Introduction

Thank you for purchasing the Mitsubishi general-purpose MELSEC series sequencer.
Read this manual and make sure you understand the functions and performance of MELSEC series sequencer thoroughly in advance to ensure correct use.
Please make this manual available to the end user.

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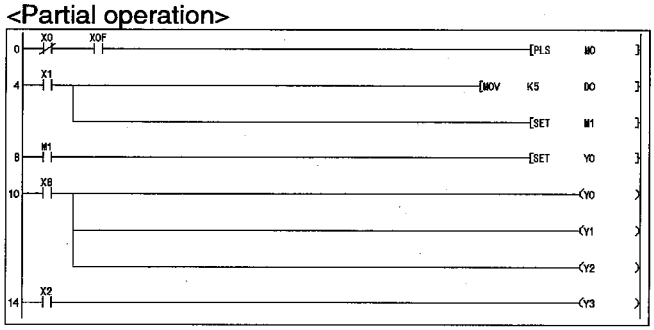
19. DEBUGGING PROGRAMS

After a program has been written to the PLC, you can check it by carrying out a device test, partial operation, and step run. However, note that when using the FX series, the partial operation, step run and skip run functions are only valid when the logic test function (LLT) is connected.
Also note that if skip run is set before partial operation and step run, the program range designated for skip run will not be processed.
The following shows the operation status during partial operation and step run operation, and an example of the execution range when skip run is set.

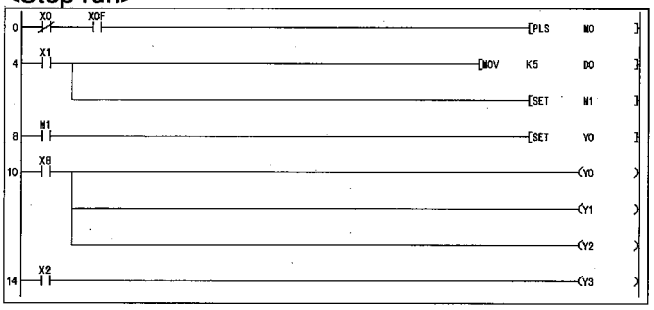
<Partial operation>



Runs the program from the designated step or pointer to the set stop condition.

See Section 19.2 " Carrying Out Partial Operation."

<Step run>

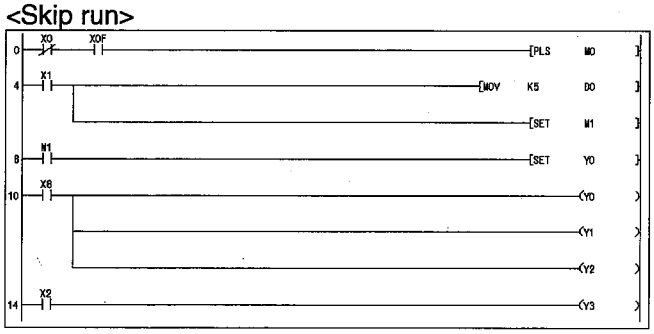


Executes the designated program range one instruction at a time.

See Section 19.3 "Executing Step Run."

When skip run is set with the QnA series or FX series, partial operation or step run is executed without processing the program range designated for this function.

<Skip run>



Executes partial operation or step run while skipping (not processing) the part of the program between the designated steps.

See Section 19.4 "Setting the Scan Range."

19.1 Carrying Out a Device Test

A	QnA	FX
•	•	•

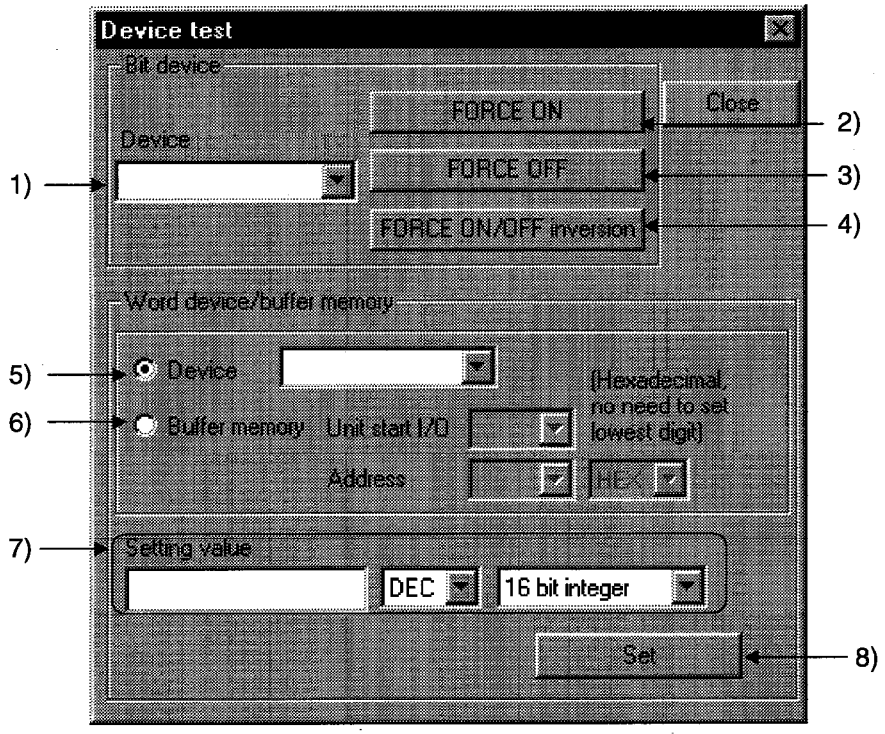
[Purpose]

Forcibly turns ON/OFF the bit devices of the PLC, and changes the present values of word devices.

[Operating Procedure]

Select [Online] → [Debug] → [Device test], or click (Alt + 1).

[Dialog Box]



[Description]

1) Bit device
Designates the bit device to be forcibly turned ON or OFF.

2) FORCE ON button
Forcibly turns the designated bit device ON.

3) FORCE OFF button
Forcibly turns the designated bit device OFF.

4) FORCE ON/OFF inversion button
Forcibly inverts the ON/OFF statuses of designated bit devices.

5) Device
Designates the word device whose present value is to be changed.

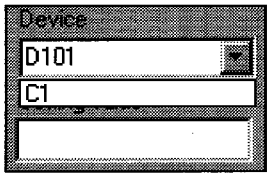
6) Buffer memory
Designates the first I/O number (lowest digit unnecessary) and buffer memory address (decimal/hexadecimal) of the monitoring special function module.

7) Setting value
Sets the value to be changed.
Before setting the value, designate decimal or hexadecimal, and 16-bit integral value, 32-bit integral value, or real number.

