INSTRUCTION MANUAL
FOR
CC-LINK LINK UNIT
CLT-200

Thank you for your purchase of our CC-Link link unit **CLT-200**.

This manual contains instructions for the mounting, functions, operations and notes when operating the **CLT-200**.

For your confirmation of the model and specifications of the units, peruse and understand this instruction manual before starting operation.

To prevent the accident by mishandling of the units, please arrange to give this manual into the hands of the operator who actually uses our product.

******* **Notes to users** *******

Before operating CLT-200, please understand following matters.

⚠ **Warning**

Turn the power supplied to the instrument OFF before wiring or checking.
If working or touching the terminal on the power ON status, there is a
possibility of Electric Shock which can cause severe injury or death.

⚠ **Notices**

· **It is required to set up each switch for CLT before the power supplied**
  to the unit is turned ON
· **The CLT should be surly inserted to the CBT-200 socket to avoid imperfect**
  contact.

1. Overview

1.1 Overview of CLT-200

If CC-Link link unit is applied to the C series, the C series can be linked to the PLC of Mitsubishi Electric Corporation.

To the base unit, the power source host link unit, 2-channel temperature control unit and CC-Link link unit can be mounted.
The Base unit can be mounted to the DIN rail.

The base unit has 2 types.
One type can be mounted by 1 power source host link unit, up to 4 units of 2-channel temperature control unit and 1 CC-Link link unit.
The other type can be mounted by 1 power source host link unit, up to 8 units of 2-channel temperature control unit and 1 CC-Link link unit.

1.2 Units and structure when applied to the C series

(1) CC-Link link unit

Model name **CLT-200**: Link unit to connect to CC-Link master unit.

(2) 2-channel temperature control unit

Model name **CCT-235-2□/□**: Independent temperature control unit of 2 channels

(3) Power source host link unit

Model name **CPT-200**: Link unit to supply the power to the CCT and CLT.

(4) Base unit

Model name **CBT-210**: Base unit to mount the CPT, CCT and CLT unit.

                One CPT is required to 1 base unit.

                When the CLT is applied, 1 CPT, max. 8 units of CCT and 1 CLT

                can be connected. (space for 1 unit is not used.)

CBT-205: Base unit to mount the CPT, CCT and CLT unit.

                One CPT is required to 1 base unit.

                When the CLT is applied, 1 CPT, max. 4 units of CCT and 1 CLT

                can be connected.

● **CC-Link is a trademark of the Mitsubishi Electric Corporation.**

1.3 System configuration

● When connecting 1 unit of the CLT-200 to the CBT-210.

CC-Link

CPT-200

PLC of Mitsubishi

CC-Link
master unit

CCT-235   CLT-200
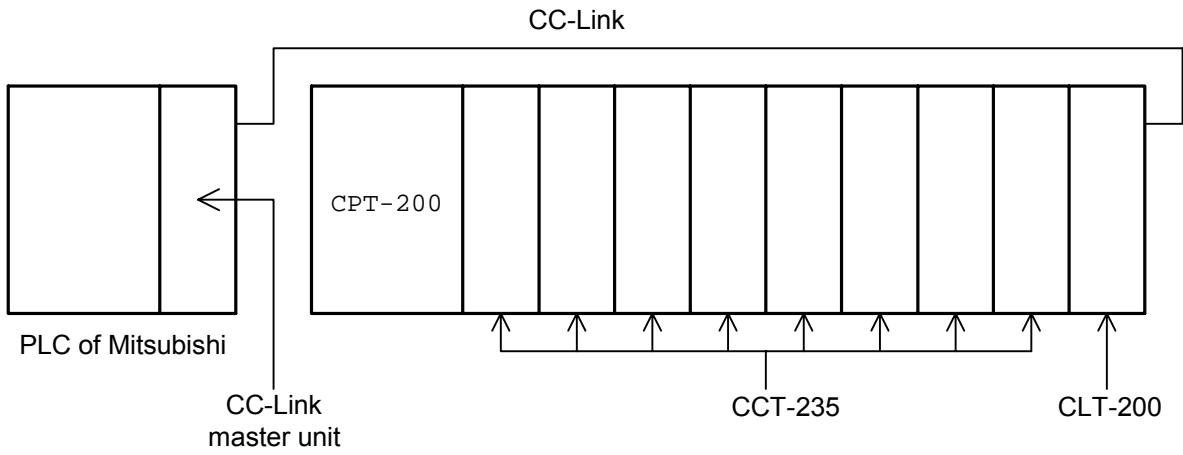
[Fig. 1.3-1]

● When connecting plural units of the CLT-200 (max.16 units) to the CBT-210.

CC-Link

CPT-200

PLC of Mitsubishi

CC-Link
master unit

CPT-200

CCT-235   Max.16 units of CLT-200
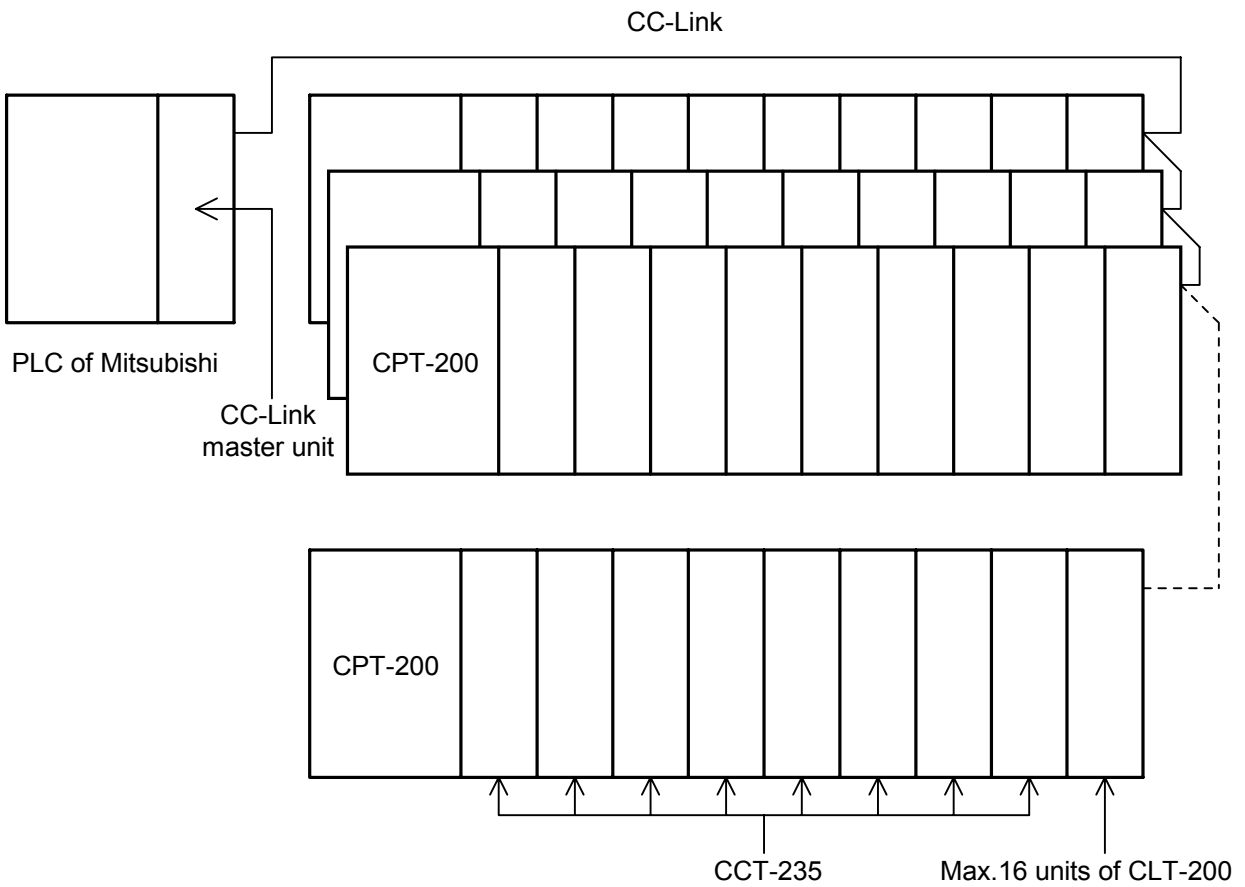
[Fig. 1.3-2]

● When connecting 1 unit of the CLT-200 to the CBT-205.

CC-Link

CPT-200

PLC of Mitsubishi

CC-Link
master unit

CCT-235   CLT-200
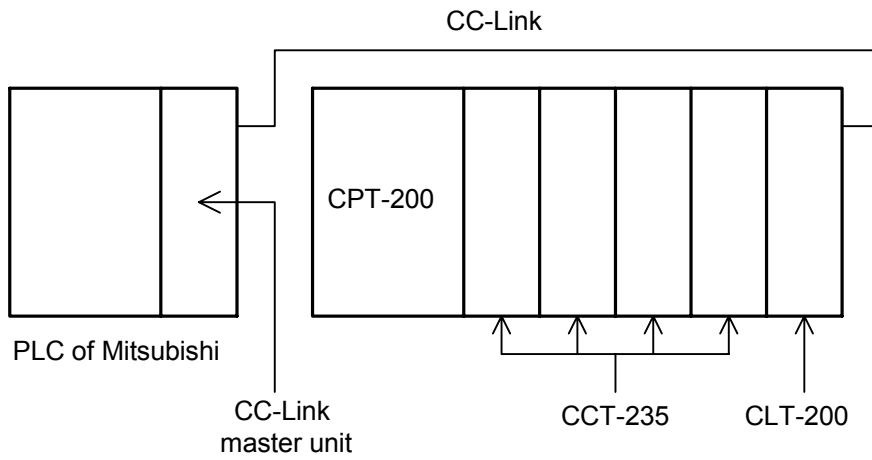
[Fig. 1.3-3]

● When connecting plural units of the CLT-200 (max.16 units) to the CBT-205.

CC-Link

CPT-200

PLC of Mitsubishi

CC-Link
master unit

CPT-200

CCT-235   Max.16 units of CLT-200
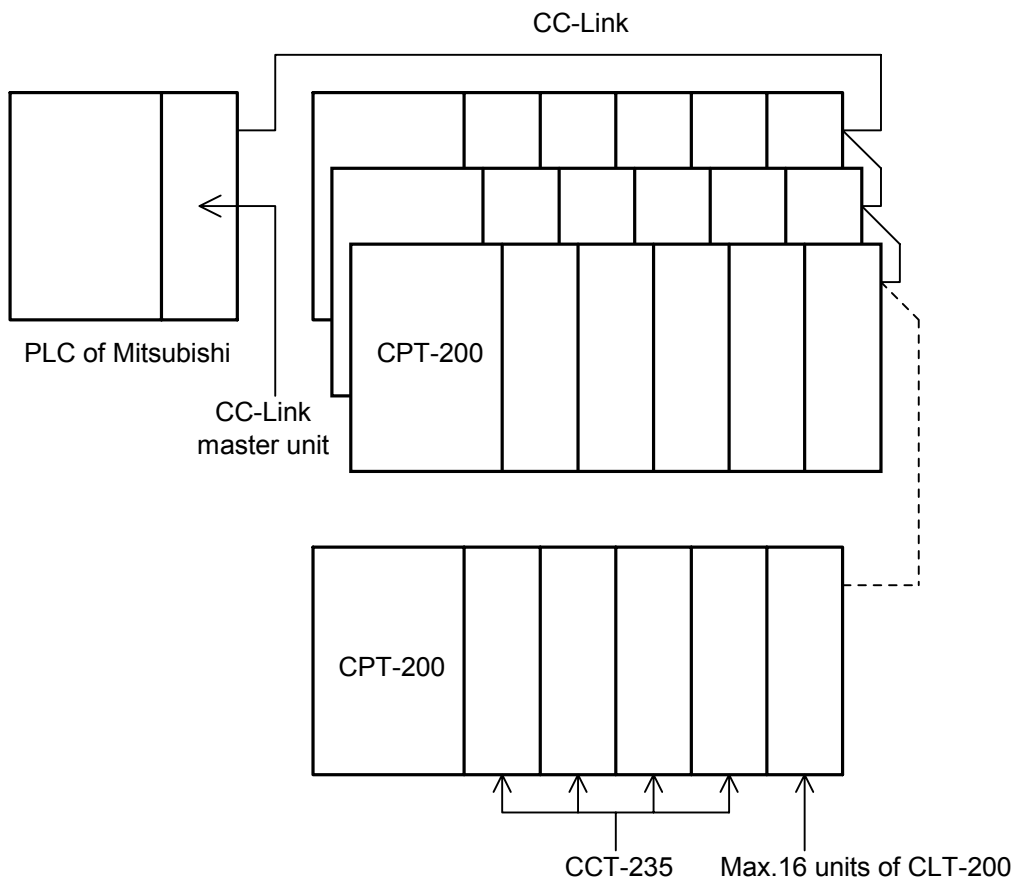
[Fig. 1.3-4]

1.4 Parameter exchange

  Parameter exchange is shown as below.
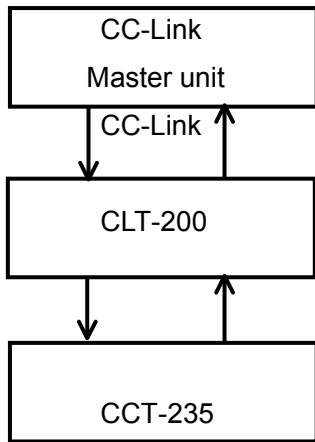
CC-Link Master unit	Data exchange with the CLT is performed by sequence program.
CLT-200	The CLT receives the sending data from the CC-Link and sends the data to the CCT. The CLT receives the response data from the CCT and sends the data to the CC-Link.
CCT-235	The CCT receives the sending data from the CLT and performs the control, then sends the response data of the CCT to the CLT.

