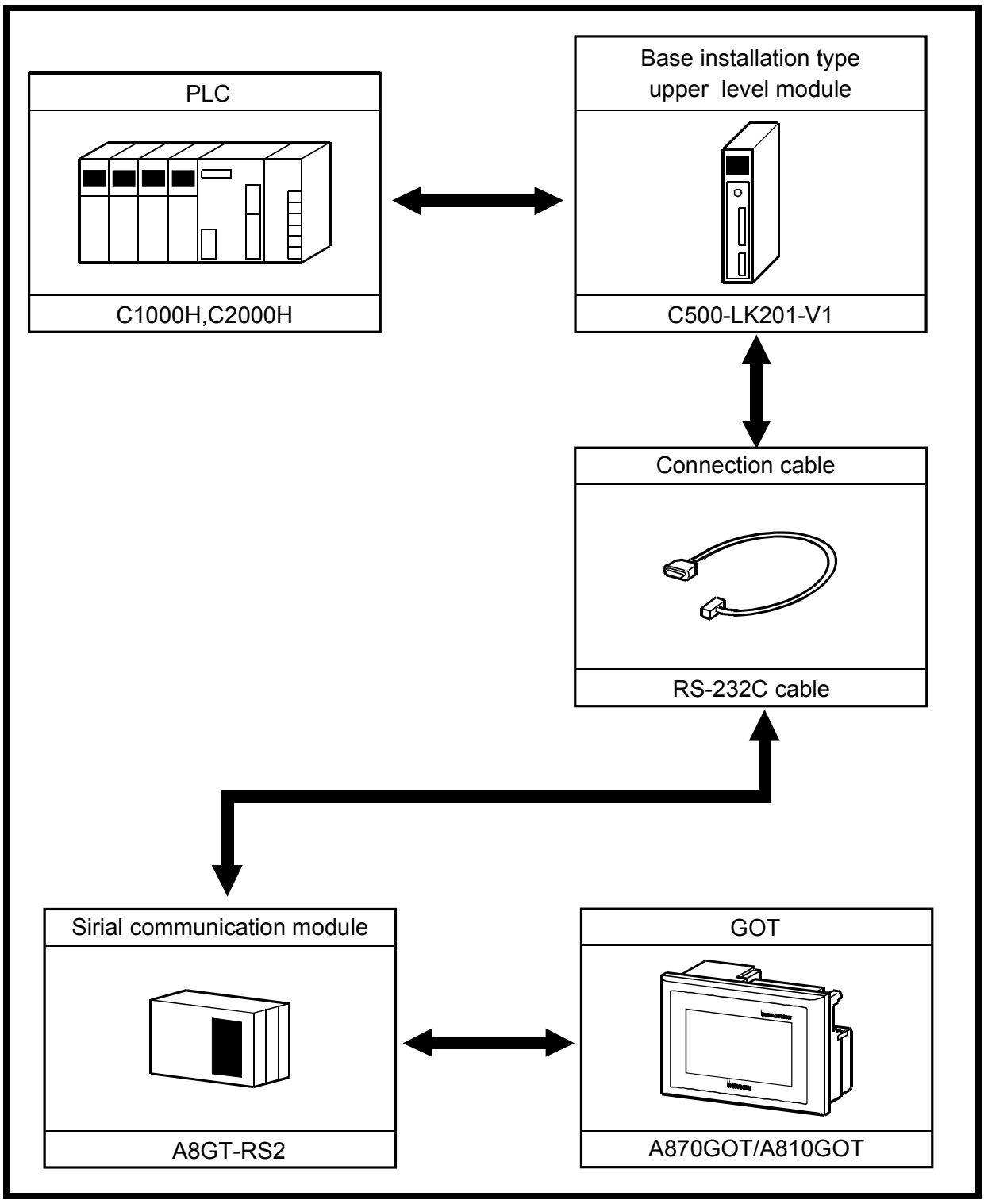
·Omron side connector

Use the connector supplied with the upper-level link

module and the communication board.

