CC-Link Communication Converter
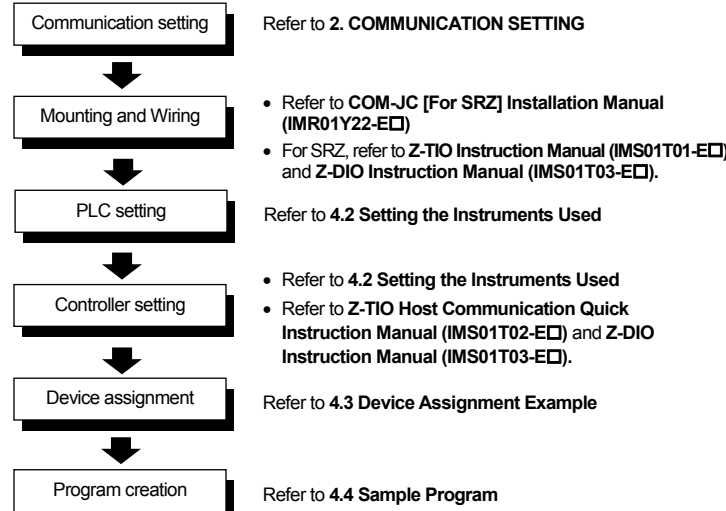# COM-JC [For SRZ]

Quick Instruction Manual

In order to achieve maximum performance and ensure proper operation of your new instrument, carefully read all the instructions in the manual. Please place this manual in a convenient location for easy reference.

This manual describes the basic operation only.

For detailed handling procedures and functions, refer to separate **COM-JC [For SRZ] Instruction Manual (IMR01Y34-E□)**.
The manual can be downloaded from the official RKC website:
http://www.rkcinst.com/english/manual_load.htm.

1. HANDLING PROCEDURES

Communication setting	Refer to **2. COMMUNICATION SETTING**
Mounting and Wiring	• Refer to **COM-JC [For SRZ] Installation Manual (IMR01Y22-E□)**. • For SRZ, refer to **Z-TIO Instruction Manual (IMS01T01-E□)** and **Z-DIO Instruction Manual (IMS01T03-E□)**.
PLC setting	Refer to **4.2 Setting the Instruments Used**
Controller setting	• Refer to **4.2 Setting the Instruments Used** • Refer to **Z-TIO Host Communication Quick Instruction Manual (IMS01T02-E□)** and **Z-DIO Instruction Manual (IMS01T03-E□)**.
Device assignment	Refer to **4.3 Device Assignment Example**
Program creation	Refer to **4.4 Sample Program**

📖 To avoid error at operation start-up, COM-JC must be powered on LAST (after the Controller, PLC, etc.).
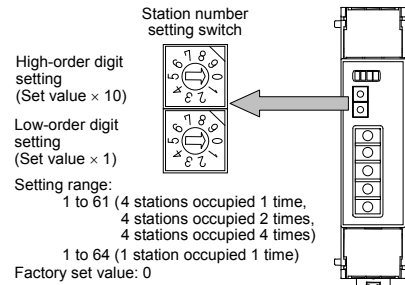
2. COMMUNICATION SETTING

CAUTION

Do not separate the mainframe from the terminal base with the power turned on. If so, instrument failure may result.

2.1 Station Number Setting

Set the station number of CC-Link using a small blade screwdriver.

High-order digit setting (Set value × 10)
Low-order digit setting (Set value × 1)
Setting range:
1 to 61 (4 stations occupied 1 time, 4 stations occupied 2 times, 4 stations occupied 4 times)
1 to 64 (1 station occupied 1 time)
Factory set value: 0

📖 When set to any value out of the setting range, the COM-JC becomes the FAIL state.

2.2 Communication Speed Setting

Set the communication speed of CC-Link using a small blade screwdriver.

Communication speed setting switch
Setting range: 0 to 4
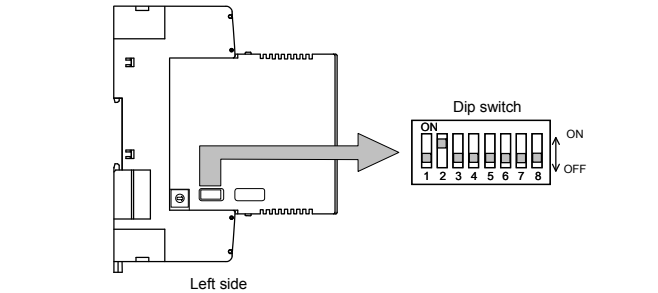Factory set value: 0 (156 kbps)
Left side
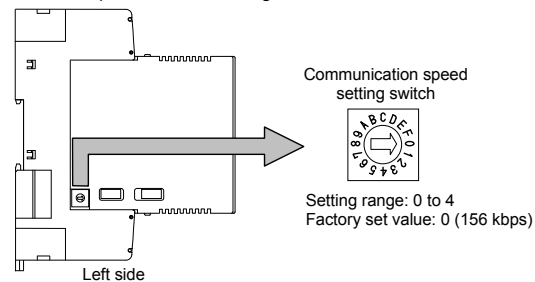
📖 When set to any value out of the setting range, the COM-JC becomes the FAIL state.