2. Model name

 2.1 Model name

      CLT-200: CC-Link link unit

 2.2 How to indicate the model name

⚠ **Warning**

Turn the power supplied to the instrument OFF before confirming the model name plates.
If working or touching the terminal on the power ON status, there is a possibility of Electric Shock which can cause severe injury or death.

  Model name plates are put on the case and inner assembly.

 [Example]

CLT-200	Model name: CLT-200
TC	Option [TC]: Terminal cover
No. x x x x x x	Instrument number (indicated only on the inner assembly.)

3. Name and functions of the sections

Communication terminal block   Top of the unit
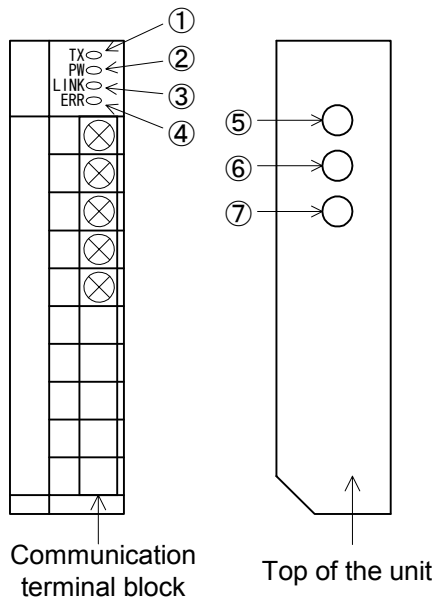
[Fig. 3-1]

① Communication confirming indicator

When communicating between a CCT and CLT, yellow LED blinks.

② Instrument power indicator

When the power supplied to the instrument is turned ON, green LED lights.

③ Communication confirming indicator for CC-Link

When CC-Link is communicating, yellow LED lights.

④ Error indicator for CC-Link

When an error has occurred during the communication of CC-Link, red LED lights.

When changing baud rate or station number of CC-Link, red LED blinks.

⑤ Rotary switch for CC-Link baud rate setting.

It sets the baud rate for CC-Link.

⑥ Rotary switch for CC-Link station number setting (the 1st digit)

It sets the CC-Link station number of the CLT.

⑦ Rotary switch for CC-Link station number setting (the 2nd digit)

It sets the CC-Link station number of the CLT.

4. Setup

⚠ # Warning

Turn the power supplied to the instrument OFF before setup.

If working or touching the terminal on the power ON status, there is a possibility of Electric Shock which can cause severe injury or death.

⚠ # Notice

Set up each switch of CLT-200 before connecting the unit to the socket of CBT-200.

4.1 Switch setting

Set the rotary switch of CLT-200 using a small screw driver (either Phillips type or flat bladed one).

① Baud rate (data transfer rate) setting of CC-Link

Rotary switch No.	0	1	2	3	4
Baud rate	156kbps	625kbps	2.5Mbps	5Mbps	10Mbps

Do not set the rotary switch number from 5 to 9.

② Station number setting of CC-Link (the 1st digit)

It sets the CC-Link station number (1 to 9) of the CLT.

Setting range: 1 to 64

③ Station number setting of CC-Link (the 2nd digit)

It sets the CC-Link address (1 to 6) of the CLT.

Do not set the rotary switch number from 7 to 9.

Setting range: 1 to 64

[Fig. 4.1-1]

Top of the unit
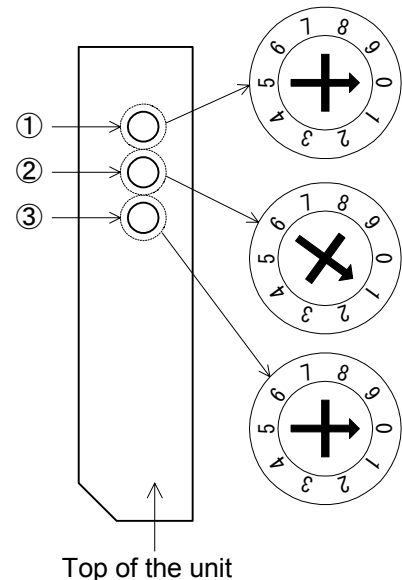
* Do not set "0" to the 1st and 2nd digit when setting the CC-Link station number.

* For the communication setting of CC-Link master unit, see pages 11 and 12.

● **Station number setting**

   For setting a station number of C series , use a rotary switch located on the top of the CLT-200.

   See [Fig. 4.1-1].

⚠ **Notices**

  ・ **Be sure to set a station number when connecting the CLT-200 to CC-Link.**
     However, avoid the same station number on the same line.
  ・ **The station number can be set regardless of C series connection order.**
  ・ **Set the station number of CLT-200 skipping every 4 stations, because 4 stations**
     are occupied.

[Setting Example]

[Fig. 4.1-2]

Front				Front				
Sta. No. 1	Sta. No. 2	Sta. No. 3	Sta. No. 4	Sta. No. 5	Sta. No. 6	Sta. No. 7	Sta. No. 8	Sta. No. 9
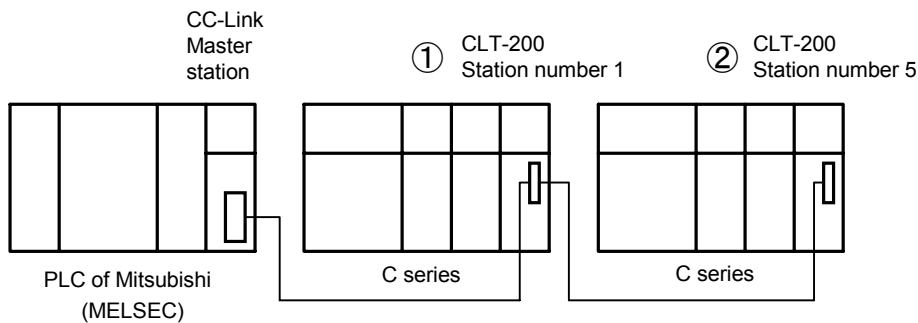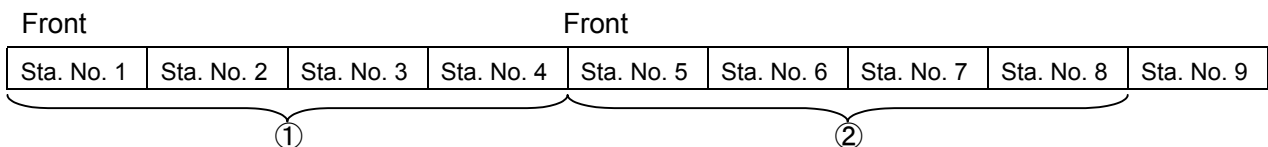
● **CC-Link baud rate (data transfer rate) setting**

   For the CC-Link baud rate setting of CLT-200, use the rotary switch located on the top of the CLT-200.

   See [Fig. 4.1-1].

⚠ **Notice**

   The baud rates of all the CLT-200s and of CC-Link master station on the same
   line should be set as the same rates.
   Different settings of baud rate prevent normal data link.

4.2 Communication setting of CC-Link master unit

● **AJ61BT11**
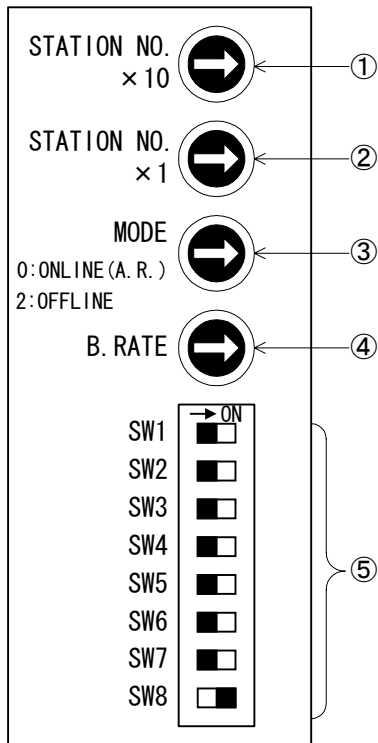
[Fig. 4.2-1]

① It sets a station number of the 2nd digit.
Set the address to 0.

② It sets a station number of the 1st digit.
Set the address to 0.

③ It sets a mode.
Set the mode to 0 (ONLINE).

④ It sets a data transfer rate.
Set the rate to 0 (156kbps).

⑤ It selects an action condition.
Set the action condition to the
shaded (▨) one.
See [Table 4.2-1].

[Table 4.2-1]

Setting switch	Setting contents	Setting switch OFF	Setting switch ON
SW1	Station type setting	Master station/ Local station	Master station not functioning
SW2		Always OFF	-
SW3		Always OFF	-
SW4	Sets an input data status for station of abnormal data link.	Clearing	Holding
SW5	Number of occupied stations	1 station	4 stations
SW6		Always OFF	-
SW7		Always OFF	-
SW8	Unit mode setting	Intelligent mode	I/O mode

● **A1SJ61BT11**
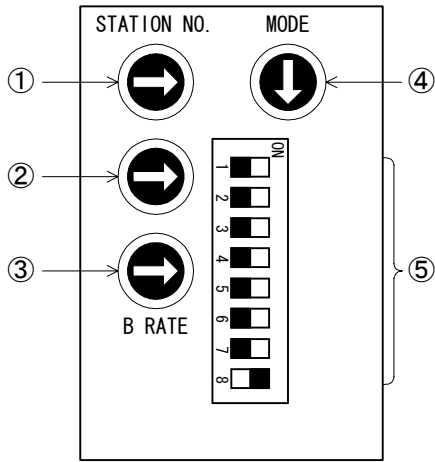
[Fig. 4.2-2]

① It sets a station number of the 2nd digit.

Set the address to 0.

② It sets a station number of the 1st digit.

Set the address to 0.

③ It sets a data transfer rate.

Set the rate to 0 (156kbps).

④ It sets a mode.

Set the mode to 0 (ONLINE).

⑤ It selects an action condition.

Set the action condition to the shaded ( ) one.

See [Table 4.2-2] below.

[Table 4.2-2]

Setting switch	Setting contents	Setting switch OFF	Setting switch ON
SW1	Station type setting	Master station/ Local station	Master station not functioning
SW2		Always OFF	-
SW3		Always OFF	-
SW4	Sets the input data status for abnormal station of data link	Clearing	Holding
SW5	Number of occupied station	1 station	4 stations
SW6		Always OFF	-
SW7		Always OFF	-
SW8	Unit mode setting	Intelligent mode	I/O mode

5. Mounting

5.1 Site selection

Mount the units in a place with:

(1) A minimum of dust, and an absense of corrosive gases.

(2) No mechanical vibrations or shocks.

(3) No exposure to direct sunlight, an ambient temperature is 0 to 50℃ (32 to 122℉) and
     it does not change suddenly.

(4) An ambient humidity is 85%RH or less, and non-condensing.

(5) The units should be away from the electromagnetic switch of large capacity or cables through
     which large current flows.

(6) No water, oil or chemicals and their vapor directly splash.

5.2 External dimension drawing

[Fig. 5.2-1]

5.3 Mounting to the DIN rail (CBT-200)

For the mounting to the DIN rail, refer to the Instruction Manual for C series (page 41 to 43).

5.4 Mounting to the CBT-200

For the mounting to the CBT-200, refer to the Instruction Manual for C series (page 44).

6. Wiring connection

6.1 Terminal arrangement

⚠ **Warning**

Turn the power supplied to the instrument OFF before wiring.

If working or touching the terminal on the power ON status, there is a possibility

of Electric Shock which can cause severe injury or death.