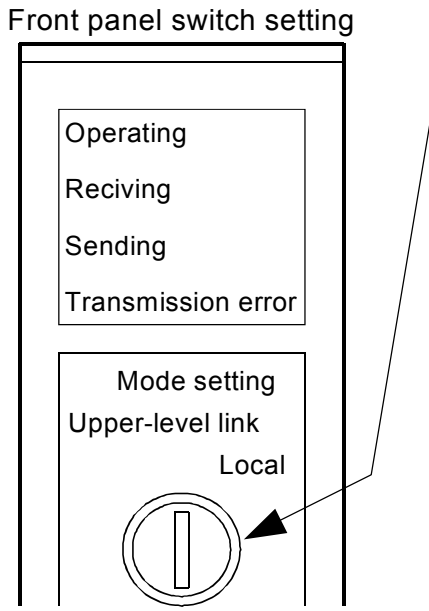
4.5 System Configuration for Connection with OMRON's Programmable Controller (C1000H or C2000H Series)

4.5.1 System Configuration



4.5.2 Setting the upper-level link module(C500H-LK201-V1), switches

When using the upper-level link module(C500H-LK201-V1),perform the switch setting shown below.



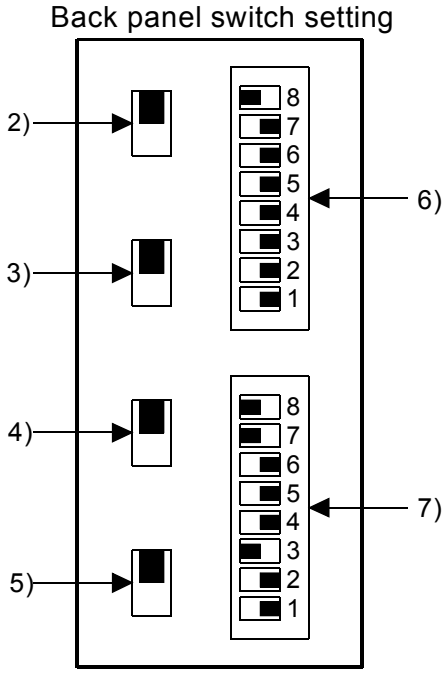
1) Upper level/local setting
Set to upper-level link

2) RS232C/RS-422 switch setting
Set to RS232C(bottom)

3) Internal/external clock switch setting
Set to Internal(top).

4) Terminal resistor connection yes/no
Set to yes (bottom)

5) CTS switch setting
Set to 0V (top)



6) SW1 setting
(Device No., operate/stop setting)
Set as the following:

1	2	3	4	5	6	7	8
OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON

Device No.00

Op-eration

7) SW2 setting
(Device No., operate/stop setting)
Set as the following:

1	2	3	4	5	6	7	8
OFF	OFF	ON	OFF	OFF	OFF	ON	ON

19.2kBPS valid

1:N-step

Level 1,2,and 3

4.5.3 About the connection cable

The connection diagram of the cables connecting the upper-level link module and GOT, and the connectors used are shown below.
(Max. cable length :15m(49.25feet))

(1)Connection diagram

Omron side		Cable connection and signal direction	GOT side	
Signal name	Pin No		Pin	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
————	6		6	DSR(DR)
SG	7		7	RS(RTS)
————	8		8	CS(CTS)
ER	20		9	————

(2) Connector and connector cover

·GOT side connector

The serial communication module uses the following RS-232C interface connector. Use a mating connector which matches this connector:

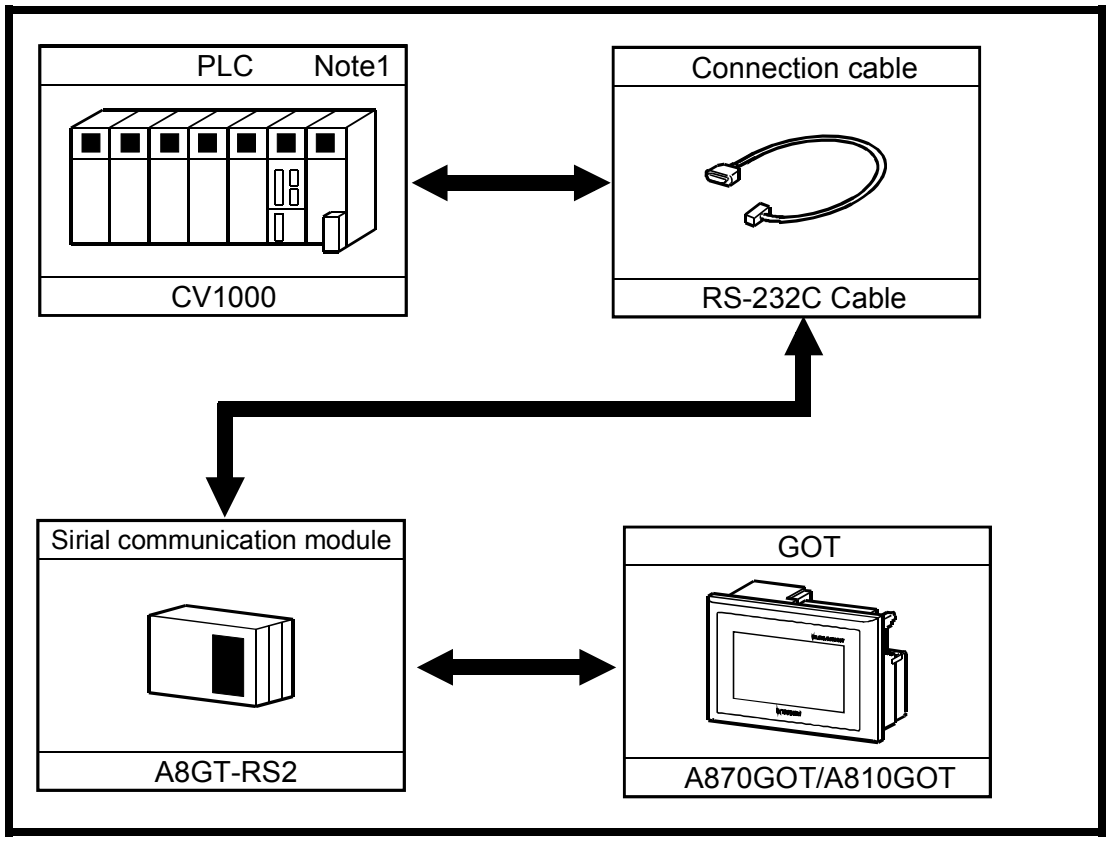
9-pin D sub (mail),inch screw type Daiichi Electronic Industry make.

·Omron side connector

Use the connector provided with the upper-level link module.

4.6 System Configuration for Connection with OMRON's Programmable Controller (CV1000)

4.6.1 System Configuration

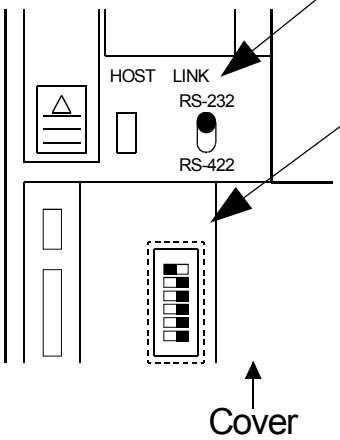


Note1:Use the CV1000 of version V1 or later.

4.6.2 CPU switch setting

Set the switches to the following for the CPU(CV1000).

Front panel switch setting



1) RS232/RS422 switch setting
Set to RS-232(TOP).

2) Dip switch setting
Set as the following

1	2	3	4	5	6
OFF	OFF	OFF	OFF	OFF	ON

:Setting mandatory

4.6.3 CPU setting by peripheral tool

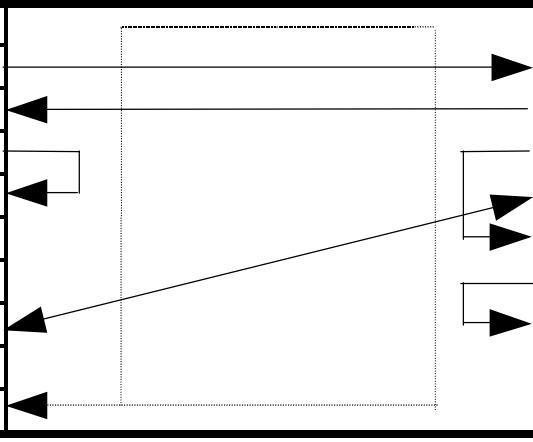
Set the following to the CPU(CV1000) using a peripheral tool:

Item	Set value
Transmission speed	19200BPS
Stop bit	2 stops bits
Parity	Even parity
Data length	7 bits
Device No.	Device No.00

4.6.4 About the connection cable

The connection diagram of the cables connecting the CPU (CV1000)the upper-level link module and serial communication module.
(Max. cable length :15m(49.25feet))

(1)Connection diagram

Omron side		Cable connection and signal direction	GOT side	
Signal name	Pin No		Pin no.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RSD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
———	6		6	DSR(DR)
CD	7		7	RS(RTS)
———	8		8	CS(CTS)
SG	9		9	———
FG	SHELL		———	———

(2) Connector and connector cover

·GOT side connector

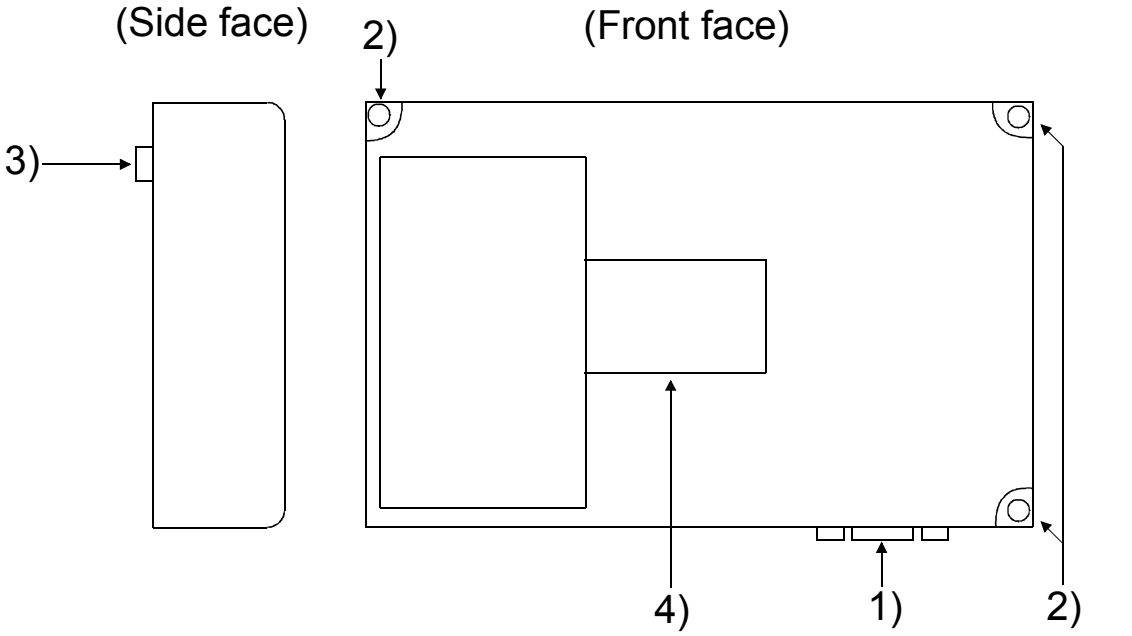
The serial communication module uses the following RS-232C interface connector. Use a mating connector which matches this connector:

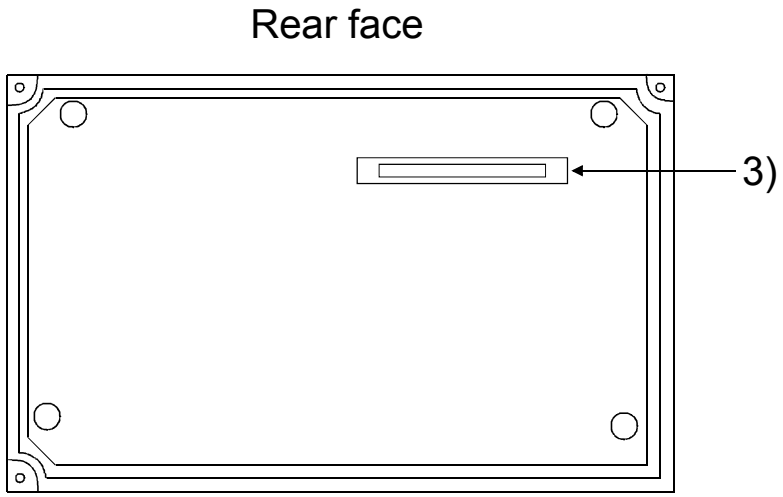
9-pin D sub (mail),inch screw type Daiichi Electronic Industry make.