Communication speed and maximum transmitter distance
[Use the CC-Link dedicated cable Ver. 1.10]

Communication speed setting	Communication speed	Maximum transmitter distance
0	156 kbps	1200 m
1	625 kbps	900 m
2	2.5 Mbps	400 m
3	5 Mbps	160 m
4	10 Mbps	100 m

2.3 Occupied Stations/Extended Cyclic and Controller Communication Speed Setting

Set the number of occupied stations/extended cyclic and controller communication speed.

Dip switch
Left side

1	2	Controller communication speed
OFF	OFF	38400 bps
ON	OFF	9600 bps
OFF	ON	19200 bps
ON	ON	38400 bps

Factory set value: 19200 bps

3	4	5	Number of occupied stations/extended cyclic setting
OFF	OFF	OFF	4 stations occupied 1 time (8 channels assignment)
ON	OFF	OFF	4 stations occupied 1 time (16 channels assignment)
OFF	ON	OFF	4 stations occupied 2 times (16 channels assignment)
ON	ON	OFF	4 stations occupied 2 times (32 channels assignment)
OFF	OFF	ON	1 station occupied 1 time (1 channel assignment)
ON	OFF	ON	1 station occupied 1 time (2 channels assignment)
OFF	ON	ON	4 stations occupied 4 times (32 channels assignment)
ON	ON	ON	4 stations occupied 4 times (64 channels assignment)

Factory set value: 4 stations occupied 1 time (8 channels assignment)

6	7	8	
OFF	OFF	OFF	Fixed

3. CC-Link FLAG OPERATION

Remote input/output and remote register flag operations are as follows.
[Example] When the occupied station/extended cyclic of COM-JC is set to 4 stations occupied 1 time.

■ Initialize request processing at power on

● Initialize processing request from remote device station (COM-JC)

If the COM-JC is initialized at power on, the initialize data processing request flag [RX(n+7)8] is turned on. Thus, turn on the initialize data processing completion flag [RY(n+7)8]. When COM-JC becomes a ready state, a remote ready [RX(n+7)B] is turned on.
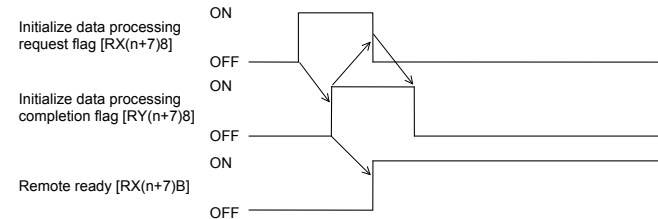

● Initialize processing request from master station (PLC)

This is a COM-JC initialize setting request. As there is no initialize data specifically, no processing is required.
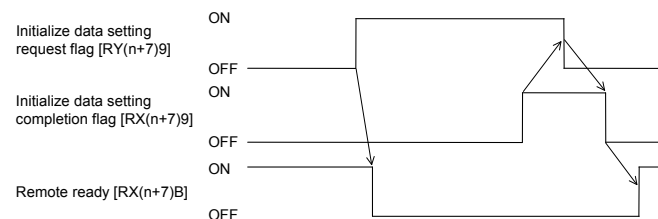

■ Error flag/error reset processing

If the Error reset request flag [RY(n+7)A] is turned on while the Error status flag [RX(n+7)A] is turned on, the Error status flag history is cleared and the flag [RX(n+7)A] turns off.
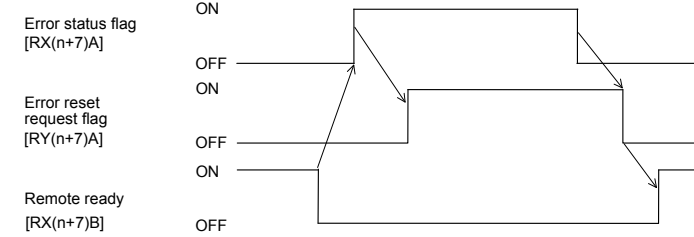

■ Extension number for display selection processing

After the extension number for display [RYn0 to RYn5, RY(n+1)0 to RY(n+1)2] is set, turn on the extended display flag [RYnC]. After the data in the remote register [RWrn to RWrn+F] is displayed, check that extended display completion [RXnC] is turned on and then turn off the extended display flag [RYnC]. If the extended display flag is turned off, the extended display completion is turned off.