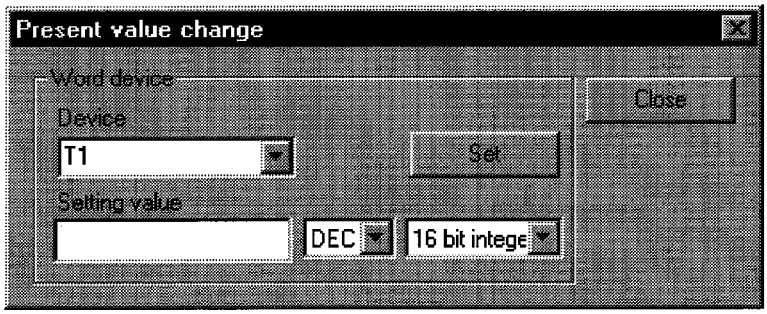
8) [Set] button
Click this button after making the necessary settings.
The word device present value change operation is executed.

POINTS

- Executing a device may change the control of the PLC. Check safety carefully before executing the test.
- When a coil whose output condition input signal is OFF is forcibly turned ON while the PLC is in the RUN state, the execution of the program is given priority and the coil output comes ON only momentarily.
- Since the device designated for a device test is temporarily stored in memory, it can be selected the second and subsequent times with ▼ button while the project continues.



- With the QnA series, a device test can be carried out by bit designation of word devices, or by digit designation of bit devices.
In addition, a link module memory can be designated as follows "J*\B**" "J*\W**", and the buffer memory of a special function module can be designated as follows: "U*\G**."
See the QnACPU Programming Manual (Common Instructions)
- [Shift] key + doubling-clicking ([Enter]) a contact in the ladder monitor window forcibly switches it between ON and OFF.
- [Shift] key + double-clicking ([Enter]) a word device that is being monitored displays the present value change dialog box shown below.



After entering the value to be changed, click the [Set] button.

19.2 Carrying Out Partial Operation

A	QnA	FX
•	•	•

[Purpose]

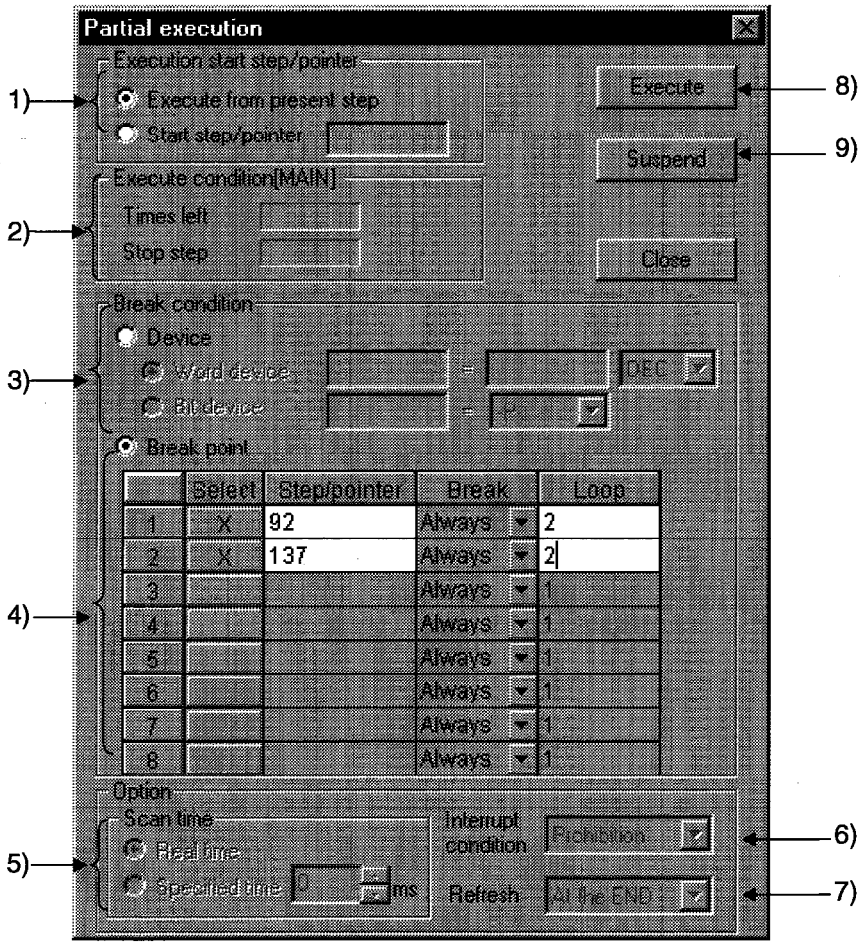
Executes a program from the designated step or pointer to the point where the set condition is established.

When FX series is selected, only Ladder Logic Test Tool (LLT) is applicable.

[Operating Procedure]

Select [Online] → [Debug] → [Partial operation], or click (Alt + 3).

[Dialog Box]



[Description]

1) Execution start step/pointer

⊙ Execution from present step

The program is executed from the step at which execution is presently stopped.

⊙ Start step/pointer

The program is executed from the designated step or pointer.

For step designation : **

For pointer designation : P**

I**

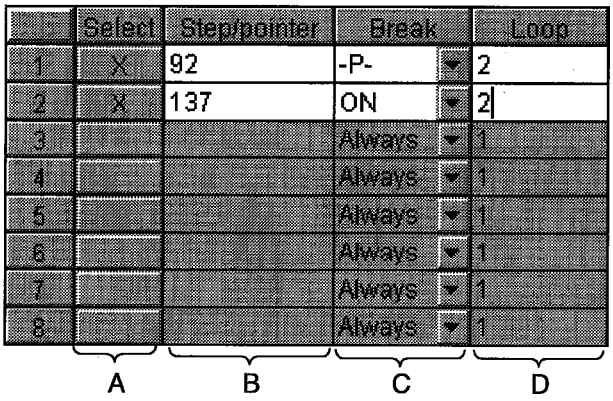
** = Number of designated step or pointer

2) Execution condition
Indicates the execution status of the program.

3) Break condition
Sets the device condition that stops partial operation.
⊙ Word device
The condition is satisfied when the set device has the same value as the set value.
Set the device and numeric value (decimal or hexadecimal).

⊙ Bit device
The condition is satisfied when the set device is in the set condition.
Set the device status (-P- : leading edge, -F- : trailing edge).

4) Break point
Sets the break condition and loop count for a partial operation range.
With the A series and FX series, the condition can only be "Always."



A : Selection
Setting causes it to be executed as the break point.

B : Step/pointer
Set the step/pointer number that defines the range for partial operation.

C : Break
Set a status of the designated step/pointer as the break condition after the number of scans set by the loop count.
Always : On reaching the number of loops indicated by the designated count, execution stops.
ON : Execution stops when the designated step/pointer is ON.
OFF : Execution stops when the designated step/pointer is OFF.
↑ : Execution stops when the status of the designated step/pointer changes from OFF to ON.
↓ : Execution stops when the status of the designated step/pointer changes from ON to OFF.

D : Loop
Sets the number of scans until the break.
The setting range is 1 to 32767.

5) Scan time (QnA series only)
Sets the processing time for a program that is executing partial operation.
This setting is not possible with the A series and FX series.
⊙ Real time
The program is executed at intervals corresponding to normal RUN operation.