·Omron side connector

Use the connector provided with the CPU(CV1000).

5. Names of parts and Handling Compost Equipment Units





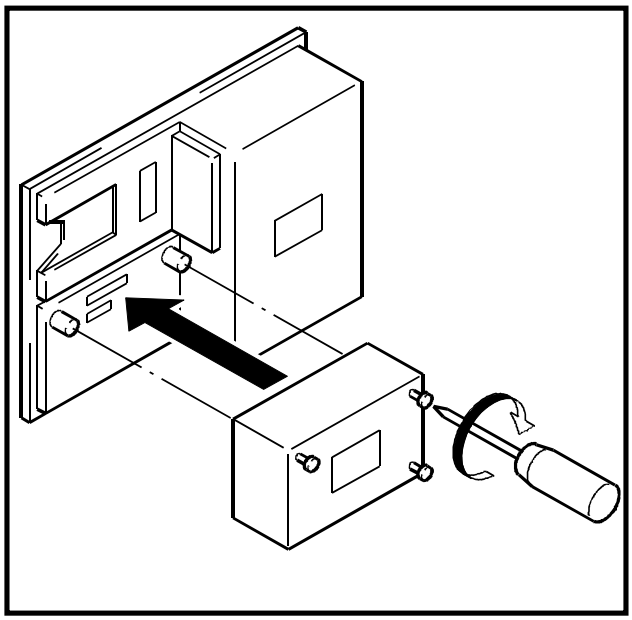
50010c.wmf

No.	Name	Details
1)	Interface for RS232C connection cable	Interface for RS-232C connection cable
2)	Module fixing screw	Fixing screw to the GOT
3)	Connector	Connector to the GOT
4)	Rated name plate	————

6. Attachment Procedures

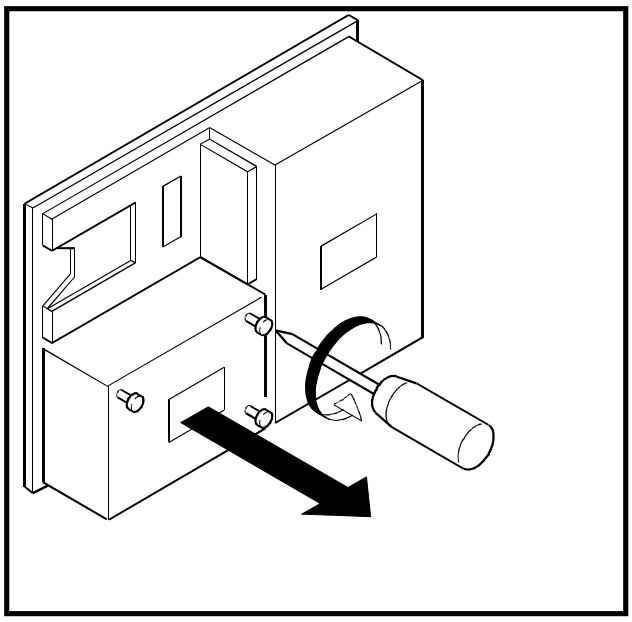
The installation and removal methods of the memory cassette to and from the GOT are described below.

(1) Installation



1) Insert the interface module to the GOT installation area along threaded guides.
2) Install the module securely by tightening the module fixing screws (three pieces) with the specified torque(39 to 59·Ncm (4 to 6 kg·cm)).

(2) Removal



1) Remove the module fixing screws (three pieces) and pull out the module horizontally.
2) Keep the removed interface module in a safe place.

7. Attachment Procedures

Unit : mm(inch)