(R/O data: Automatically updated)
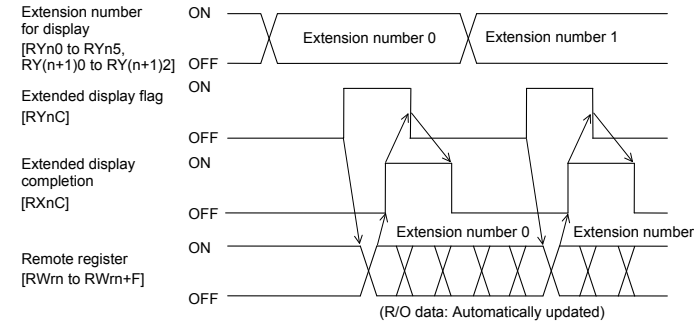
■ Extension number for setting selection processing

The content of the extended setting remote register is selected and the set value is changed. After the extension number for setting [RYn6 to RYnB, RY(n+1)8 to RY(n+1)A] is set, turn on the extended setting flag [RYnD]. After the content of the remote register [RWwm to RWwm+F] is set, check that extended setting completion [RXnD] is turned on and then turn off the extended setting flag [RYnD]. If the extended setting flag [RYnD] is turned off, the extended setting completion [RXnD] is turned off.

Data usage   Data usage
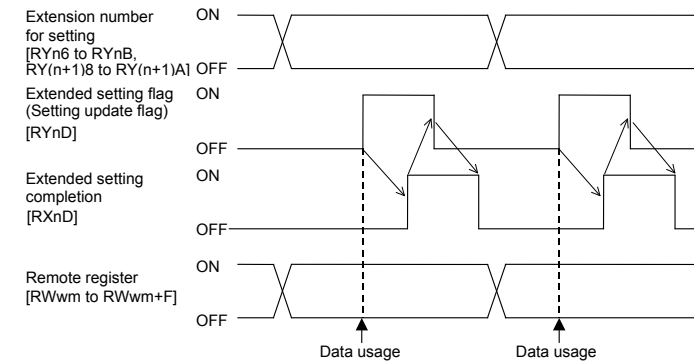
📖 Regardless of the number of occupied stations and the extended cyclic, the above processing is also necessary if the "Set value (SV)" assigned to the remote register (RWw) as a fixed value is changed.

■ AT start procedure

Instructs AT execution.

Remote register [RWwn]
(Extension number 4: PID/AT transfer)
Data = 1   Data = 0
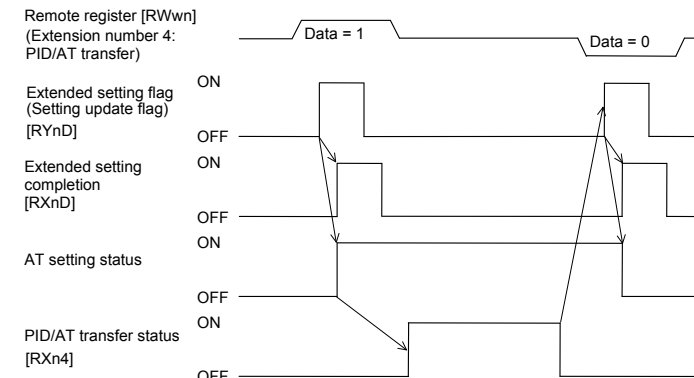
📌 For remote input/output and remote register, refer to **COM-JC [For SRZ] Communication Data List (IMR01Y30-E□)** or **COM-JC [For SRZ] Instruction Manual (IMR01Y34-E□)**.

4. USAGE EXAMPLE

A usage example of CC-Link communication is described in the following.

4.1 System Configuration

In this usage example, described the following system configuration.

PLC (Mitsubishi Electric MELSEC Q series)
CPU unit Q02HCPU
CC-Link system Master local unit QJ 61BT11N (Master station) Station number: 0 Communication speed: 156 kbps
CC Link Ver. 1.10
Controller (Z-TIO module)
Module address * (Controller address)
* The value obtained by adding "1" to the set address corresponds to the address used for the actual program. (Set value: 0 and 1)
CC-Link communication converter COM-JC Remote device station (Slave station) Station number: 1 4 station occupied 1 time Communication speed: 156 kbps
Controller communication (RS-485: Modbus)

■ Use instruments

- CC-Link communication converter: COM-JC 1
- Controller (SRZ): Z-TIO module (4 channels type) 2
- Mitsubishi PLC MELSEC Q series
  – CPU unit: Q02HCPU
  – CC-Link system master local unit: QJ 61BT11N
- CC-Link dedicated cable Ver. 1.10
- COM-JC and controller connection cable

4.2 Setting the Instruments Used

Set the PLC, COM-JC and controller as the following.