⊙ Specified time
The program is executed at the designated interval.
The setting range is 10 ms to 2000 ms in 10 ms units.

6) Interrupt condition (QnA series only)
Sets whether or not the interrupt program is executed when an interrupt cause occurs during partial operation.
This setting is not possible with the A series and FX series.
By programing..... Depends on the execution results of EI and DI instructions.
Prohibition..... The execution of the interrupt program is disabled.

7) Refresh (QnA series only)
Sets the refresh timing for I/O devices (X/Y).
This setting is not possible for the A series and FX series.
One by one..... Direct I/O refresh
At the END..... Batch refresh at END processing

8) [Execute] button
Click this button after setting the necessary settings.
Partial operation is executed.

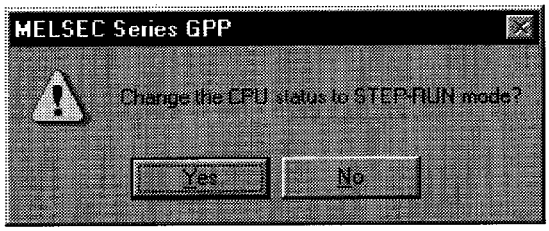
9) [Suspend] button
Aborts partial operation.

[Operating Procedure]

1. Display the ladder monitor window.
2. Set the PLC to the STEP-RUN operating state by remote operation or with the key switch.
3. Set 1) through 7).
4. Click 8) to execute.
5. Operation stops when the break condition is established.
6. To quit, click the [Close] button.
A dialog box is displayed and the PLC eturns to the RUN state.

POINTS

- When executing partial operation with a range encompassing several programs, if there is a break in a program that is not displayed, execution stops at the position of the same step number in the program that is displayed.
- When the PLC is switched from RUN to STEP-RUN, the final output status under RUN is held.
- When a break point is designated as a step, if the designated step is part way through an instruction, execution stops at the first step of the instruction.
- If a step designated as a stopped step is passed without execution in a conditional jump or interrupt program, the scan count cannot be counted as "1."
  For example, if the break point is set at step 1000, the scan count is set as 1, and there is an instruction for a conditional jump to step 1200 at step 800, execution cannot stop at step 1000.
- If the [Execute] button is clicked when the PLC is in a state other than STEP-RUN, the dialog box shown below is displayed.



  However, if the PLC is in a state other than RUN, the state cannot be changed to STEP-RUN.
- With the A series and FX series, it is not possible to set a device break condition and a step/pointer break point at the same time.
- With the QnA series, it is possible to set a device break condition and a step/pointer break point at the same time.
  If they are set at the same time, partial operation stops when both conditions are satisfied.
- When more than one program is being executed with the QnA series, partial operation starts from the program being monitored and is executed in the order in which programs are set in the PLC parameters.
- With the QnA series the following types of setting are possible for a break condition: bit device digit designation, word device bit designation, index qualification.

19.3 Executing Step Run

A	QnA	FX
•	•	•

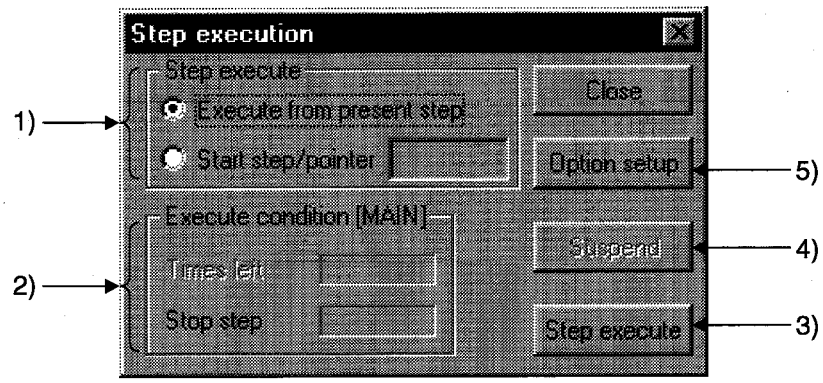
[Purpose]

Executes the designated range of the PLC program one instruction at a time.
When using the FX series, step run is valid only when the logic test function (LLT) is connected.

[Operating Procedure]

Select [Online] → [Debug] → [Step execution], or click (Alt + 4).

[Dialog Box]



[Description]

1) Step execute
   ⊙ Execute from present step
   Execute the program from the step where it is currently stopped.

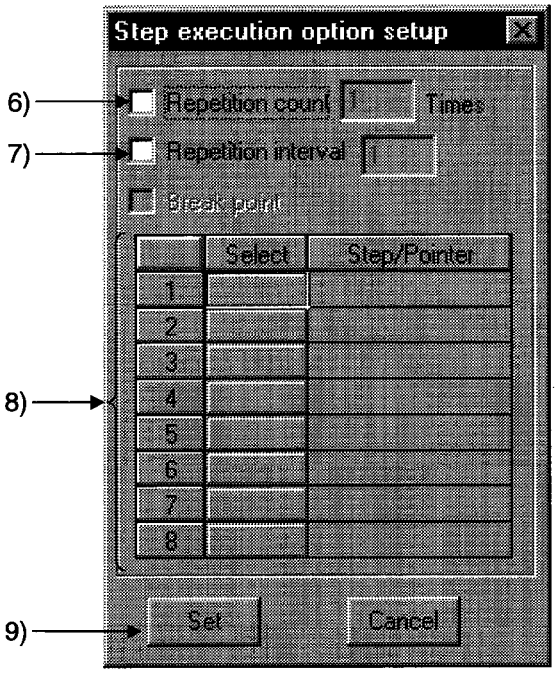
   ⊙ Start step/pointer
   Execute the program from the designated step or pointer.
   For step designation : **
   For pointer designation : P** I**
   ** = Number of designated step or pointer

2) Execute condition
   Indicates the execution status of the program.

3) Step execute button
   Clicking this button starts execution of a number of steps corresponding to the repetition count set in the option dialog box.
   On completion of repetition count execution, clicking this button once causes execution of one instruction.

4) Suspend button
   Aborts execution of step run.

5) Option setup button
Displays the step run option setting dialog box shown below.
Set the repetition count, repetition interval, and break point.



6) Repetition count
On checking the check box to select it, step run is executed for the number of instructions corresponding to the set count only.
After execution of this number of steps, each time the Step execute button is clicked program execution proceeds by one instruction.
The setting range is 1 to 32767.

7) Repetition interval
On checking the check box to select it, step run is executed at intervals of the set value. The unit for the interval is equivalent to the interval in which one interruption is issued from the peripheral device to the PLC. If step run is executed with only the repetition interval set in the option settings, execution proceeds with no limit on the repetition count.
The setting range is 1 to 32767.