Moreover, the instrument must be grounded before the power supplied to the

instrument is turned on.

- Terminal arrangement of CC-Link master unit
  - ② DA
  - ④ DB
  - ⑥ DG
  - ⑧ SLD
  - ⑩ FG

PLC of Mitsubishi
AJ61BT11
or
A1SJ61BT11

Communication
terminal block
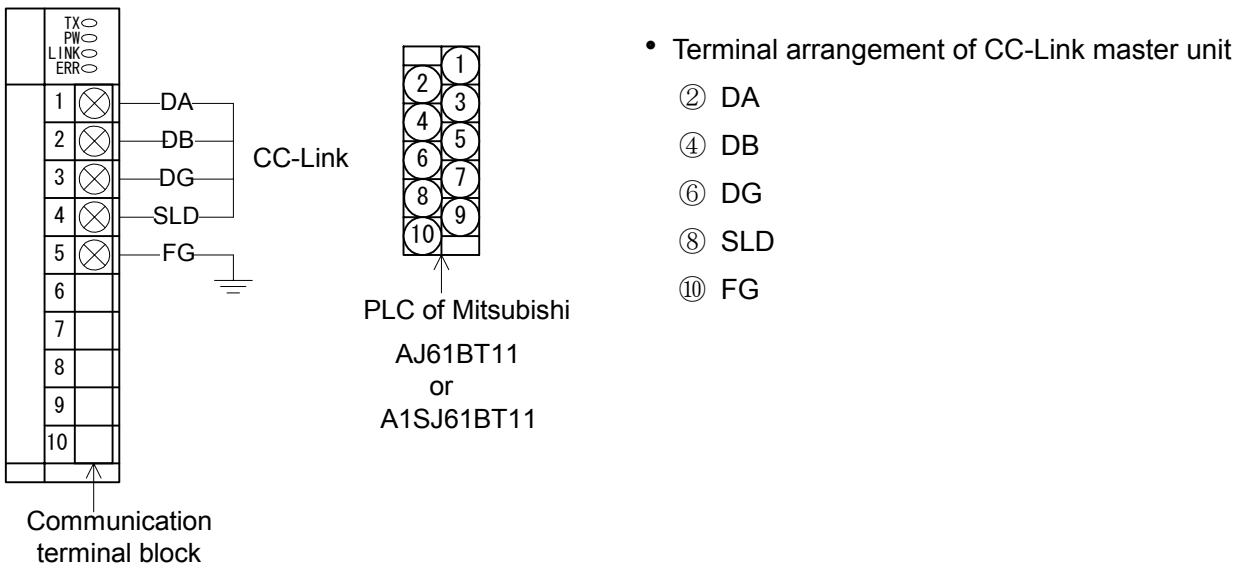
[Fig. 6.1-1]

6.2 Wiring connection example

⚠ **Notices**

- **Use a recommended cable between the master unit and CLT-200.**
- **A terminator should be connected to both ends of the unit, and the places**
  to connect are between DA and DB.
- **Use a thick wire (1.25 to 2.0mm^2) for ground.**
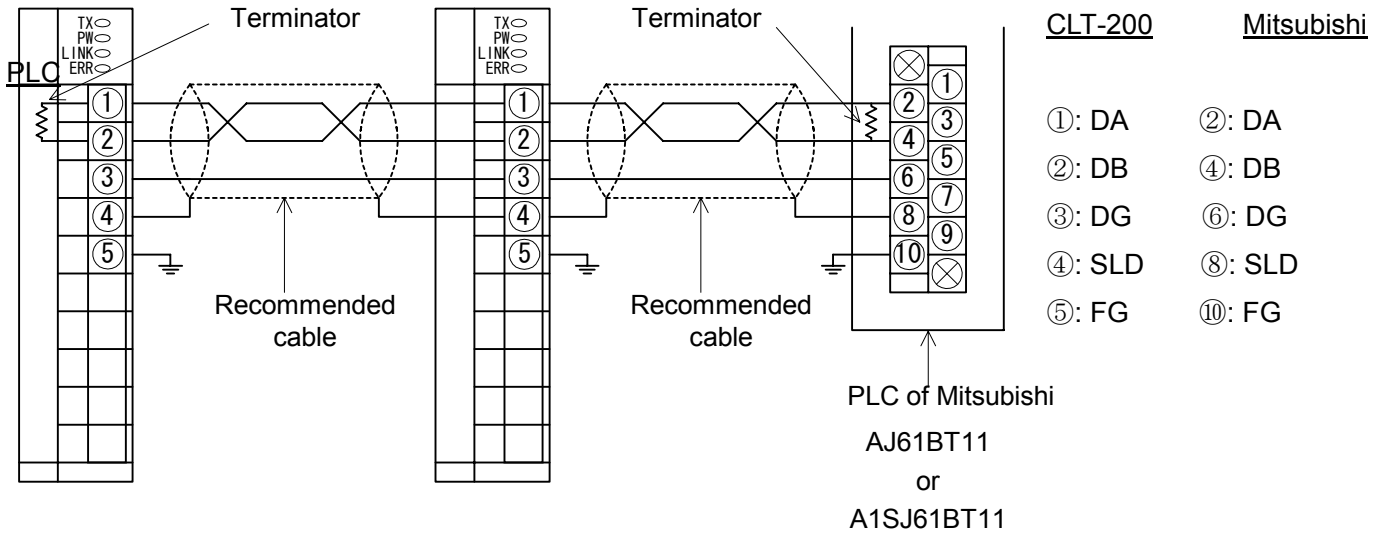
[Fig. 6.2-1]

● **Recommended terminal**

Use a solderless terminal with insulation sleeve that fits to the M3 screw as shown below.

[Fig. 6.2-2]

Solderless terminal	Manufacturer	Model name	Tightening torque
Y type	Nichifu Terminal Industries CO.,LTD.	1.25-Y3	0.6N·m (6kgf·cm) Max. 1.0N·m (10kgf·cm)
	Japan Solderless Terminal MFG CO.,LTD.	VD1.25-B3A	
Round type	Nichifu Terminal Industries CO.,LTD.	1.25-3	
	Japan Solderless Terminal MFG CO.,LTD.	V1.25-3	

● **Recommended cable**

Model	Manufacturer	Terminator
FANC-SB	Kuramo Electric Co., LTD	110Ω,1/2W
FANC-SBH	Kuramo Electric Co., LTD	130Ω,1/2W

· **How to use the cable**
(1) Do not use the cables FANC-SB and FANC-SBH together.
(2) It is recommended to use FANC-SB for 10Mbps, and FANC-SBH for 5Mbps or less to ease restrictions of minimum cable length between stations and total cable length so as to make system construction easier.

· **Terminator**

2 types of terminator attached to the CC-Link master unit should be used properly by the cable.

● **Maximum distance of transmission**

Data transfer rate	Total number of remote units *1	Remote I/O ・Remote device Minimum cable length between stations *2	Total cable length *3	
			FANC-SBH	FANC-SB
10Mbps	64 units or less	1.0m or greater		100m or less
		0.7m or greater	100m or less	
		0.6m or greater		80m or less
		0.4m or greater	30m or less	50m or less
		0.3m or greater	20m or less	50m or less
	48 units or less	0.4m or greater	100m or less	
		0.3m or greater	80m or less	
	32 units or less	0.3m or greater	100m or less	
5Mbps	64 units or less	0.6m or greater	160m or less	150m or less
		0.3m or greater	160m or less	110m or less
2.5Mbps		0.3m or greater	400m or less	200m or less
625kbps			900m or less	600m or less
156kbps			1200m or less	1200m or less

Cable length of the master station (both ends): 1m or greater

(when master station is located at the end: one side of cable length)

M : Master station

R : Remote I/O /Remote device station
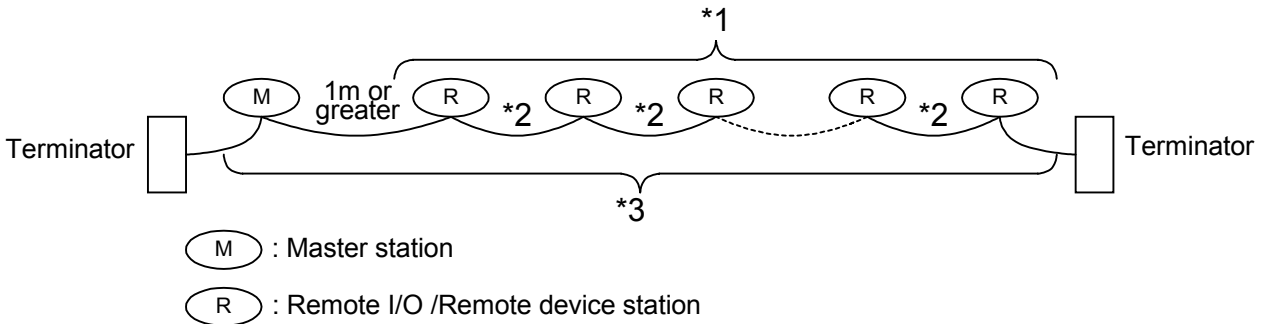
[Fig. 6.2-3]

7. Communication

7.1 Communication between the master station and remote device station (CLT-200)

The CLT-200, a remote device station uses remote input (RX), remote output (RY) and remote register (RWw, RWr) in communication.

● Communication between the master station and remote device station
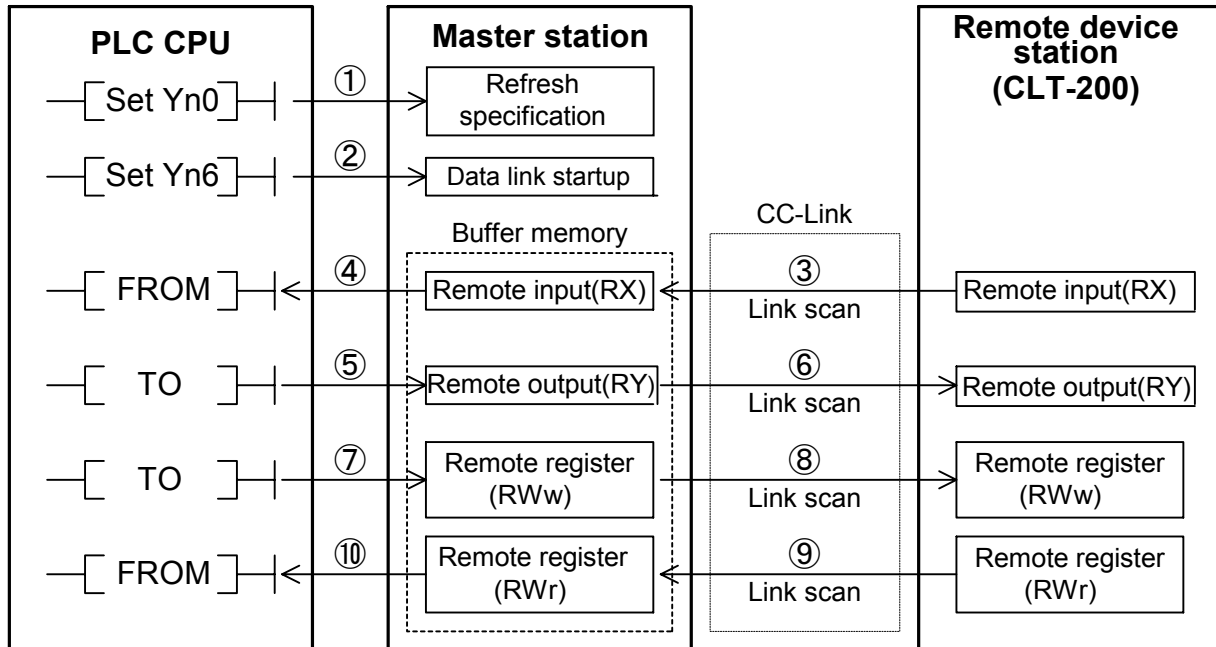
[Fig. 7.1-1]

① Turn on the Refresh specification.

② Startup the data link.

③ By the link scan, the remote device station's remote input (RX) is stored in the master station's remote input (RX).

④ By the FROM instruction, read data from the remote input (RX).

⑤ By the TO instruction, write data to the master station's remote output (RY).

⑥ By the link scan, the data is sent to the remote device station's remote output (RY).

⑦ By the TO instruction, write data to the master station's remote register (RWw).

⑧ By the link scan, the data is sent to the remote device station's remote register (RWw).

⑨ By the link scan, remote device station's remote register (RWr) is sent to the master station's remote register (RWr).

⑩ By the FROM instruction, read data from the master station's remote register (RWr).