■ PLC setting

📌 For operation of the CC-Link system master local unit QJ61BT11N and MELSEC sequencer programming software GX Developer, refer to Instruction Manual of PLC.

[CC-Link system master local unit QJ61BT11N setting]

Setting item	Setting value
Station number	0
CC-Link communication speed	156 kbps

[Master station network parameter setting by GX Developer]

Setting item	Setting value	
Number of boards in module	1	
Start I/O number	0000	
Operational settings	Parameter name:	None
	Data link disorder station setting:	Clear
	Case of CPU STOP setting:	Refresh
Type	Master station	
CC-Link mode setting	Remote net (Ver. 1 mode)	
Total number of connected modules	1	
Number of retries	5	
Number of automatic return modules	1	
Standby master station number	Blank	
Operation specification when CPU is down	Stop	
Scan mode specification	Asynchronous	
Delay time setting	10 (500 μs)	
Station information (Number of COM-JC connection: 1 Station number: 1)	Station type:	Remote device station
	Expanded cyclic setting:	Single
	Number of occupied stations:	Occupies 4 stations
	Remote station points:	128 points
	Reserved/invalid station select:	No setting
	Intelligent buffer select (word):	No setting

[Automatic refresh parameter setting by GX Developer]

Setting item	Setting value
Remote input (RX) refresh device	X1000
Remote output (RY) refresh device	Y1000
Remote register (RWr) refresh device	W0
Remote register (RWw) refresh device	W100
Special relay (SB) refresh device	SB0
Special register (SW) refresh device	SW0

■ COM-JC setting

[CC-Link communication conditions]
- Number of occupied station/extended cyclic:
  4 station occupied 1 time (8 channels assignment)
- Station number: 1
- CC-Link communication speed: 156 kbps
- Controller communication speed: 19200 bps (Factory set value)

☞ For setting method, refer to **2. COMMUNICATION SETTING**.

■ Controller (Z-TIO module) setting

[Controller communication conditions]
- Protocol: Modbus
- Module address: 1 and 2 (Set value: 0 and 1)
- Communication speed: 19200 bps (Factory set value)
- Data bit configuration: Data 8-bit, Without parity bit, Stop 1-bit

☞ For setting method, refer to **Z-TIO Host Communication Quick Instruction Manual (IMS01T02-E□)**.

4.3 Device Assignment Example

According to the contents set by **4.2 Setting the Instrument Used**, each device is assigned.

■ Assignment conditions

COM-JC station number: 1
Number of occupied station/extended cyclic:
  4 stations occupied 1 time (8 channels assignment)
Automatic refresh device setting

Remote input (RX): X1000	Remote output (RY): Y1000
Remote register (RWr): W0	Remote register (RWw): W100
Special relay (SB): SB0	Special register (SW): SW0

■ Remote input (RX) and remote output (RY)

CPU of PLC | COM-JC (Station number 1): 4 station occupied 1 time

X100F to X1000	RX0F to RX00
X101F to X1010	RX1F to RX10
X102F to X1020	RX2F to RX20
X103F to X1030	RX3F to RX30
X104F to X1040	RX4F to RX40
X105F to X1050	RX5F to RX50
X106F to X1060	RX6F to RX60
X107F to X1070	RX7F to RX70

Y100F to Y1000	RY0F to RY00
Y101F to Y1010	RY1F to RY10
Y102F to Y1020	RY2F to RY20
Y103F to Y1030	RY3F to RY30
Y104F to Y1040	RY4F to RY40
Y105F to Y1050	RY5F to RY50
Y106F to Y1060	RY6F to RY60
Y107F to Y1070	RY7F to RY70

☐ : The device that a controller actually uses

● Device assignment table of remote input (RX)

CPU device number	Communication item		Remote input (RX) address
X1000	CH1	Event 1 state	RX00
X1001		Event 2 state	RX01
X1002		Burnout state	RX02
X1003		Heater break alarm (HBA) state	RX03
X1004		PID/AT transfer	RX04
X1005 to X1009	CH2	Same as CH1	RX05 to RX09
X100A, X100B	Unused		RX0A, RX0B
X100C	Extended display completion		RX0C
X100D	Extended setting completion		RX0D
X100E	Unused		RX0E
X100F	Hardware error flag		RX0F
X1010 to X101F	Reserved		RX10 to RX1F
X1020 to X1024	CH3	Same as CH1	RX20 to RX24
X1025 to X1029	CH4	Same as CH1	RX25 to RX29
X102A to X102E	CH5	Same as CH1	RX2A to RX2E
X102F to X1033	CH6	Same as CH1	RX2F to RX33
X1034 to X1038	CH7	Same as CH1	RX34 to RX38
X1039 to X103D	CH8	Same as CH1	RX39 to RX3D
X103E to X106F	Unused		RX3E to RX6F
X1070 to X1077	Reserved		RX70 to RX77
X1078	Initialize data processing request flag		RX78
X1079	Initialize data setting completion flag		RX79
X107A	Error status flag		RX7A
X107B	Remote ready		RX7B
X107C to X107F	Reserved		RX7C to RX7F