8) Break point
Sets the step or pointer at which step run operation stops.
This setting is not possible for the A series or FX series.
Note also that if step run is executed with only the break point set and no repetition count setting, it will be executed from the start step to the break point.
After the break, program execution will proceed by one instruction each time the Step execute button is clicked.
For step designation : **
For pointer designation : P** I**
** = Number of designated step or pointer

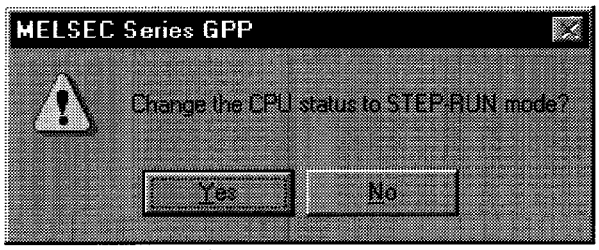
9) Set button
Click this button after making the necessary settings; the display returns to the step run dialog box.

[Operating Procedure]

1. Display the ladder monitor window.
2. Set the PLC to the STEP-RUN operating state by remote operation or with the key switch.
3. In the step run dialog box, set 1), and - as necessary - 6) to 8).
4. Click 3) to execute.
5. To quit, click the Close button.
   A dialog box is displayed and the operating state of the PLC can be set to RUN in remote operation.

POINTS

- When executing step run with a range encompassing several programs, if there is a break in a program that is not displayed, execution stops at the position of the same step number in the program that is displayed.
- When the PLC is in an operating state other than STEP-RUN, the dialog box shown below is displayed.



  If the PLC is in a state other than RUN, the state cannot be changed to STEP-RUN.

- The timer present values during step run are as follows.

10 ms timer	Incremented by one each scan
100 ms timer, 100 ms retentive timer	Incremented by one every ten scans

- The special relay timing clocks during step run are as follows.

  A series

M9030 (0.1 second clock)	Goes ON/OFF every 5 scans
M9031 (0.2 second clock)	Goes ON/OFF every 10 scans
M9032 (1 second clock)	Goes ON/OFF every 50 scans
M9033 (2 second clock)	Goes ON/OFF every 100 scans
M9034 (1 minute clock)	Goes ON/OFF every 3000 scans

  QnA series

SM410 (0.1 second clock)	Goes ON/OFF every 5 scans
SM411 (0.2 second clock)	Goes ON/OFF every 10 scans
SM412 (1 second clock)	Goes ON/OFF every 50 scans
SM413 (2 second clock)	Goes ON/OFF every 100 scans
SM414 (n second clock)	Goes ON/OFF every n x 50 scans

19.4 Setting the Scan Range

A	QnA	FX
×	•	•

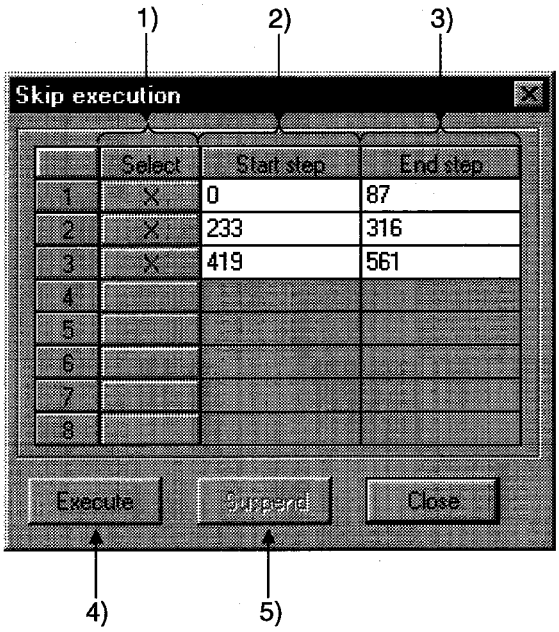
[Purpose]

Sets the range to be skipped (not processed) when executing partial operation or step run.
When using the FX series, this setting is only effective when the logic test function (LLT) is connected.

[Operating Procedure]

Select [Online] → [Debug] → [Skip execution], or click (Alt + 2).

[Dialog Box]



[Description]

1) Select
On setting, the designated range is skipped.
The skip range is in instruction units.

2) Start step
Designates the beginning of the skip range.
Set the first step number of the first instruction.

3) End step
Designates the end of the skip range.
Set the first step number of the final instruction.

4) Execute button
Registers the skip range.
If the PLC is in an operating state other than STEP-RUN at this time, a dialog box allowing the state to be changed to STEP-RUN is displayed.
To continue with partial operation or step run, set the state to STEP-RUN.
However, if the PLC is in a state other than RUN it is not possible to change to STEP-RUN.

5) Suspend button
Cancels registration of the skip range.

[Operating Procedure]

1. Display the ladder monitor window.
2. Set 1), 2), and 3) in the skip execution dialog box.
3. Click 4).
   A dialog box is displayed: to continue with partial operation or step run, set to STEP-RUN.
4. Close the skip execution window.
5. Execute partial operation or step run.

POINT

- To cancel the STEP-RUN state, either turn the key switch momentarily to RESET, or change the state by remote operation.

See Section 19.5 "Operating the PLC Remotely."

19.5 Operating the PLC Remotely

A	QnA	FX
•	•	•

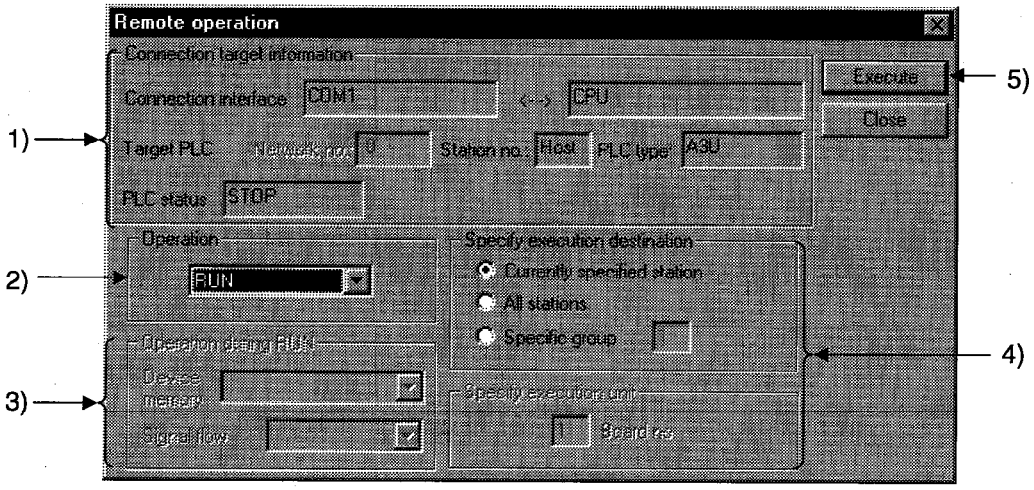
[Purpose]

Switches the execution status of the PLC from the peripheral device.
However, with the A series and the QnA series, remote operation is possible only when the PLC is in the RUN state.
When using the FX series, remember that only the FX2N and FX2NC support remote operation. Remote operation is possible when the CPU is in either the RUN or STOP state.