* Refer to the User's Manual for CC-Link system Master and Local Module of Mitsubishi for details.

● **Communication example**

• When reading the process variable (PV) by setting the remote device station (CLT-200) number to 1
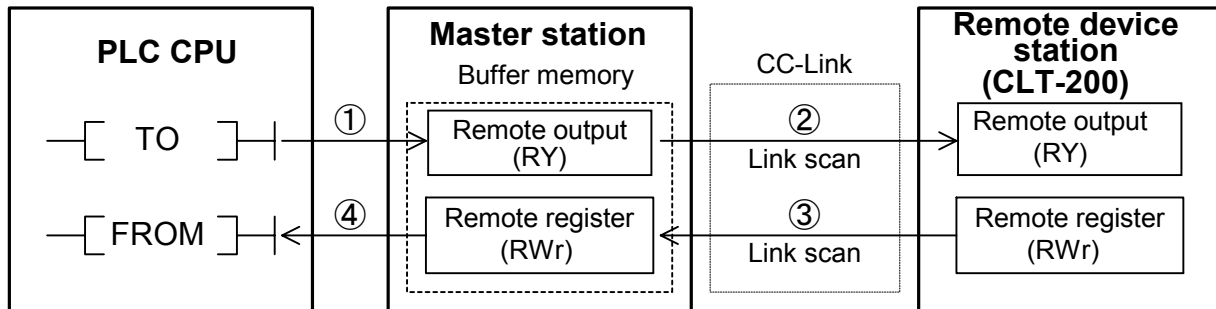
① By the TO instruction, write the **extended number** (When reading PV, RY00 to RY05 [00000]) of setting item to be read to the master station's remote output (RY), and then turn **extended read flag** (RY0C) on (1).

② By the link scan, the data is sent to the remote device station's remote output (RY).

③ By the process of ②, PV is put to the remote device station's remote register (RWr), then **extended read complete flag** (RX0C) of remote input is turned on (1).

By the link scan, the data (PV) is sent to the master station's remote register (RWr).

④ By the FROM instruction, read the data (PV) from the master station's remote register (RWr) after **extended read complete flag** (RX0C) of the remote input is turned on(1).

Extended read flag (RY0C) of remote output is turned off (0) after completing reading.

When **extended read flag** (RY0C) of remote output is turned off (0), **extended read complete flag** (RX0C) of remote input is turned off (0).

• When writing the main setting value (SV) to the remote device station's address by setting the remote device station (CLT-200) number to 1.
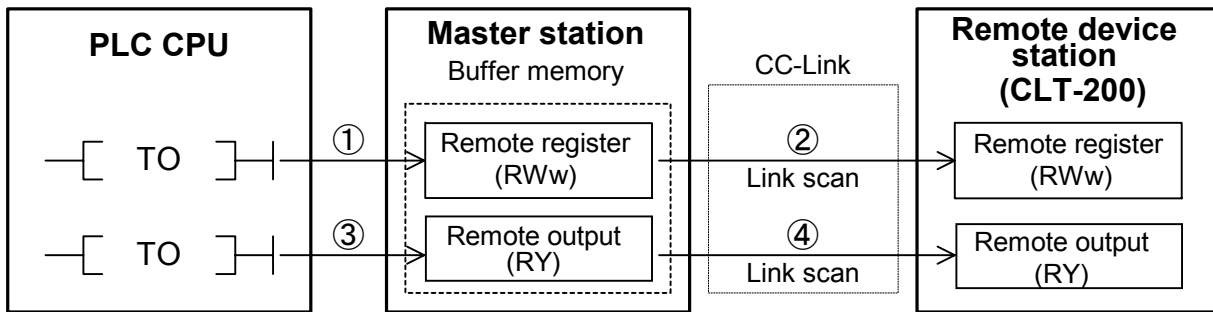
① By the TO instruction, write the data of all channels for the required item to the master station's remote register (RWw). (When main setting value is set to 100℃, 0064H.)

However, even if only 1 channel out of all channels is to be changed, set the data of all channels.

(**For the channels not to be changed, set the setting values which have been set already**.)

② By the link scan, the data is sent to the remote device station's remote register (RWw).

③ By the TO instruction, write the extended number of the required item to the master station's remote output (RY), and then turn **extended write flag** (RY0D) of remote output on (1).

(When main setting value (SV) is set, RY06 to RY0B [00011])

④ By the link scan, the data is sent to the remote device station's remote output (RY),

100℃ is set to the item for main setting value and

extended write complete flag (RX0D) of remote input is turned on (1).

If **extended write complete flag** (RX0D) of remote input is turned on (1), **extended write flag** (RY0D) of remote output is turned off (0), and then **extended write complete flag** (RXOD) of remote input is turned off (0).

7.2 Remote input/output

● **Remote input (RX)**
The data (the contents of remote input table) sending to the master station are stored in the remote input (RX) address decided by the remote device station number.
The data is ON/OFF (bit) information.

● **Remote output (RY)**
The data (the contents of remote output table) sending to the remote device station are stored in the remote output (RY) address decided by the remote device station number.
The data is ON/OFF (bit) information.

● **Remote input/output address**
Remote I/O address is decided depending on the remote device station number.
Do not set the station number 62 and above, since the remote device station (CLT-200) occupies 4 stations.

For remote I/O address, refer to the following.

CLT-200 Station No.	Remote input address	Remote output address	CLT-200 Station No.	Remote input Address	Remote output address
1	RX 00 to RX 7F	RY 00 to RY 7F	32	RX3E0 to RX45F	RY3E0 to RY45F
2	RX 20 to RX 9F	RY 20 to RY 9F	33	RX400 to RX47F	RY400 to RY47F
3	RX 40 to RX BF	RY 40 to RY BF	34	RX420 to RX49F	RY420 to RY49F
4	RX 60 to RX DF	RY 60 to RY DF	35	RX440 to RX4BF	RY440 to RY4BF
5	RX 80 to RX FF	RY 80 to RY FF	36	RX460 to RX4DF	RY460 to RY4DF
6	RX A0 to RX11F	RY A0 to RY11F	37	RX480 to RX4FF	RY480 to RY4FF
7	RX C0 to RX13F	RY C0 to RY13F	38	RX4A0 to RX51F	RY4A0 to RY51F
8	RX E0 to RX15F	RY E0 to RY15F	39	RX4C0 to RX53F	RY4C0 to RY53F
9	RX100 to RX17F	RY100 to RY17F	40	RX4E0 to RX55F	RY4E0 to RY55F
10	RX120 to RX19F	RY120 to RY19F	41	RX500 to RX57F	RY500 to RY57F
11	RX140 to RX1BF	RY140 to RY1BF	42	RX520 to RX59F	RY520 to RY59F
12	RX160 to RX1DF	RY160 to RY1DF	43	RX540 to RX5BF	RY540 to RY5BF
13	RX180 to RX1FF	RY180 to RY1FF	44	RX560 to RX5DF	RY560 to RY5DF
14	RX1A0 to RX21F	RY1A0 to RY21F	45	RX580 to RX5FF	RY580 to RY5FF
15	RX1C0 to RX23F	RY1C0 to RY23F	46	RX5A0 to RX61F	RY5A0 to RY61F
16	RX1E0 to RX25F	RY1E0 to RY25F	47	RX5C0 to RX63F	RY5C0 to RY63F
17	RX200 to RX27F	RY200 to RY27F	48	RX5E0 to RX65F	RY5E0 to RY65F
18	RX220 to RX29F	RY220 to RY29F	49	RX600 to RX67F	RY600 to RY67F
19	RX240 to RX2BF	RY240 to RY2BF	50	RX620 to RX69F	RY620 to RY69F
20	RX260 to RX2DF	RY260 to RY2DF	51	RX640 to RX6BF	RY640 to RY6BF
21	RX280 to RX2FF	RY280 to RY2FF	52	RX660 to RX6DF	RY660 to RY6DF
22	RX2A0 to RX31F	RY2A0 to RY31F	53	RX680 to RX6FF	RY680 to RY6FF
23	RX2C0 to RX33F	RY2C0 to RY33F	54	RX6A0 to RX71F	RY6A0 to RY71F
24	RX2E0 to RX35F	RY2E0 to RY35F	55	RX6C0 to RX73F	RY6C0 to RY73F
25	RX300 to RX37F	RY300 to RY37F	56	RX6E0 to RX75F	RY6E0 to RY75F
26	RX320 to RX39F	RY320 to RY39F	57	RX700 to RX77F	RY700 to RY77F
27	RX340 to RX3BF	RY340 to RY3BF	58	RX720 to RX79F	RY720 to RY79F
28	RX360 to RX3DF	RY360 to RY3DF	59	RX740 to RX7BF	RY740 to RY7BF
29	RX380 to RX3FF	RY380 to RY3FF	60	RX760 to RX7DF	RY760 to RY7DF
30	RX3A0 to RX41F	RY3A0 to RY41F	61	RX780 to RX7FF	RY780 to RY7FF
31	RX3C0 to RX43F	RY3C0 to RY43F			

● **Remote I/O table** (16 channels)

   4 stations are occupied, and 2 words are used per station.

• The address when remote device station (CLT200) number is set to 1.

Remote Input (RX)		Remote Output (RY)		
Direction Remote device → Master		Direction Master → Remote device		
Address	Contents	Address		Contents
RX00	CH1 Alarm 1 (A1) status (OFF: Alarm OFF, ON: Alarm ON)	RY00	b0	Extended number for read setting *1
RX01	CH1 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY01	b1	
RX02	CH1 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY02	b2	Designate one from 0 to 63 with ON/OFF of RY00 to RY05 (b0 to b5)
RX03	CH1 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY03	b3	
RX04	CH1 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY04	b4	For the contents 0 to 63, refer to "7.4 Extended number" (P. 29).
RX05	CH2 Alarm 1 (A1) status (OFF: Alarm OFF, ON: Alarm ON)	RY05	b5	
RX06	CH2 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY06	b0	Extended number for write setting *1
RX07	CH2 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY07	b1	
RX08	CH2 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY08	b2	Designate one from 0 to 63 with ON/OFF of RY06 to RY0B (b0 to b5)
RX09	CH2 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY09	b3	For the contents 0 to 63, refer to "7.4 Extended number" (P. 29).
RX0A	Not used	RY0A	b4	
RX0B	Not used	RY0B	b5	
RX0C	Extended read complete flag *2	RY0C		Extended read flag *2
RX0D	Extended write complete flag *2	RY0D		Extended write flag *2
RX0E	Not used	RY0E		Not used
RX0F	Hardware error flag *3	RY0F		Not used

*1: Bit patterns for RY00 to RY05 (b0 to b5) and RY06 to RY0B (b0 to b5) are as follows.

Extended number for read setting

RY05	RY04	RY03	RY02	RY01	RY00
b5	b4	b3	b2	b1	b0

Extended number for write setting

RY0B	RY0A	RY09	RY08	RY07	RY06
b5	b4	b3	B2	b1	b0

[Example]

   When setting the **extended number for read** to 0 (PV).

b5	b4	b3	b2	b1	b0
0	0	0	0	0	0

32   16   8   4   2   1 (Binary)

⟶

RY05	RY04	RY03	RY02	RY01	RY00
OFF	OFF	OFF	OFF	OFF	OFF

[Example]

   When setting the **extended number for write** to 38 (Control action designation).

b5	b4	b3	b2	b1	b0
1	0	0	1	1	0

32   16   8   4   2   1 (Binary)

⟶

RY0B	RY0A	RY09	RY08	RY07	RY06
ON	OFF	OFF	ON	ON	OFF

*2: Refer to "7.5 CC-Link flag operation" (P. 33) for details.

*3: If CC-Link communication (instrument number and transfer rate setting) of CLT-200 is changed,

   it is turned on.