● Device assignment table of remote output (RY)

CPU device number	Communication item		Remote output (RY) address
Y1000 to Y1005	Bit 0 to Bit 5	Extension number for display	RY00 to RY05
Y1006 to Y100B	Bit 0 to Bit 5	Extension number for setting	RY06 to RY0B
Y100C	Extended display flag		RY0C
Y100D	Extended setting flag		RY0D
Y100E	Unused		RY0E
Y100F	RUN/STOP transfer		RY0F

CPU device number	Communication item	Remote output (RY) address
Y1010 to Y1017	Bit 6 to Bit 13	Extension number for display (Bit 9 to Bit 13: Unused)	RY10 to RY17
Y1018 to Y101F	Bit 6 to Bit 13	Extension number for setting (Bit 9 to Bit 13: Unused)	RY18 to RY1F
Y1020 to Y1027	Bit 0 to Bit 7	Area number for display (Bit 4 to Bit 7: Unused)	RY20 to RY27
Y1028 to Y102F	Bit 0 to Bit 7	Area number for setting (Bit 4 to Bit 7: Unused)	RY28 to RY2F
Y1030 to Y106F	Unused	RY30 to RY6F
Y1070 to Y1077	Reserved	RY70 to RY77
Y1078	Initialize data processing completion flag	RY78
Y1079	Initialize data setting request flag	RY79
Y107A	Error reset request flag	RY7A
Y107B to Y107F	Reserved	RY7B to RY7F

■ Remote register (RWr, RWw)
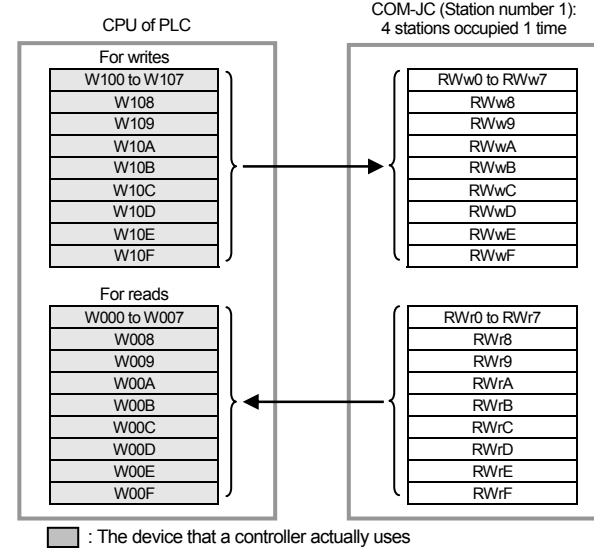
CPU of PLC | COM-JC (Station number 1): 4 stations occupied 1 time

For writes:
W100 to W107 / W108 / W109 / W10A / W10B / W10C / W10D / W10E / W10F → RWw0 to RWw7 / RWw8 / RWw9 / RWwA / RWwB / RWwC / RWwD / RWwE / RWwF

For reads:
W000 to W007 / W008 / W009 / W00A / W00B / W00C / W00D / W00E / W00F → RWr0 to RWr7 / RWr8 / RWr9 / RWrA / RWrB / RWrC / RWrD / RWrE / RWrF

☐ : The device that a controller actually uses

● Device assignment table of remote register (RWw)

CPU device number	Communication item	Remote register (RWw) address
W100 to W107	Set value (SV) of CH1 to CH8	RWw0 to RWw7
W108	For extension area setting of CH1 (Module address 1)	RWw8
W109	For extension area setting of CH2 (Module address 1)	RWw9
W10A	For extension area setting of CH3 (Module address 1)	RWwA
W10B	For extension area setting of CH4 (Module address 1)	RWwB
W10C	For extension area setting of CH5 (Module address 2)	RWwC
W10D	For extension area setting of CH6 (Module address 2)	RWwD
W10E	For extension area setting of CH7 (Module address 2)	RWwE
W10F	For extension area setting of CH8 (Module address 2)	RWwF

● Device assignment table of remote register (RWr)