[Operating Procedure]

Select [Online] → [Remote operation] (Alt + 6).

[Dialog Box]



[Description]

1) Connection target information
Indicates information on the connection destination designation.
For details on the connection destination designation, see Section 17.2.

2) Operation
Designates the operating state of the PLC.
For the A series and QnA series, the following designations are possible: STOP, PAUSE, STEP-RUN, RUN.
With the QnA series, RESET and latch clear can also be designated.
With the FX series, STOP and RUN can be designated.

3) Operation during RUN,STEP-RUN
Sets the operation with respect to the device memory and signal flow in the RUN and STEP-RUN states.
This setting is not possible with the FX series.

4) Specify execution destination
Sets the applicable station for remote operation.
Currently specified station..... Executed only at the station with the connection destination designation.

All stations..... Executed at all stations of the network designated as the presently designated station. 1 to 4 modules can be set for execution module designation.

Specific group..... Executed in a specific group of the network designated as the presently designated station. Set 1 to 4 modules for execution module designation and set the group number.
This setting is not possible with the FX series.

5) [Execute] button
Click this button after setting the necessary settings.

POINTS

- Remote operation is valid when the PLC is in the RUN state.
  However, since the remote operation setting is memorized when the key switch is set to STOP, on setting the key switch to RUN, the state set in remote operation applies.
  For example, if remote operation is set to STOP while the key switch is at STOP, the PLC will remain in the STOP state even if the key switch is set to RUN.
  Similarly, if STEP-RUN is set in remote operation while the key switch is set to STOP, when the key switch is set to RUN the PLC enters the STEP-RUN state.
  In this kind of case, the RUN state has to be established by remote operation.
  If there is any disagreement in the key switch, remote operation, and remote RUN/PAUSE contact operations at the PLC, the following order of priority applies.

Operations to the PLC	Order of Priority
STOP	1
PAUSE	2
STEP-RUN	3
RUN	4

- The PLC operation is determined by the combination of the key switch position and remote operation as follows.

  A series

Key switch \ Remote operation	RUN	PAUSE	STOP
RUN	RUN	PAUSE	STOP
STEP-RUN	STEP-RUN	PAUSE	STOP
PAUSE	PAUSE	PAUSE	STOP
STOP	STOP	STOP	STOP

  QnA series

Key switch \ Remote operation	RUN	STEP-RUN	PAUSE	STOP	RESET *1	Latch clear
RUN	RUN	STEP-RUN	PAUSE	STOP	Operation not possible *2	Operation not possible *2
STOP	STOP	STOP	STOP	STOP	RESET	Latch clear

  *1 : Remote reset must be enabled by PLC system setting in the PLC parameters.

  *2 : Operation possible when set to STOP by remote operation.

- In remote operation of the FX2N and FX2NC CPU, M8035 (forced RUN mode), M8036 (forced RUN) and M8037 (forced STOP) are controlled.
  Note that remote operation is possible regardless of the status of the RUN, STOP switches at the PLC side.

20. REGISTERING ENTRY CODES

By registering entry codes, the data in the PLC can be protected.

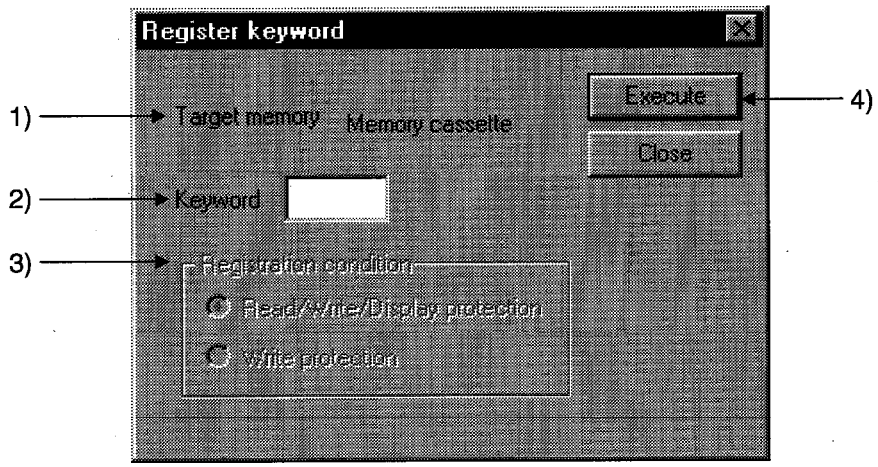
20.1 Registering New Entry Codes/Changing Entry Codes

A	QnA	FX
•	•	•

[Purpose]
Registers a new entry code, or changes the entry code, for a PLC.

[Operating Procedure]
Select [Online] → [Keyword setup] → [Register keyword].

[Dialog Box]



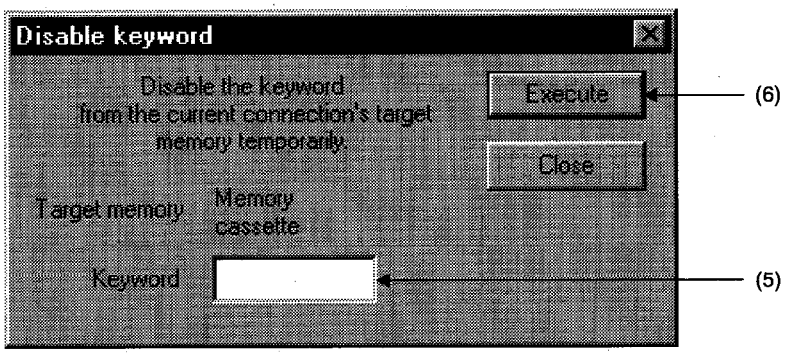
[Description]

1) Target memory
Sets the memory whose entry code is to be registered or changed.
For the A series, this is a memory cassette.
With the FX series, nothing is displayed.

2) Keyword
A series, QnA series : Sets the entry code (6 numeric characters).
FX series : Sets the entry code (8 numeric characters and A through F)

3) Registration condition
Select the functions restricted by the entry code.
For the A series this is reading/writing and disabling of the display only.
For the FX series, setting is not possible.
⊙ Read/Write/Display protection
Writing, reading, verification, deletion, and list display are restricted by the entry code.
⊙ Write protection
Writing is restricted by the entry code.

4) Execute button
Click this button after setting the necessary settings.
However, in the case of an entry code change or condition change, the dialog box shown below is displayed.



5) Keyword
Sets the entry code that has been registered for the PLC.

6) Execute button
Click this button after setting the necessary settings.