Remote Input (RX)		Remote Output (RY)	
Direction Remote device → Master		Direction Master → Remote device	
Address	Contents	Address	Contents
RX10	Not used	RY10	Not used
⋮	⋮	⋮	⋮
RX1F	Not used	RY1F	Not used
RX20	CH3 Alarm 1 (A1) status (OFF: Alarm OFF, ON: Alarm ON)	RY20	Not used
RX21	CH3 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY21	
RX22	CH3 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY22	
RX23	CH3 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY23	
RX24	CH3 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY24	
RX25	CH4 Alarm 1 (A1) status (OFF: Alarm OFF, ON: Alarm ON)	RY25	
RX26	CH4 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY26	
RX27	CH4 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY27	
RX28	CH4 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY28	
RX29	CH4 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY29	
RX2A	CH5 Alarm 1 (A1) status (OFF: Alarm OFF, ON: Alarm ON)	RY2A	
RX2B	CH5 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY2B	
RX2C	CH5 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY2C	
RX2D	CH5 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY2D	
RX2E	CH5 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY2E	
RX2F	CH6 Alarm 1 (A1) status (OFF: Alarm OFF, ON: Alarm ON)	RY2F	
RX30	CH6 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY30	Not used
RX31	CH6 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY31	
RX32	CH6 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY32	
RX33	CH6 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY33	

Remote Input (RX)		Remote Output (RY)	
Direction Remote device → Master		Direction Master → Remote device	
Address	Contents	Address	Contents
RX34	CH7 Alarm 1 (A1) status (OFF: Alarm OFF. ON: Alarm ON)	RY34	Not used
RX35	CH7 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY35	
RX36	CH7 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY36	
RX37	CH7 Heater burnout alarm (OFF: Alarm OFF, ON: Alarm ON)	RY37	
RX38	CH7 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY38	
RX39	CH8 Alarm 1 (A1) status (OFF: Alarm OFF, ON: Alarm ON)	RY39	
RX3A	CH8 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY3A	
RX3B	CH8 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY3B	
RX3C	CH8 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY3C	
RX3D	CH8 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY3D	
RX3E	Not used	RY3E	
RX3F	Not used	RY3F	
RX40	CH9 Alarm 1 (A1) status (OFF: Alarm OFF, ON: Alarm ON)	RY40	Not used
RX41	CH9 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY41	
RX42	CH9 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY42	
RX43	CH9 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY43	
RX44	CH9 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY44	
RX45	CH10 Alarm 1 (A1) status (OFF: Alarm OFF, ON: Alarm ON)	RY45	
RX46	CH10 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY46	
RX47	CH10 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY47	
RX48	CH10 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY48	
RX49	CH10 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY49	

Remote Input (RX)		Remote Output (RY)	
Direction Remote device → Master		Direction Master → Remote device	
Address	Contents	Address	Contents
RX4A	CH11 Alarm 1 (A1) status (OFF: Alarm OFF. ON: Alarm ON)	RY4A	Not used
RX4B	CH11 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY4B	
RX4C	CH11 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY4C	
RX4D	CH11 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY4D	
RX4E	CH11 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY4E	
RX4F	CH12 Alarm 1 (A1) status (OFF: Alarm OFF, ON: Alarm ON)	RY4F	
RX50	CH12 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY50	Not used
RX51	CH12 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY51	
RX52	CH12 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY52	
RX53	CH12 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY53	
RX54	CH13 Alarm 1 (A1) status (OFF: Alarm OFF, ON: Alarm ON)	RY54	
RX55	CH13 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY55	
RX56	CH13 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY56	
RX57	CH13 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY57	
RX58	CH13 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY58	
RX59	CH14 Alarm 1 (A1) status (OFF: Alarm OFF, ON: Alarm ON)	RY59	
RX5A	CH14 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY5A	
RX5B	CH14 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY5B	
RX5C	CH14 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY5C	
RX5D	CH14 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY5D	
RX5E	Not used	RY5E	
RX5F	Not used	RY5F	

Remote Input (RX)		Remote Output (RY)	
Direction Remote device → Master		Direction Master → Remote device	
Address	Contents	Address	Contents
RX60	CH15 Alarm 1 (A1) status (OFF: Alarm OFF. ON: Alarm ON)	RY60	Not used
RX61	CH15 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY61	
RX62	CH15 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY62	
RX63	CH15 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY63	
RX64	CH15 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY64	
RX65	CH16 Alarm 1 (A1) status (OFF: Alarm OFF, ON: Alarm ON)	RY65	
RX66	CH16 Alarm 2 (A2) status (OFF: Alarm OFF, ON: Alarm ON)	RY66	
RX67	CH16 Sensor burnout status (OFF: Alarm OFF, ON: Alarm ON)	RY67	
RX68	CH16 Heater burnout alarm status (OFF: Alarm OFF, ON: Alarm ON)	RY68	
RX69	CH16 PID AT Perform/Cancel (OFF: Cancel, ON: Perform)	RY69	
RX6A	Not used	RY6A	Not used
⋮		⋮	
RX6F	Not used	RY6F	Not used
RX70	Reserved	RY70	Reserved
⋮		⋮	
RX77	Reserved	RY77	Reserved
RX78	Initial data processing request flag *2	RY78	Initial data processing complete flag *2
RX79	Initial data setting complete flag *2	RY79	Initial data setting request flag *2
RX7A	Error status flag *2	RY7A	Error reset request flag *2
RX7B	Remote ready *2	RY7B	Reserved
RX7C	Reserved	⋮	
⋮			
RX7F	Reserved	RY7F	Reserved

*2: Refer to "7.5 CC-Link flag operation" (P.33) for details.

● **Remote I/O signal (processing from the PLC side)**
   The following are described with the address when remote device station number is set to 1.

·**Extended read flag (RY0C)**
   In case the PLC reads the [data for read]
   (1) The PLC sets the data item to be read to the master station's **extended number for read setting** (RY00 to RY05) and
       requests the remote device station to send data by turning the **extended read flag** on (1).
   (2) Remote device station finds the request by the **extended read flag**,
       reads the value of the designated data item from the CCT,
       stores the value of the item in the **remote register** (RWr0 to RWrF) and
       informs of data storing completion by turning the **extended read complete flag** on (1).
   (3) Master station finds the data storing by **extended read complete flag** and
       reads the data from the **remote register**.
       After reading the data, it turns the **extended read flag** (RY0C) off (0).
       Remote device station's **extended read complete flag** is automatically turned off (0), and
       data sending and receiving are completed.

·**Extended write flag (RY0D)**
   In case of writing the [data for write] to the remote device station (CLT)
   (1) The PLC sets the data item to be written to the master station's **extended number for write setting** (RY06 to RY0B),
       sets the value of the item to the master station's **remote register** (RWw0 to RWwF) and
       requests remote device station to read the data by turning the **extended write flag** (RY0D) on (1).
   (2) Remote device station finds the reading request by the **extended write flag,**
       reads the data stored in the **remote register** (RWw0 to RWwF),
       sets them to the data item of CCT and
       informs of data writing completion by turning the **extended write complete flag** on (1).
   (3) Master station finds that data has been written by the **extended write complete flag,** and
       turns the **extended write flag** (RY0D) off (0).
       Remote device station's **extended write complete flag** is automatically turned off (0), and
       data writing is completed.

·**Initial data processing complete flag (RY78)**
   In case of starting communication after the power is turned on
   (1) After the power is turned on, remote device station is started up.
       Remote device station requests an initial processing of master station by turning the **initial data processing request flag** on (1).
   (2) Master station performs the initial data processing by the **initial data processing request flag** before
       starting communication, however, there is no need to perform an initial processing for the CLT, and
       informs remote device station that the initial processing is completed by turning the **initial data processing complete flag** (RY78) on (1).
   (3) Remote device station finds that initial processing is completed by the **initial data processing complete flag** and
       informs master station to be able to communicate by turning the **initial data processing complete flag** off (0) and turning the **remote ready** on (1).
       Master station confirms that **initial data processing request flag** is turned off (0), then
       it turns **initial data processing complete flag** (RY78) off (0).

·**Error reset request flag (RY7A)**
   In order to restart communication
   (1) If an error has occurred during the communication, remote device station's **remote ready** is turned
       off (0), and **error status flag** is turned on (1) not to be able to communicate.
   (2) To restart communication, turn the master station's **error reset request flag** (RY7A) on (1).
   (3) Remote device station turns off (0) the **error status flag** by the **error reset request flag** (RY7A) and
       turns **Remote ready** on (1), then communication restarts.

7.3 Remote registor

  The following are described with the address when remote device station (CLT-200) number is set to 1.

● **Remote register** (RWr)
  The numeric data (**data for read** designated by the **extended number for read setting**
  [RY00 to RY05]) sending from the remote device station (CLT-200) to the master station are stored.
  Data is word data (xxxxH).

● **Remote register** (RWw)
  The numeric data (**data for write** designated by the **extended number for write setting**
  [RY06 to RY0B]) sending from the master station to the remote device station are stored.
  Data is word data (xxxxH).

● **Remote register address**
  Remote register address is decided depending on the remote device station number.
  Do not set the station number 62 and above, since remote device station occupies 4 stations.
  For remote register address, refer to the following.

CLT-200's station No.	Address (RWw)	Address (RWr)	CLT-200's station No.	Address (RWw)	Address (RWr)
1	RWw 0 to RWw F	RWr 0 to RWr F	32	RWw7C to RWw8B	RWr7C to RWr8B
2	RWw 4 to RWw13	RWr 4 to RWr13	33	RWw80 to RWw8F	RWr80 to RWr8F
3	RWw 8 to RWw17	RWr 8 to RWr17	34	RWw84 to RWw93	RWr84 to RWr93
4	RWw C to RWw1B	RWr C to RWr1B	35	RWw88 to RWw97	RWr88 to RWr97
5	RWw10 to RWw1F	RWr10 to RWr1F	36	RWw8C to RWw9B	RWr8C to RWr9B
6	RWw14 to RWw23	RWr14 to RWr23	37	RWw90 to RWw9F	RWr90 to RWr9F
7	RWw18 to RWw27	RWr18 to RWr27	38	RWw94 to RWwA3	RWr94 to RWrA3
8	RWw1C to RWw2B	RWr1C to RWr2B	39	RWw98 to RWwA7	RWr98 to RWrA7
9	RWw20 to RWw2F	RWr20 to RWr2F	40	RWw9C to RWwAB	RWr9C to RwrAB
10	RWw24 to RWw33	RWr24 to RWr33	41	RWwA0 to RWwAF	RWrA0 to RwrAF
11	RWw28 to RWw37	RWr28 to RWr37	42	RWwA4 to RWwB3	RWrA4 to RWrB3
12	RWw2C to RWw3B	RWr2C to RWr3B	43	RWwA8 to RWwB7	RWrA8 to RWrB7
13	RWw30 to RWw3F	RWr30 to RWr3F	44	RwwAC to RWwBB	RwrAC to RWrBB
14	RWw34 to RWw43	RWr34 to RWr43	45	RWwB0 to RWwBF	RWrB0 to RWrBF
15	RWw38 to RWw47	RWr38 to RWr47	46	RWwB4 to RWwC3	RWrB4 to RWrC3
16	RWw3C to RWw4B	RWr3C to RWr4B	47	RWwB8 to RWwC7	RWrB8 to RWrC7
17	RWw40 to RWw4F	RWr40 to RWr4F	48	RWwBC to RWwCB	RWrBC to RWrCB
18	RWw44 to RWw53	RWr44 to RWr53	49	RWwC0 to RWwCF	RWrC0 to RWrCF
19	RWw48 to RWw57	RWr48 to RWr57	50	RWwC4 to RWwD3	RWrC4 to RWrD3
20	RWw4C to RWw5B	RWr4C to RWr5B	51	RWwC8 to RWwD7	RWrC8 to RWrD7
21	RWw50 to RWw5F	RWr50 to RWr5F	52	RWwCC to RWwDB	RWrCC to RWrDB
22	RWw54 to RWw63	RWr54 to RWr63	53	RWwD0 to RWwDF	RWrD0 to RWrDF
23	RWw58 to RWw67	RWr58 to RWr67	54	RWwD4 to RWwE3	RWrD4 to RWrE3
24	RWw5C to RWw6B	RWr5C to RWr6B	55	RWwD8 to RWwE7	RWrD8 to RWrE7
25	RWw60 to RWw6F	RWr60 to RWr6F	56	RWwDC to RWwEB	RWrDC to RwrEB
26	RWw64 to RWw73	RWr64 to RWr73	57	RWwE0 to RWwEF	RWrE0 to RwrEF
27	RWw68 to RWw77	RWr68 to RWr77	58	RWwE4 to RWwF3	RWrE4 to RWrF3
28	RWw6C to RWw7B	RWr6C to RWr7B	59	RWwE8 to RWwF7	RWrE8 to RWrF7
29	RWw70 to RWw7F	RWr70 to RWr7F	60	RWwEC to RWwFB	RWrEC to RWrFB
30	RWw74 to RWw83	RWr74 to RWr83	61	RWwF0 to RWwFF	RWrF0 to RWrFF
31	RWw78 to RWw87	RWr78 to RWr87			

● **Remote register table** (16 Channels): 4 stations are occupied (4 words are used per station.).
  • The address when remote device station number is set to 1.