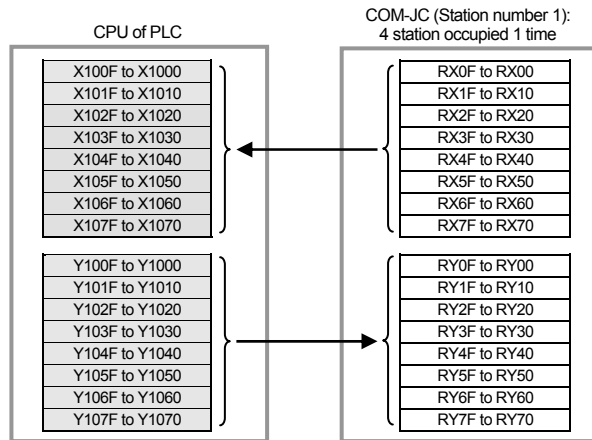| CPU device number	Communication item	Remote register (RWr) address
W000 to W007	Measured value (PV) of CH1 to CH8	RWr0 to RWr7
W008	For extension area display of CH1 (Module address 1)	RWr8
W009	For extension area display of CH2 (Module address 1)	RWr9
W00A	For extension area display of CH3 (Module address 1)	RWrA
W00B	For extension area display of CH4 (Module address 1)	RWrB
W00C	For extension area display of CH5 (Module address 2)	RWrC
W00D	For extension area display of CH6 (Module address 2)	RWrD
W00E	For extension area display of CH7 (Module address 2)	RWrE
W00F	For extension area display of CH8 (Module address 2)	RWrF

4.4 Sample Program

■ Program conditions

COM-JC station number: 1
Number of occupied station/extended cyclic:
  4 stations occupied 1 time (8 channels assignment)
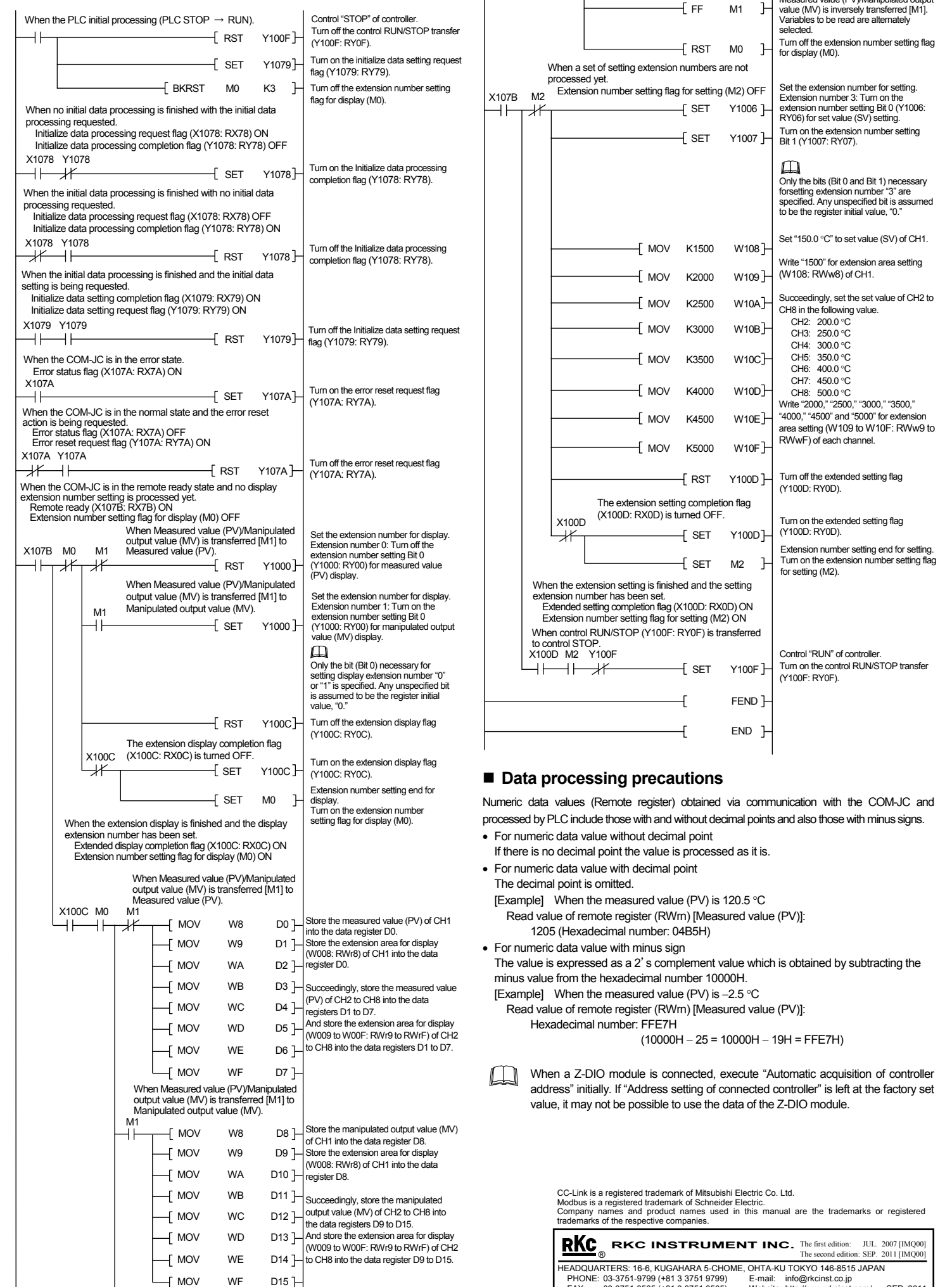Automatic refresh device assignment:
  Refer to **4.3 Device Assignment Example**
Special relay (M) assignment:
  M0: Extension number setting flag for display
  M1: Measured value (PV)/Manipulated output value (MV) transfer
  M2: Extension number setting flag for setting
Data register (D) assignment:
  D0 to D7:
  Measured value (PV) storage of CH1 to CH8
  D8 to D15:
  Manipulated output value (MV) storage of CH1 to CH8