[Operating Procedure]

1. Set 2) in the Register new keyword dialog box.
With the QnA series, set 1) and 3) also.

2. Click 4).
For an entry code change, the present entry code is now displayed in the dialog box.

3. Set 5) and click 6).

POINTS

- If you forget the entry code when using the A series or FX series, all-clear the data in the memory cassette with "PLC all clear."
With the QnA series, format the PLC memory.
However, note that regardless of whether you are using the A series, QnA series or the FX series, all the data apart from the entry code is also deleted, and therefore all the data must be rewritten.
- On executing the registration condition function before releasing an entry code, the current entry code dialog box is automatically displayed.
Enter the entry code and release it.
- Since the entry code is written directly into the PLC on registration, there is no need to write parameters or other data to the PLC.
Note that the entry code becomes functional immediately after registration.
- With the A series and FX series, parameters for which an entry code is registered can be written to the ROM.

POINT

- Password protection level designation for the FX series
  For devices capable of online operations with respect to the PLC, models such as the FX-10P and FX-20P permit the setting of three levels of protection for these operations. In cases where monitoring, setting changes, etc. are required to be done by an online device, set an entry code that takes this into consideration.
  ·All operations prohibited (peripheral device operation disabled)
  :A□□□□□□□ or ■□□□□□□□
  ↑—— Alphanumeric letter other than "A", "B", and "C"
  ·Theft prevention (restricted to monitoring and changing the present value)
  :B□□□□□□□
  ·Protection against erroneous writing (restricted to reading, monitoring and changing the present value)
  :C□□□□□□□
  In the part of the entry code, designate 7 alphanumeric digits selected from among A to F and 0 to 9.

20.2 Canceling an Entry Code

A	QnA	FX
•	•	•

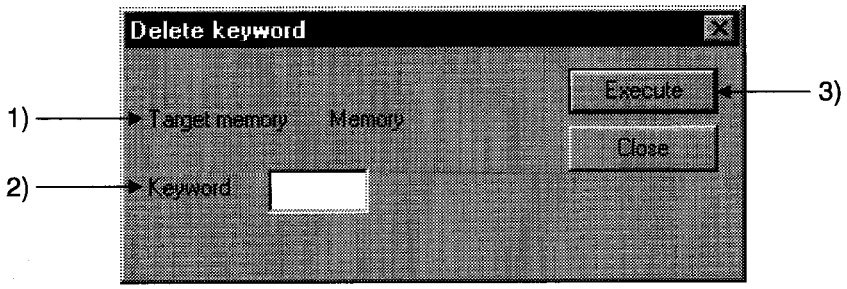
[Purpose]

Cancels (deletes) the registration of an entry code for a PLC.

[Operating Procedure]

Select [Online] → [Keyword setup] → [Delete keyword].

[Dialog Box]



[Description]

1) Target memory
   Sets the applicable memory for the entry code cancellation.
   For the A series, this is a memory cassette.
   For the FX series, nothing is displayed.

2) Keyword
   Sets the currently registered entry code.

3) Execute button
   Click this button after setting the necessary settings.

20.3 Releasing an Entry Code

A	QnA	FX
•	•	•

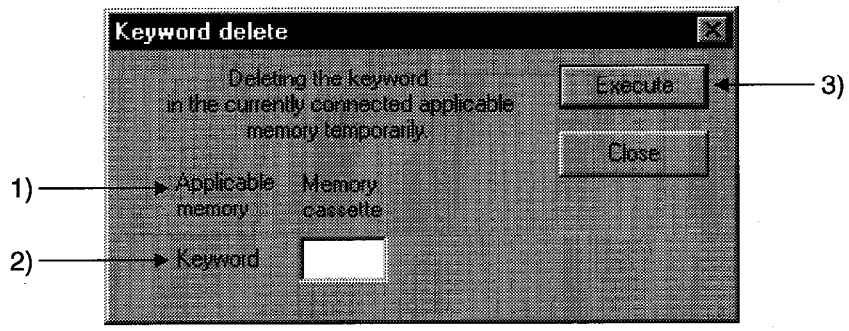
[Purpose]

Releases the lock imposed by an entry code in order to allow access to the PLC for which the entry code is registered.
After an entry code has been released, there is free access to the PLC until the project is quit.

[Operating Procedure]

Select [Online] → [Keyword setup] → [Disable keyword].

[Dialog Box]



[Description]

1) Target memory
   Indicates the currently connected memory.
   For the A series this is a memory cassette.
   For the FX series, nothing is displayed.

2) Keyword
   Sets the entry code registered for the PLC.

3) Execute button
   Click this button after setting the necessary settings.

21. PLC MEMORY

This chapter describes PLC memory all-clear, formatting, memory area sorting, and time setting for the internal clock of the PLC.

21.1 Clearing the PLC Memory

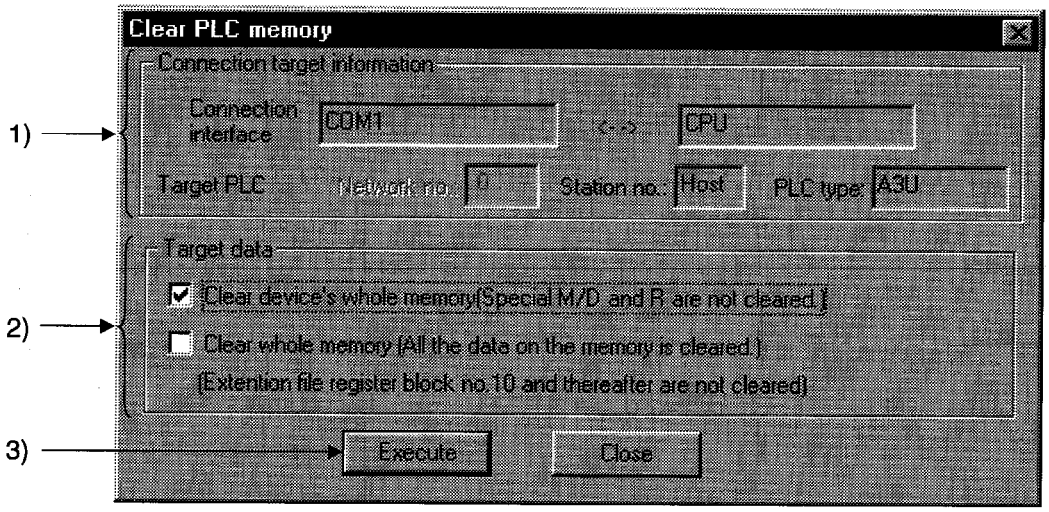
21.1.1 All-clearing on ACPU memory

A	QnA	FX
•	×	×

[Purpose]
All-clears the device memory and memory cassette of A series PLCs.

[Operating Procedure]
Select [Online] → [Memory Clear PLC memory]

[Dialog Box]



[Description]

1) Connection target information
Indicates information on the connection destination designation.

2) Target data
Clear device's whole memory (Secial M/D and R are not cleared.)
Checking this check box to select it clears all the data in the device memory in the PLC.
However, special relays, special registers, and file registers are excepted.

Clear whole memory (All the data on the memory is cleared.)
Checking this check box to select it clears all the data in the memory cassette of the PLC with the exception of block No. 10 onward of the extension file registers.

3) Execute button
Click this button after setting the necessary settings.