Direction Remote device → Master			Direction Master → Remote device		
Address		Contents	Address		Contents
RWr0	CH1	Data designated by **extended number for read setting** (RY00 to RY05) *	RWw0	CH1	Data designated by **extended number for write setting** (RY06 to RY0B) *
RWr1	CH2		RWw1	CH2	
RWr2	CH3		RWw2	CH3	
RWr3	CH4		RWw3	CH4	
RWr4	CH5		RWw4	CH5	
RWr5	CH6		RWw5	CH6	
RWr6	CH7		RWw6	CH7	
RWr7	CH8		RWw7	CH8	
RWr8	CH9		RWw8	CH9	
RWr9	CH10	For the extended number and data contents, refer to "7.4 Extended number".	RWw9	CH10	For the extended number and data contents, refer to "7.4 Extended number".
RwrA	CH11		RWwA	CH11	
RWrB	CH12		RWwB	CH12	
RWrC	CH13		RWwC	CH13	
RWrD	CH14		RWwD	CH14	
RwrE	CH15		RWwE	CH15	
RWrF	CH16		RWwF	CH16	

● The channel not used is as follows.
   Remote register RWr0 to RWrF   →   "0" is indicated.
                           RWw0 to RWwF   →   Setting data is ignored.

  * **Reads and writes the data of extended number designated by remote output (RY00 to RY05, or RY06 to RY0B).**

  [Example]
      Extended number for read: 3
      Extended number for write: 5

  Extended number for read: 3   **Extended number for write**: 5

RY05	RY04	RY03	RY02	RY01	RY00		RY0B	RY0A	RY09	RY08	RY07	RY06
OFF	OFF	OFF	OFF	ON	ON		OFF	OFF	OFF	ON	OFF	ON

   32   16   8   4   2   1   32   16   8   4   2   1
                                    (Binary)

Extended number 3: Main setting value (SV)   **Extended number 5: Proportional band (P) value**

Remote register (RWr0 to RWrF)   **Remote register** (RWw0 to RWwF)

is used to read the setting value (SV)   is used to write the proportional band (P) value

from Ch1 to Ch16.   from Ch1 to Ch16.

● For the remote output (RY00 to RY05, RY06 to RY0B), refer to [Remote I/O table] (P. 21).

7.4 Extended number

Extended number is designated at remote output (RY00 to RY05, RY06 to RY0B) when selecting a data which remote register reads or writes.
After selecting a necessary data from the table below, designate the extended number of the data at the remote output (RY00 to RY05, RY06 to RY0B).

* The contents above are described with the address when remote device station number is set to 1.

● **Extended number table** (common to read and write)

- Read/Write attribute
  - R0 : Read only   (Direction   Remote device ⟶ Master)
  - W0 : Write only   (Direction   Remote device ⟵ Master)
  - R/W : Read/Write enabled (Direction   Remote device ⟷ Master)

Ex. No.	R/W Attribute	Setting item	Setting range	Description
0	RO	PV	Within input range	Indicates process variable (PV).
1	RO	MV	-5.0 to 105.0%	Indicates current output manipulating value (MV).
2	RO	CT current (A) value	0.0 to 20.0A (CTL-6-S), or 0.0 to 50.0A (CTL-11-TE)	Indicates current (ampere) value detected from CT.
3	R/W	Main setting value (SV)	Within input range	Sets the SV of temperature control.
4	R/W	PID AT Perform/Cancel	0: Cancel 1: Perform	Performs or cancels PID auto-tuning.
5	R/W	Proportional band (P)	0.0 to 100.0% of input range span	Sets the proportional band of PID or PD action.
6	R/W	Integral time (I)	1 to 3600s	Sets the integral time to reduce the offset.
7	R/W	Derivative time (D)	1 to 3600s	Sets the derivative time to prevent overshoot (undershoot) and stabilize the control.
8	R/W	Sensor correction	-100.0 to 100. 0℃ (℉)	Shifts the input value (PV) of sensor.
9	R/W	Alarm 1 (A1)	-200 to 200℃ (℉) -199.9 to 200.0℃ (℉) 0 to 200℃ (℉) 0.0 to 200.0℃ (℉) Input range span	Sets the action point of Alarm 1 (A1).
10	R/W	Alarm 2 (A2)	The same as Alarm 1 (A1)	Sets the action point of Alarm 2 (A2).
11 〜 15		Reserved		
16	R/W	Anti-reset Windup (ARW)	0 to 100%	Function to prevent overshoot or undershoot caused by excessive integral action (I) when PID control starts.
17	R/W	Control output OUT/OFF	0: OFF (Stop) 1: OUT (Continue)	Function to make the control output off even if the power to the instrument is supplied. The function is used when required to halt the control action or there are units not used in plural units.

Ex. No.	R/W Attribute	Setting item	setting range	Description
18	R/W	Proportional cycle	1 to 120s	Sets the proportional cycle of PID or PD control. It is ineffective for current output type.
19 ⋮ 22		Not used		
23	R/W	PV filter time constant	0.0 to 10.0s	Function to suppress the PV fluctuation caused by such as disturbance.
24	R/W	Heater burnout alarm	0.0 to 20.0A (CTL-6-S), or 0.0 to 50.0A (CTL-11-TE)	Sets heater current value of heater burnout alarm.
25 ⋮ 29		Not used		
30	R/W	Control output OUT/OFF	1: OFF (Stop) 3: OUT (Continue)	Function to make the control output off even if the power to the instrument is supplied. The function is used when required to halt the control action or there are units not used in plural units.
31		Not used		
32	RO	Error code (1 digit of hexadecimal)	*1	Indicates negative acknowledgement to the read or write command from the master unit.
33 ⋮ 37		Not used		
38	R/W	Control action	0: Heating (Reverse) 1: Cooling (Direct)	Designates control action depending on the control object.
39	R/W	Alarm 1 (A1) action selection	0: No alarm 1: High limit alarm 2: High limit w/standby 3: Low limit alarm 4: Low limit w/standby 5: H/L limits alarm 6: H/L limits w/standby 7: H/L limit range alarm 8: H/L limit range alarm w/standby 9: Process high alarm 10: Process high alarm w/standby 11: Process low alarm 12: Process low alarm w/standby	Selects Alarm 1 (A1) action type.
40	R/W	Alarm 2 (A2) action selection	The same as Alarm 1 (A1)	Selects Alarm 2 (A2) action type.
41	R/W	Alarm 1 (A1) hysteresis	0.1 to 100.0℃ (℉)	Sets Alarm 1 (A1) hysteresis.
42	R/W	Alarm 2 (A2) hysteresis	0.1 to 100.0℃ (℉)	Sets Alarm 2 (A2) hysteresis.

Ex. No.	R/W Attribute	Setting item	Setting range	Description
43 ⋮ 45		Not used		
46	R/W	Control output high limit	Control output low limit value to 105.0%	Sets control output high limit value.
47	R/W	Control output low limit	-5.0% to control output high limit value	Sets control output low limit value.
48 49		Not used		
50	R/W	Loop break alarm 1 action time	0 to 200 min	Sets time to detect heater burnout, sensor burnout and abnormality at operation end.
51	R/W	Loop break alarm 1 action span	0.0 to 100.0℃ (℉)	Sets action span of Loop break alarm 1.
52	RO	Status 2 of the controller b0: Main output 　　　　(0: OFF　　1: ON) b1: Control output OUT/OFF 　　　　(0: OFF　　1: OUT) b2: Alarm 1 output 　　　　(0: OFF　　1: ON) b3: Alarm 2 output 　　　　(0: OFF　　1: ON) b4: Over scale 　　　　(0: Normal 1: Over) b5: Heater burnout alarm 　　　　(0: OFF　　1: ON) b6: PID auto-tuning 　　　　(0: Cancel 1: Perform) b7: Under scale 　　　　(0: Normal 1: Under) b8: Loop break alarm 2 　　　　(0: OFF　　1: ON) b9: Temperature abnormality 　　　　(0: Normal 1: Abnormal) b10 to b15 :　Not used.		Reads current status 2 of the controller.
53	R/W	Temperature unit	℃ or ℉	Selects a temperature unit.
54	R/W	PD reset (manual)	±Proportional band converted value -199.9 to 999.9℃ (℉)	Manually corrects the offset occurring during PD control action.
55	R/W	ON/OFF control action hysteresis	0.1 to 100.0℃ (℉)	Sets hysteresis of ON/OFF control action.
56	R/W	Loop break alarm 2 action time	0 to 200 min	Sets time to detect heater burnout, sensor burnout and abnormality at operation end.
57	R/W	Loop break alarm 2 action span	0.0 to 100.0℃ (℉)	Sets action span of Loop break alarm 2.
58	R/W	Data initialization		Initializes the value to factory adjusted one.
59		Not used		

Ex. No.	R/W attribute	Setting item	Setting range	Description
60	RO	Status 1 of the controller b0: Main output (0: OFF 1: ON) b1: Alarm 1 (A1) output (0: OFF 1: ON) b2: Alarm 2 (A2) output (0: OFF 1: ON) b3: Heater burnout alarm (0: OFF 1: ON) b4: Over scale (0: Normal 1: Over) b5: Under scale (0: Normal 1: Under) b6: Setting value abnormality (0: Normal 1:Abnormal) b7: PID auto-tuning (0: Cancel 1:Perform) b8: Initial communication (0: Already communicated 1: Not communicated) b9: Heating/Cooling control action (0: Heating [reverse] action 1:Cooling [direct] action) b10: Control output OUT/OFF (0: OFF 1: OUT) b11: Option [Heater burnout alarm] applied or not (0: Not applied 1: Applied) b12: Data updating request (0: No 1: Yes) b13: Loop break alarm 1 (0: OFF 1: ON) b14: Temperature abnormality (0: Normal 1:Abnormal) b15: Instrument abnormality (0: Normal 1:Abnormal)		Reads current status 1 of the controller.
61	RO	Instrument information		Indicates model name.
62	RO	Version number		Indicates version number of the software.
63	RO	Sensor type and option		Indicates selected sensor type and option.

*1: The error codes (Extended number 32) are shown below. (1 digit of hexadecimal)

0 (30H): No error

1 (31H): Command not existent

2 (32H): Not used

3 (33H): Data outside the setting range

4 (34H): Status unable to set (during auto-tuning)

5 (35H): Not used

6 (36H): Errors except above mentioned

7.5 CC-link flag operation

Remote I/O and the flag operation of Remote register are described below.

The following are described with the address when remote device station (CLT-200) number is set to 1.

● **Initial processing request after the power is turned on**

　• **Initial processing request from the remote device station (CLT-200) to master station**
　　See [Fig. 7.5-1].

　　① After the power is turned on, remote device station is started up.
　　　Remote device station requests an initial processing of master station by turning the **initial data processing request flag** on (1).

　　② Master station performs the initial data processing by the **initial data processing request flag** before starting communication, however, there is no need to perform an initial processing for the CLT.
　　　Make a program to turn the **initial data processing complete flag** (RY78) on (1).

　　③ When **initial data processing complete flag** (RY78) is turned on (1), **initial data processing request flag** (RX78) is turned off (0) and **remote ready** (RX7B) is turned on (1).

　　④ Make a program to turn the **initial data processing complete flag** (RY78) off (0) from the PLC side if **initial data processing request flag** (RX78) is turned off (0).
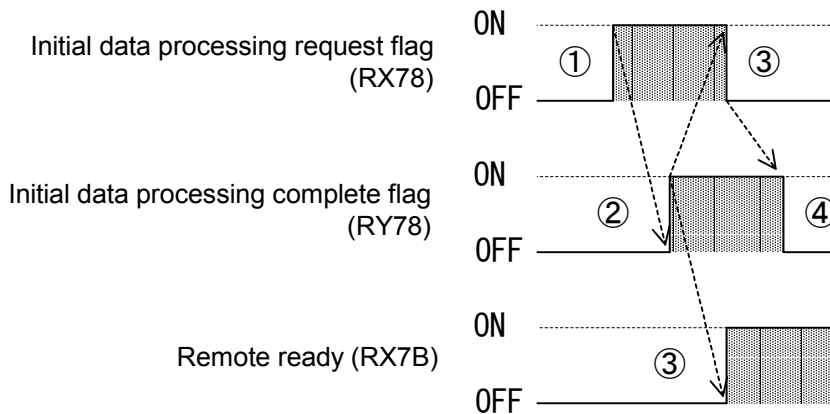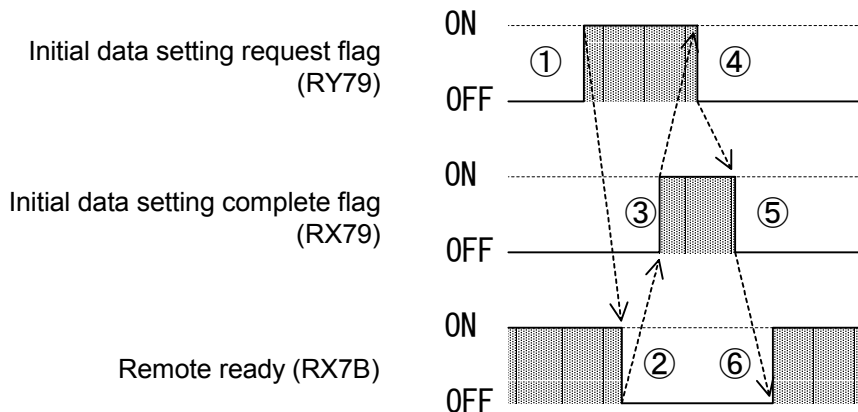

[Fig. 7.5-1]

　• **Initial processing request from the master station**
　　See [Fig. 7.5-2].
　　Processing is not necessary because there is no initial data.