■ Program operation

1. Store measured value (PV) and manipulated output value (MV) to a data register.
2. Write in set value (SV) of CH1 to CH8.
   CH1 set value (SV): 150.0 °C   CH5 set value (SV): 350.0 °C
   CH2 set value (SV): 200.0 °C   CH6 set value (SV): 400.0 °C
   CH3 set value (SV): 250.0 °C   CH7 set value (SV): 450.0 °C
   CH4 set value (SV): 300.0 °C   CH8 set value (SV): 500.0 °C
3. Change the controller to the control RUN.

■ Sample program

When the PLC initial processing (PLC STOP → RUN).
[RST Y100F] — Control "STOP" of controller. Turn off the control RUN/STOP transfer (Y100F: RY0F).
[SET Y1079] — Turn on the initialize data setting request flag (Y1079: RY79).
[BKRST M0 K3] — Turn off the extension number setting flag for display (M0).

When no initial data processing is finished with the initial data processing requested.
Initialize data processing request flag (X1078: RX78) ON
Initialize data processing completion flag (Y1078: RY78) OFF
X1078 Y1078 [SET Y1078] — Turn on the Initialize data processing completion flag (Y1078: RY78).

When the initial data processing is finished with no initial data processing requested.
Initialize data processing request flag (X1078: RX78) OFF
Initialize data processing completion flag (Y1078: RY78) ON
X1078 Y1078 [RST Y1078] — Turn off the Initialize data processing completion flag (Y1078: RY78).

When the initial data processing is finished and the initial data setting is being requested.
Initialize data setting completion flag (X1079: RX79) ON
Initialize data setting request flag (Y1079: RY79) ON
X1079 Y1079 [RST Y1079] — Turn off the Initialize data setting request flag (Y1079: RY79).

When the COM-JC is in the error state.
Error status flag (X107A: RX7A) ON
X107A [SET Y107A] — Turn on the error reset request flag (Y107A: RY7A).

When the COM-JC is in the normal state and the error reset action is being requested.
Error status flag (X107A: RX7A) OFF
Error reset request flag (Y107A: RY7A) ON
X107A Y107A [RST Y107A] — Turn off the error reset request flag (Y107A: RY7A).

When the COM-JC is in the remote ready state and no display extension number setting is processed yet.
Remote ready (X107B: RX7B) ON
Extension number setting flag for display (M0) OFF
X107B M0 M1 [SET Y1000] — Set the extension number for display. Extension number 0: Turn off the extension number setting Bit 0 (Y1000: RY00) for measured value (PV) display.

When Measured value (PV)/Manipulated output value (MV) is transferred [M1] to Measured value (PV).

When Measured value (PV)/Manipulated output value (MV) is transferred [M1] to Manipulated output value (MV).
M1 [SET Y1000] — Set the extension number for display. Extension number 1: Turn on the extension number setting Bit 0 (Y1000: RY00) for manipulated output value (MV) display.

☐ Only the bit (Bit 0) necessary for setting display extension number "0" or "1" is specified. Any unspecified bit is assumed to be the register initial value, "0".

[RST Y100C] — Turn off the extension display flag (Y100C: RY0C).

The extension display completion flag (X100C: RX0C) is turned OFF.
X100C [SET Y100C] — Turn on the extension display flag (Y100C: RY0C).
[SET M0] — Extension number setting end for display. Turn on the extension number setting flag for display (M0).