POINTS

- Device memory all clear can only be executed when the PLC is in the STOP state
- When the data in a memory cassette is all-cleared, the range cleared is 144K bytes.
  Data beyond the 144K byte range (from extension file register block 10 onward) is not cleared.
- After all-clearing the data in a memory cassette, all of the data values in the memory cassette are "1."
  When file registers (R) are set and read after all clear, the result is HFFFF (K-1).

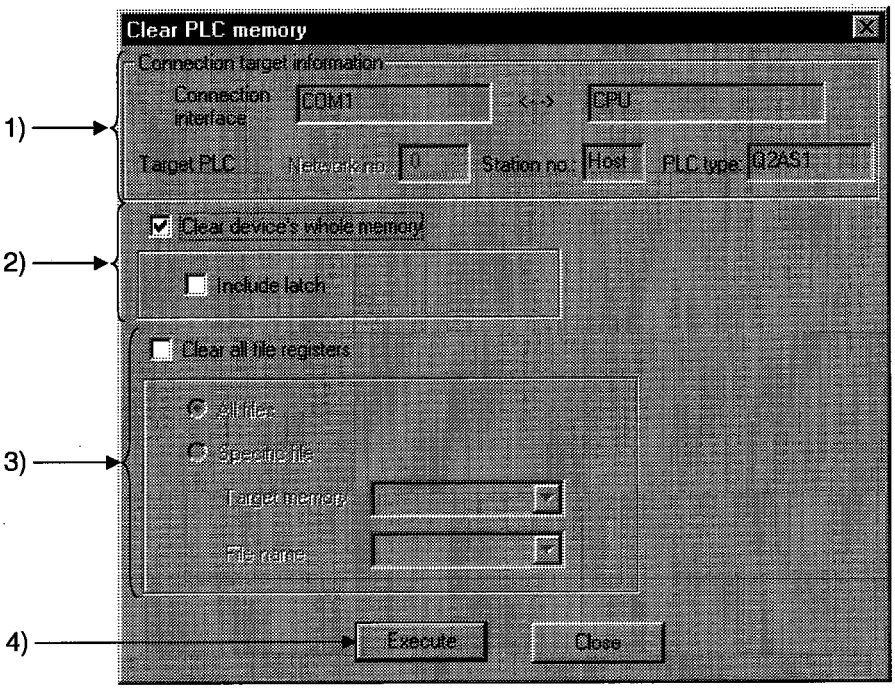
21.1.2 All-Clearing the QnACPU Device Memory

A	QnA	FX
×	•	×

[Purpose]
All-clears the device memory of a QnA series PLC.

[Operating Procedure]
Select [Online] → [Clear PLC memory].

[Dialog Box]



[Description]

1) Connection target information
Indicates information on the connection destination designation.

2) Clear device's whole memory
When this check box is checked to select it, the device memory is all-cleared.
You can set whether or not the devices designated in latch range designation are cleared.

3) Clear all file registers
Sets all file register data to "0."
The area and file names are not cleared.
To designate a file, designate the applicable memory and the file name.

4) [Execute] button
Click this button after setting the necessary settings.

POINTS

- If the latched range is included in the device memory all clear operation, the latch clear key invalid area is also cleared.
- All clear is not possible when the PLC is in the RUN state.

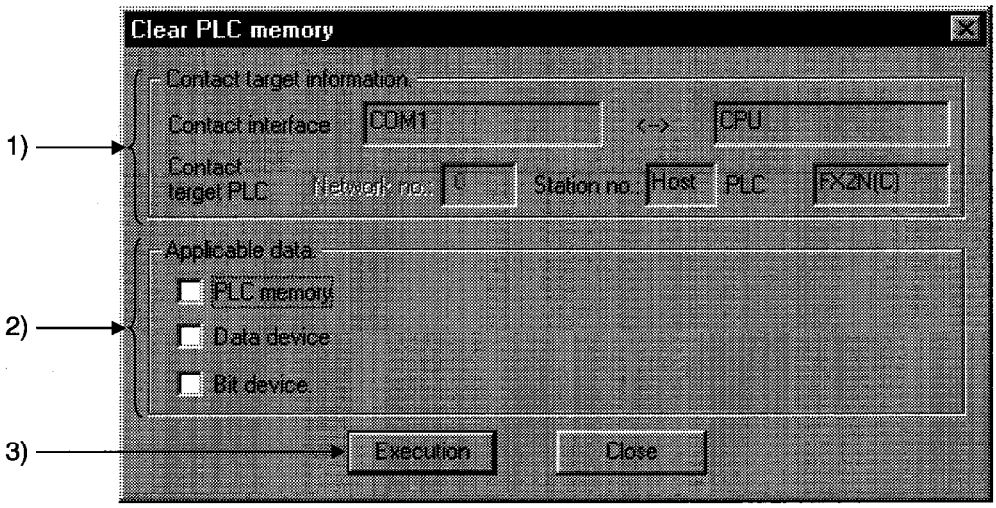
21.1.3 All-Clearing an FXCPU Memory

A	QnA	FX
×	×	•

[Purpose]
All-clears the memory in an FX series PLC.

[Operating Procedure]
Select [Online] → [Clear PLC memory].

[Dialog Box]



[Description]

1) Connect target information
Indicates information about the connection destination designation.

2) Applicable data
PLC memory
When this check box is checked to select it, all of the data in the PLC is cleared.
(Programs, comments, parameters, file registers, device memory)

Data device
When this check box is checked to select it, the registers in the PLC are cleared to "0."
(Data registers, file registers, RAM file registers, special registers)

Bit device
When this check box is checked to select it, all of the bit devices in the PLC are turned OFF.
(X, Y, M, S, T, C)
The present values of T and C devices are also set to 0.

3) Execution button
Click this button after setting the necessary settings.

POINTS

Execution conditions

- PLC memory

  Memory : Internal memory, RAM/EEPROM (protect switch: OFF) cassette. All clear cannot be executed with an EEPROM (protect switch ON) or EPROM cassette.

- Data device

  Memory : Same as the execution conditions for "PLC memory."

- Bit device

  Memory : Can be executed with all memories

Operate the PLC in the STOP state. The memory cannot be cleared in the RUN state.