[Fig. 7.5-2]

● **Error flag and error reset process**

Error code is stored in the remote register when an error has occurred [**Error status flag** (RX7A) is turned on (1)].

At this time, if **error reset request flag** (RY7A) is turned on (1), **error status flag** (RX7A) is turned off (0), and the error code is cleared. See [Fig. 7.5-3].

① When an error has occurred while **remote ready** (RX7B) is turned on (1), **remote ready** (RX7B) is turned off (0).

② When **remote ready** (RX7B) is turned off (0), **error status flag** (RX7A) is turned on (1).

③ If **error status flag** (RX7A) is turned on (1), make a program to turn the **error reset request flag** (RY7A) on (1) from the PLC side.

④ When the **error reset request flag** (RY7A) is turned on, **error status flag** (RX7A) is turned off (0).

⑤ If **error status flag** (RX7A) is turned off (0), make a program to turn the **error reset request flag** (RY7A) off (0) from the PLC side.

⑥ When the **error reset request flag** (RY7A) is turned off (0), **remote ready** (RX7B) is turned on (1).
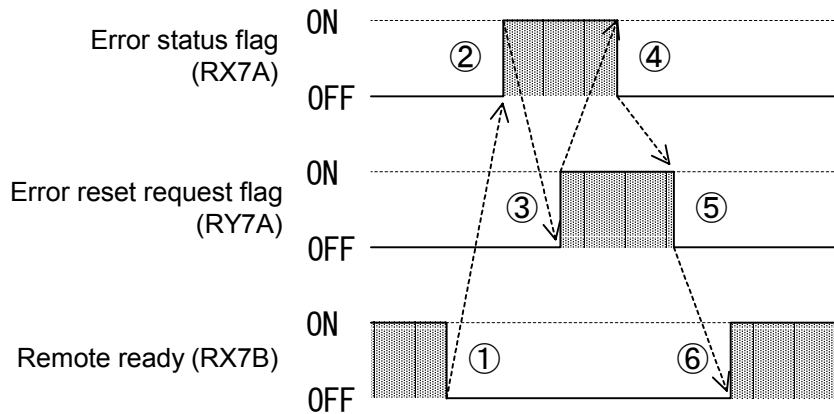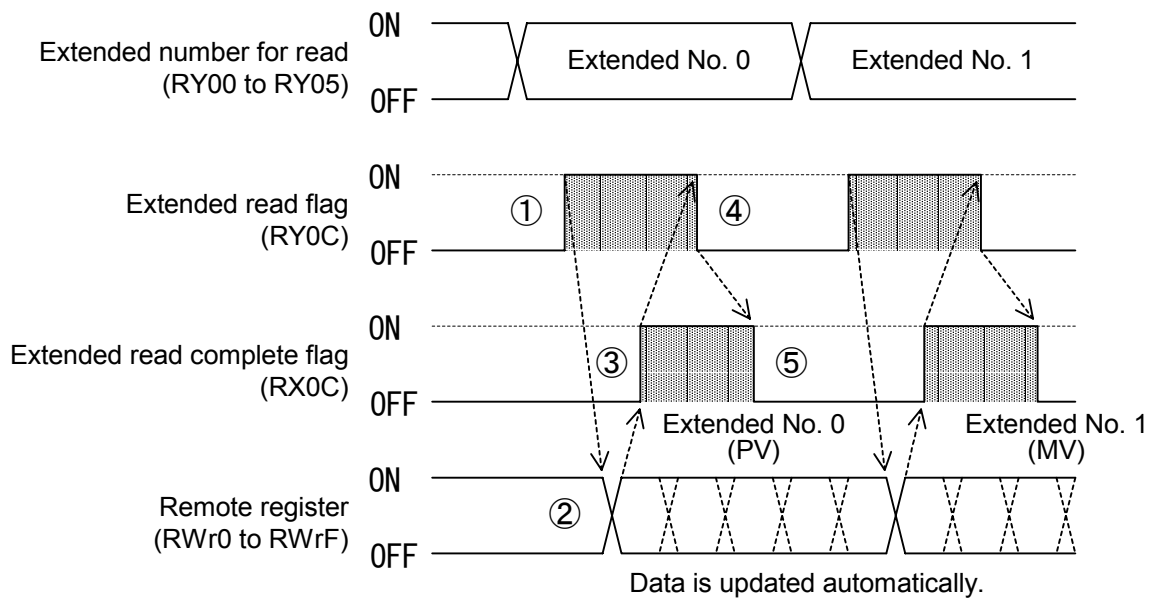

[Fig. 7.5-3]

● **Changing process of extended number for read**

   Changes the contents of remote register for extended read. See [Fig. 7.5-4].

① If the data designated by the **extended number for read setting** (RY00 to RY05) are stored,
   extended read flag (RY0C) is turned on (1).

② If **extended read flag** (RY0C) is turned on (1), the data of remote register (RWr0 to RWrF)
   are updated.

③ If the data of remote register (RWR0 to RWrF) are updated, **extended read complete flag** (RX0C)
   is turned on (1).

④ If **extended read complete flag** (RX0C) is turned on (1), **extended read flag** (RY0C) is turned off (0).

⑤ If **extended read flag** (RY0C) is turned off (0), **extended read complete flag** (RX0C) is turned off (0).
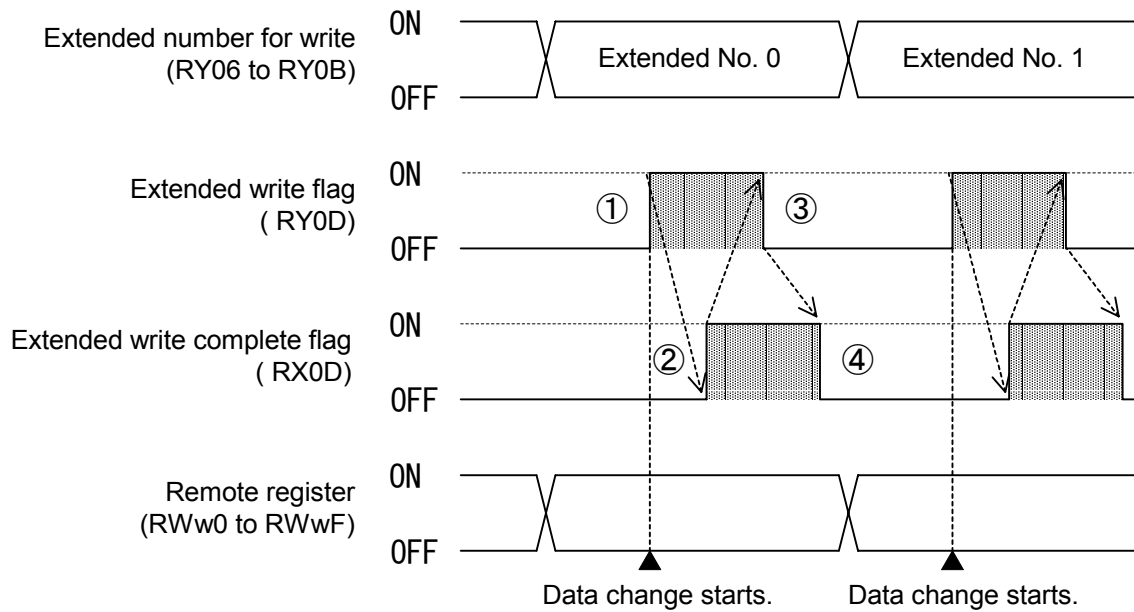

[Fig. 7.5-4]

● **Changing process for extended number for write**
  Changes the contents of remote register for extended write and changes setting value.
  See [Fig. 7.5-5].

① If the data designated by the **extended number for write setting** (RY06 to RY0B) are stored,
  extended write flag (RY0D) is turned on (1).

② If **extended write flag** (RY0D) is turned on (1), the data of Remote register (RWw0 to RWwF)
  is changed, and **extended write complete flag** (RX0D) is turned on (1).

③ If **extended write complete flag** (RX0D) is turned on (1), **extended write flag** (RY0D) is turned off (0).

④ If **extended write flag** (RY0D) is turned off (0), **extended write complete flag** (RX0D) is turned off (0).

[Fig. 7.5-5]

● **PID auto-tuning Perform/Cancel setting**

　In case of channel 1

　See [Fig. 7.5-6].

① If the selection of **extended number 4** (PID auto-tuning perform) is stored in **remote register (RWw0), extended write flag** (RY0D) is turned on (1).

② If **extended write flag** (RY0D) is turned on (1), the **extended write complete flag** (RX0D) is turned on (1), and CCT-235 performs PID auto-tuning.

③ If **extended write complete flag** (RX0D) is turned on (1), **extended write flag** (RY0D) is turned off (0). When CCT-235 performs PID auto-tuning, **PID auto-tuning Perform/Cancel flag** (RX04) of CLT-200 is turned on (1).

④ If **extended write flag** (RY0D) is turned off (0), **extended write complete flag** (RX0D) is turned off (0).

⑤ If the selection of **extended number 4** (PID auto-tuning cancel) is stored in **remote register (RWw0)**, **extended write flag** (RY0D) is turned on (1).

⑥ If **extended write flag** (RY0D) is turned on (1), the **extended write complete flag** (RX0D) is turned on (1), and PID auto-tuning of CCT-235 is cancelled.

⑦ If **extended write complete flag** (RX0D) is turned on (1), **extended write flag** (RY0D) is turned off (0). When PID auto-tuning of CCT-235 is cancelled, **PID auto-tuning Perform/Cancel flag** (RX04) is turned off (0).

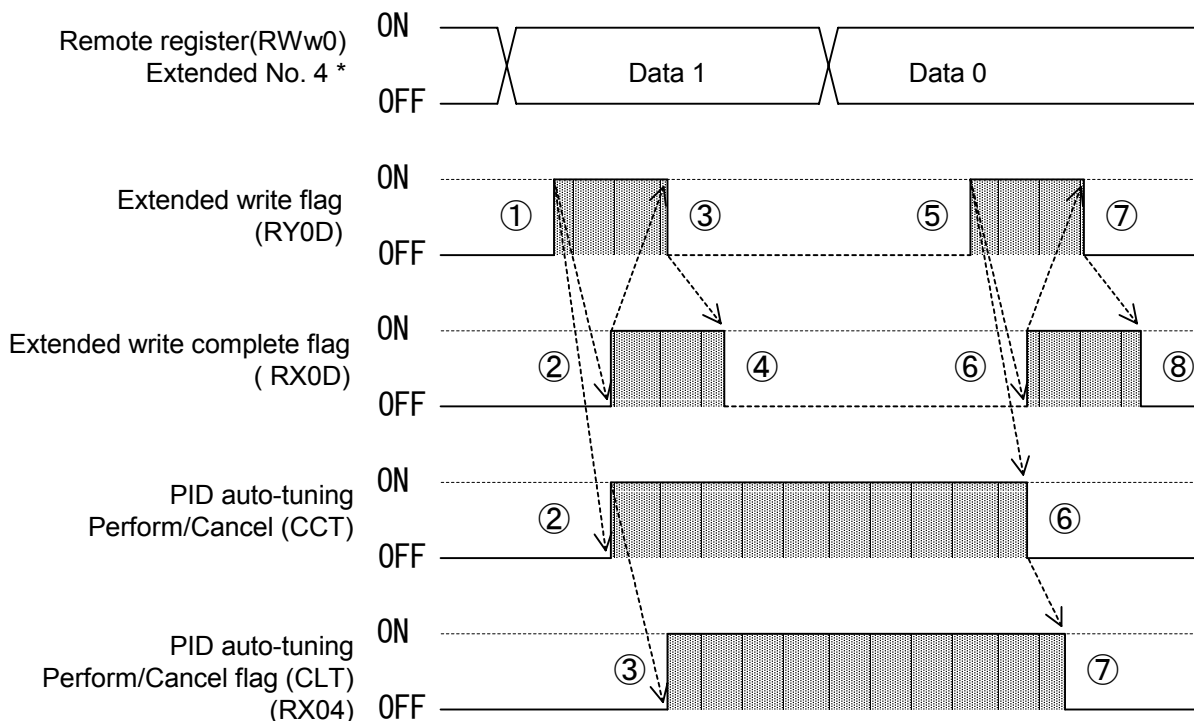⑧ If **extended write flag** (RY0D) is turned off (0), **extended write complete flag** (RX0D) is turned off (0).