When the extension display is finished and the display extension number has been set.
Extended display completion flag (X100C: RX0C) ON
Extension number setting flag for display (M0) ON

When Measured value (PV)/Manipulated output value (MV) is transferred [M1] to Measured value (PV).
X100C M0 M1 [MOV W8 D0] — Store the measured value (PV) of CH1 into the data register D0.
[MOV W9 D1] — Store the extension area for display (W008: RWr8) of CH1 into the data register D0.
[MOV WA D2]
[MOV WB D3] — Succeedingly, store the measured value (PV) of CH2 to CH8 into the data registers D1 to D7.
[MOV WC D4]
[MOV WD D5] — And store the extension area for display (W009 to W00F: RWr9 to RWrF) of CH2 to CH8 into the data registers D1 to D7.
[MOV WE D6]
[MOV WF D7]

When Measured value (PV)/Manipulated output value (MV) is transferred [M1] to Manipulated output value (MV).
M1 [MOV W8 D8] — Store the manipulated output value (MV) of CH1 into the data register D8.
[MOV W9 D9] — Store the extension area for display (W008: RWr8) of CH1 into the data register D8.
[MOV WA D10]
[MOV WB D11] — Succeedingly, store the manipulated output value (MV) of CH2 to CH8 into the data registers D9 to D15.
[MOV WC D12]
[MOV WD D13] — And store the extension area for display (W009 to W00F: RWr9 to RWrF) of CH2 to CH8 into the data register D9 to D15.
[MOV WE D14]
[MOV WF D15]

[FF M1] — Measured value (PV)/Manipulated output value (MV) is inversely transferred [M1]. Variables to be read are alternately selected.
[RST M0] — Turn off the extension number setting flag for display (M0).

When a set of setting extension numbers are not processed yet.
Extension number setting flag for setting (M2) OFF
X107B M2 [SET Y1006] — Set the extension number for setting. Extension number 3. Turn on the extension number setting Bit 0 (Y1006: RY06) for set value (SV) setting.
[SET Y1007] — Turn on the extension number setting Bit 1 (Y1007: RY07).

☐ Only the bits (Bit 0 and Bit 1) necessary for setting extension number "3" are specified. Any unspecified bit is assumed to be the register initial value, "0".

[MOV K1500 W108] — Set "150.0 °C" to set value (SV) of CH1.
[MOV K2000 W109] — Write "1500" for extension area setting (W108: RWw8) of CH1.
[MOV K2500 W10A] — Succeedingly, set the set value of CH2 to CH8 in the following value.
[MOV K3000 W10B]   CH2: 200.0 °C
[MOV K3500 W10C]   CH3: 250.0 °C
[MOV K4000 W10D]   CH4: 300.0 °C
[MOV K4500 W10E]   CH5: 350.0 °C
[MOV K5000 W10F]   CH6: 400.0 °C / CH7: 450.0 °C / CH8: 500.0 °C
— Write "2000," "2500," "3000," "3500," "4000," "4500" and "5000" for extension area setting (W109 to W10F: RWw9 to RWwF) of each channel.

[RST Y100D] — Turn off the extended setting flag (Y100D: RY0D).

The extension setting completion flag (X100D: RX0D) is turned OFF.
X100D [SET Y100D] — Turn on the extended setting flag (Y100D: RY0D).
[SET M2] — Extension number setting end for setting. Turn on the extension number setting flag for setting (M2).

When the extension setting is finished and the setting extension number has been set.
Extended setting completion flag (X100D: RX0D) ON
Extension number setting flag for setting (M2) ON

When control RUN/STOP (Y100F: RY0F) is transferred to control STOP.
X100D M2 Y100F [SET Y100F] — Control "RUN" of controller. Turn on the control RUN/STOP transfer (Y100F: RY0F).

[FEND]

[END]

■ Data processing precautions

Numeric data values (Remote register) obtained via communication with the COM-JC and processed by PLC include those with and without decimal points and also those with minus signs.

- For numeric data value without decimal point
  If there is no decimal point the value is processed as it is.
- For numeric data value with decimal point
  The decimal point is omitted.
  [Example] When the measured value (PV) is 120.5 °C
  Read value of remote register (RWm) [Measured value (PV)]:
    1205 (Hexadecimal number: 04B5H)
- For numeric data value with minus sign
  The value is expressed as a 2's complement value which is obtained by subtracting the minus value from the hexadecimal number 10000H.
  [Example] When the measured value (PV) is –2.5 °C
  Read value of remote register (RWm) [Measured value (PV)]:
    Hexadecimal number: FFE7H
    $(10000H - 25 = 10000H - 19H = FFE7H)$

☐ When a Z-DIO module is connected, execute "Automatic acquisition of controller address" initially. If "Address setting of connected controller" is left at the factory set value, it may not be possible to use the data of the Z-DIO module.