[Fig. 7.5-6]

　* Extended number 4: PID auto-tuning Perform/Cancel

7.6 Data reading and writing procedure

● Procedure for writing to the CCT-235 from the PLC

Processing of the PLC	Processing of the CLT-200
PLC writes setting value to the **area for extended write** of remote register Ch1 to Ch16. PLC sets the **extended number** of desired item to **extended number for write setting**. PLC turns on the **extended write flag**.	
	When **extended write flag** is turned on, CLT-200 sends setting value from Ch1 to Ch16 to the CCT-235, and turns on **extended write complete flag**. *
When **extended write complete flag** is turned on, the PLC turns off the **extended write flag**.	
	When **extended write flag** is turned off, CLT-200 turns off **extended write complete flag**.
End	

* If an error has occurred during the processing, the setting value is not saved.

At this time, set again from the PLC side.

● Procedure for reading the value of CCT-235 from the PLC

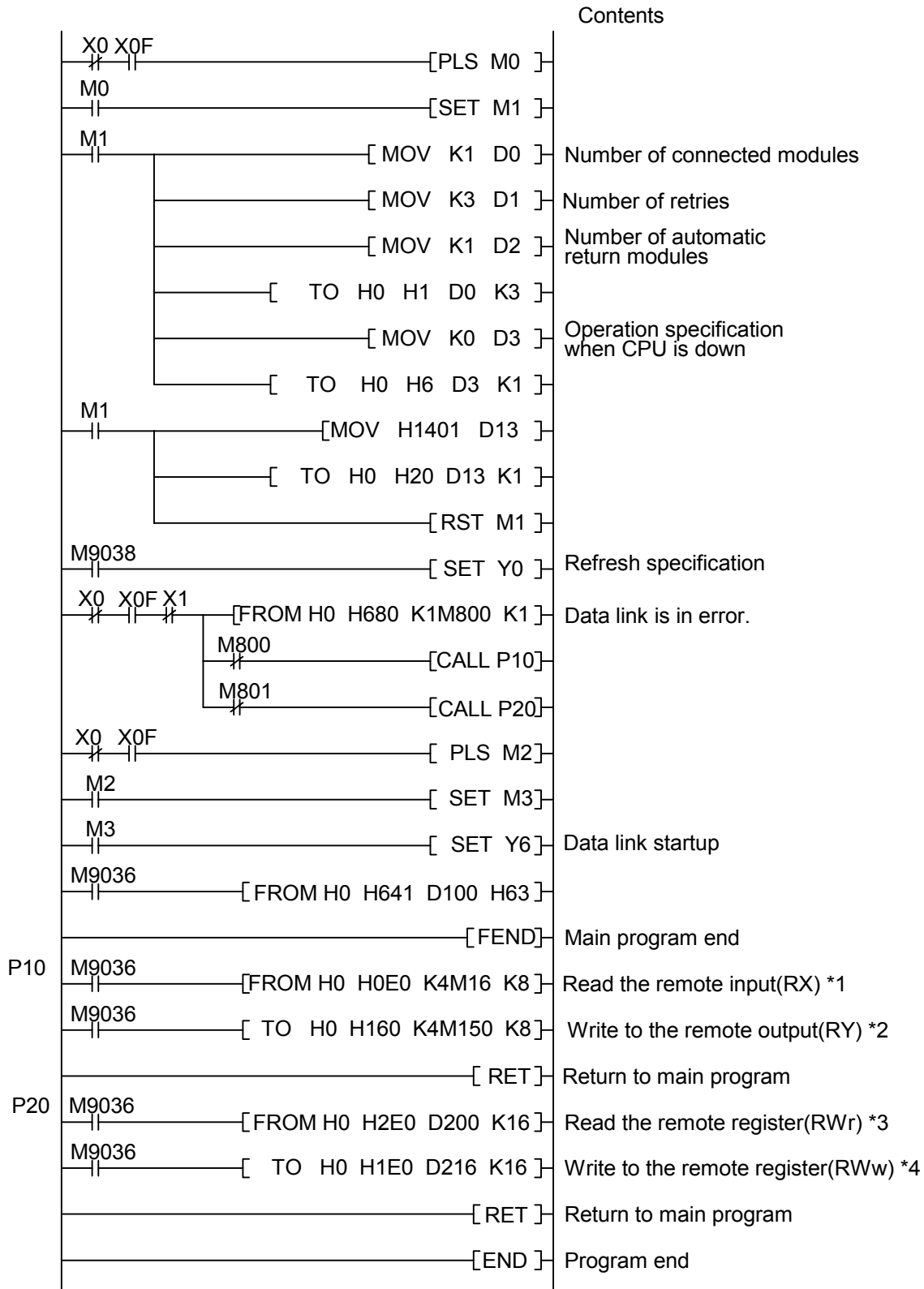| Processing of the PLC	Processing of the CLT-200
PLC sets the **extended number** of desired item to **extended number for read setting**. PLC turns on the **extended read flag**.	
	When **extended read flag** is turned on, CLT-200 reads designated item from the CCT-235, then sets response data(Ch1 to Ch16) to the **remote register for extended read**, and turns on **extended read complete flag**.
When **extended read complete flag** is turned on, PLC turns off the **extended read flag** after reading the data.	
	When **extended read flag** is turned off, CLT-200 turns off the **extended read complete flag.**
End	

8. Sequence program example

8.1 System configuration of an example program

CC-Link

PLC of Mitsubishi

CPT-200

CC-Link Master unit

CCT-235

CLT-200
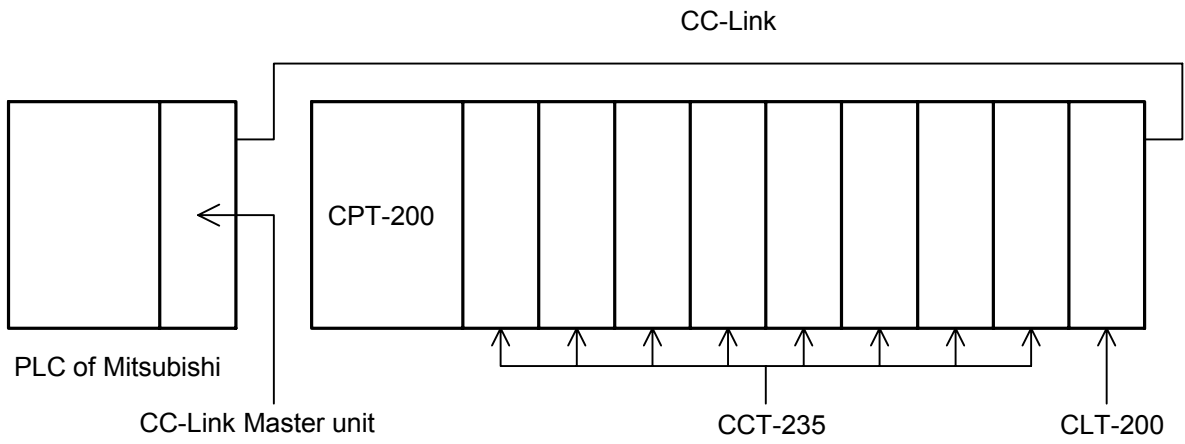
[Fig. 8.1-1]

8.2 Sequence program example

Contents

```
X0 X0F
─┤├─┤/├─────────────────────────────[PLS  M0 ]

M0
─┤├────────────────────────────────[SET  M1 ]

M1
─┤├───────────────────[ MOV  K1  D0 ]    Number of connected modules

       ────────────────[ MOV  K3  D1 ]    Number of retries

       ────────────────[ MOV  K1  D2 ]    Number of automatic
                                          return modules

       ───────────[  TO  H0  H1  D0  K3 ]

       ────────────────[ MOV  K0  D3 ]    Operation specification
                                          when CPU is down

       ───────────[  TO   H0  H6  D3  K1 ]

M1
─┤├──────────────────[MOV  H1401  D13 ]

       ───────────[  TO  H0  H20  D13  K1 ]

       ─────────────────────────[RST  M1 ]

M9038
─┤├────────────────────────────────[ SET  Y0 ]    Refresh specification

X0 X0F X1
─┤/├─┤/├─┤/├──[FROM H0  H680  K1M800  K1 ]    Data link is in error.

        M800
        ─┤/├─────────────────────[CALL P10]

        M801
        ─┤/├─────────────────────[CALL P20]

X0  X0F
─┤/├─┤/├────────────────────────────[ PLS  M2]

M2
─┤├────────────────────────────────[ SET  M3]

M3
─┤├────────────────────────────────[ SET  Y6 ]    Data link startup

M9036
─┤├──────────[FROM H0  H641  D100  H63 ]

                                    ─[FEND]    Main program end

P10 M9036
   ─┤├──────[FROM H0  H0E0  K4M16  K8 ]    Read the remote input(RX) *1

    M9036
   ─┤├──────[ TO  H0  H160  K4M150  K8 ]    Write to the remote output(RY) *2

                                    ─[ RET ]    Return to main program

P20 M9036
   ─┤├──────[FROM H0  H2E0  D200  K16 ]    Read the remote register(RWr) *3

    M9036
   ─┤├──────[  TO  H0  H1E0  D216  K16 ]    Write to the remote register(RWw) *4

                                    ─[ RET ]    Return to main program

                                    ─[END ]    Program end
```

[Fig 8.2-1]

*1: Reading Ch1 alarm 1 (A1) status
*2: Setting to the **extended number for write setting** (b0)
*3: Reading Ch1 **extended data for read**
*4: Writing to Ch1 **extended data for write**

9. Specifications

9.1 Standard specifications

Name   CC-Link link unit

Model   CLT-200

Supply voltage   5±0.2Vdc   Max. 200mA (supplied by CPT-200)

External dimensions   24 x 96 x 100mm (W x H x D)

Mounting method   Base unit (CBT-2□□) mounting

Case   Flame resisting resin, Color: Black

Action indicator

When power supplied to the instrument is turned on: Green LED (PW) lights.

During communication between CLT and CCT: Yellow LED (TX) blinks.

While CC-link is communicating: Yellow LED (LINK) lights.

When CC-link is in error : Red LED (ERR) lights.

Setting   CC-Link baud rate setting: Rotary switch (See P. 9.)

CC-Link station number setting (1 to 64): Rotary switch (See P. 9.)

Host communication function

Communication circuit   : CC-Link

Communication method : Half-duplex communication start-stop synchronous

Transfer rate   : 156kbps, 625kbps, 2.5Mbps, 5Mbps, 10Mbps

Remote I/O   Remote I/O address (See P. 20.)

Remote register   Remote register address (See P. 27.)

Extended number   The number designated at remote output (See P. 29.)

Power consumption   Approx. 1VA

Ambient temperature   0 to 50℃ (32 to 122℉)

Weight   Approx. 90g

Accessories   Instruction manual   1 copy

9.2 Optional specification

Terminal cover [TC]: Electric shock protecting terminal cover.

10. When troubled

Confirm if the power supplied to the PLC and C series is turned on.

When the power is turned on, Green LED (PW) lights.

Check the following when the equipments do not work even though Green LED (PW) is lit.

⚠ **Warning**

Turn the power supplied to the instrument OFF before wiring or checking.

If working or touching the terminal on the power ON status, there is a possibility of Electric Shock which can cause severe injury or death.

● Phenomenon: It is unable to communicate.

Cause of error	Corrective action
・The communication cable is broken or terminals are disconnected.	Change the communication cable or surely tighten the screw of the terminal.
・Setup of the PLC by Mitsubishi and CLT-200 do not accord with each other.	Set up the units properly. See pages 9 to 12.
・The wiring of communication cable is not correct.	Proper wiring is needed. See P.14.
・The terminators at both ends of the unit are not connected.	Connect terminators. See P.15.

* When a problem has occurred other than described above, please consult nearest SHINKO agency.

******* Inquiry *******

For any inquiry about this unit, please contact the shop where you purchased or our agency after checking the following.

- Model name ···················· CLT-200
- Option···························· TC
- Instrument number ············ No.○○○○○○

Please let us know the details of malfunction, if any, and the operating conditions.