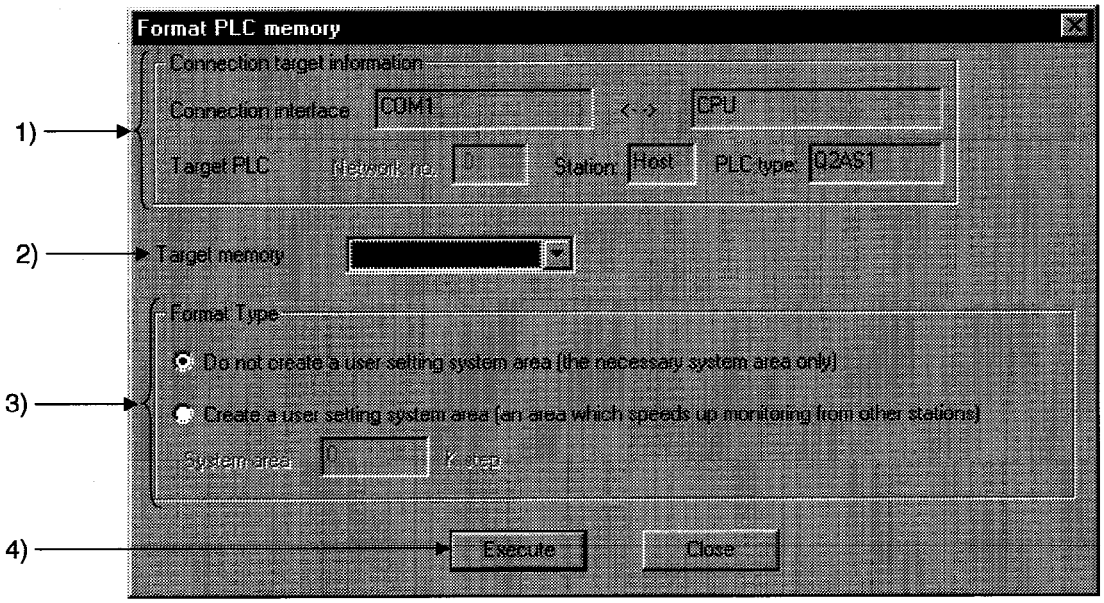
21.2 Formatting a QnACPU Memory

A	QnA	FX
×	•	×

[Purpose]
Formats the PLC internal RAM or IC memory card of QnA series models.

[Operating Procedure]
Select [Online] → [Format PLC Memory].

[Dialog Box]



[Description]

1) Connection target information
Indicates information on the connection destination designation.

2) Target memory
Sets the object of PLC memory formatting.

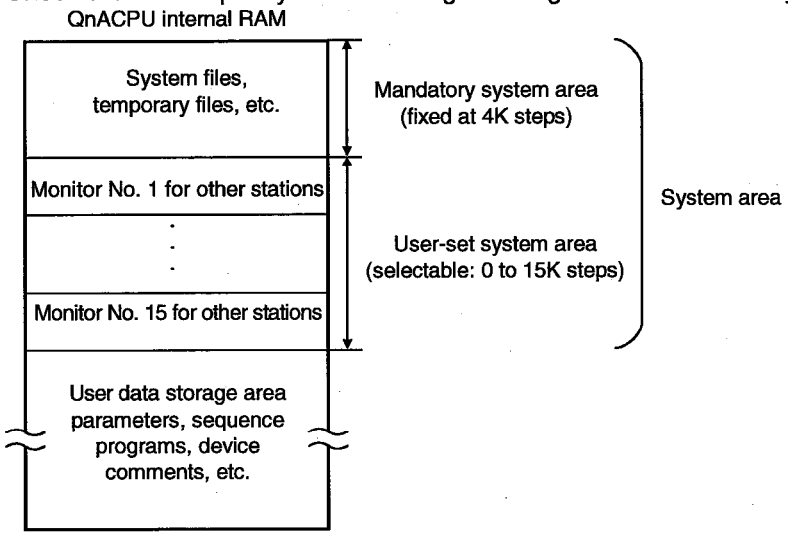
3) Format Type
⊙ Do not create a user setting system area (the necessary system area only)
Only the system area that is essential for the applicable memory is created.

⊙ Create a user setting system area (an area which speeds up monitoring from other stations)
A mandatory system area and a system area for high-speed monitoring from other stations (user-set) are created.
The setting range is 0 to 15K steps.

4) Execute button
Click this button after setting the necessary settings.

POINTS

- There are two types of system area: "mandatory" and "user-set."
  The mandatory system area is automatically created during formatting, but the user-set system area is created according to the user's required settings.
- When the user-set system area is created, the data storage area for sequence programs and other data is reduced.
  Check the data capacity before setting the range for the user-set system area.



- Files in the system area cannot be displayed as a data list.
- Create the user-set system area in the internal RAM.
  If it is set in an IC memory card, the speed of other station monitoring will not change.

21.3 Sorting the QnACPU Memory

A	QnA	FX
×	•	×

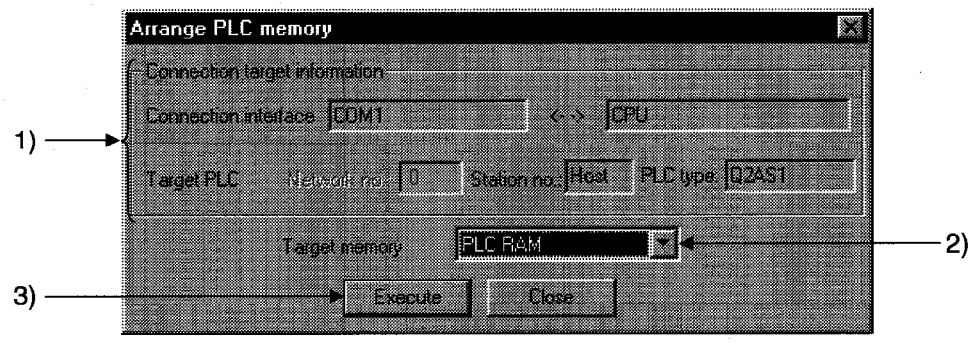
[Purpose]

Sorts the data in the internal RAM or IC memory card of a QnA series PLC to secure contiguous free memory.

[Operating Procedure]

Select [Online] → [Arrange PLC memory].

[Dialog Box]



[Description]

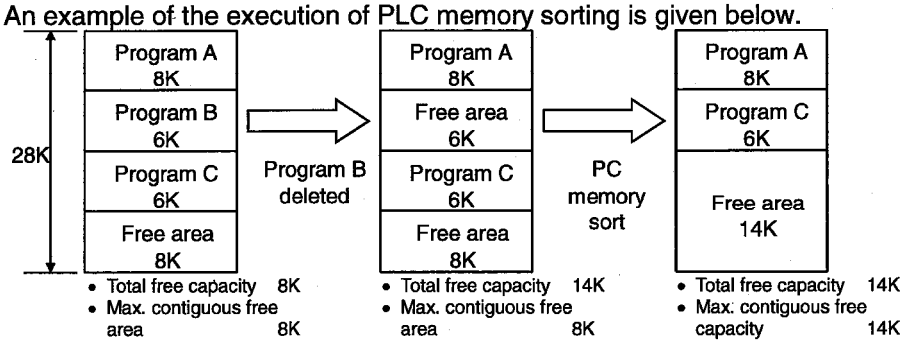
1) Connection target information
   Indicates information on the connection destination designation.

2) Target memory
   Sets the PLC memory that is to be sorted.

3) Execute button
   Click this button after setting the necessary settings.

POINT

- An example of the execution of PLC memory sorting is given below.



Note that PLC memory sorting is not possible in the following cases.

1. When the drive memory is faulty.
2. When a subfolder has been created.
3. When one file is not stored in a single contiguous area.

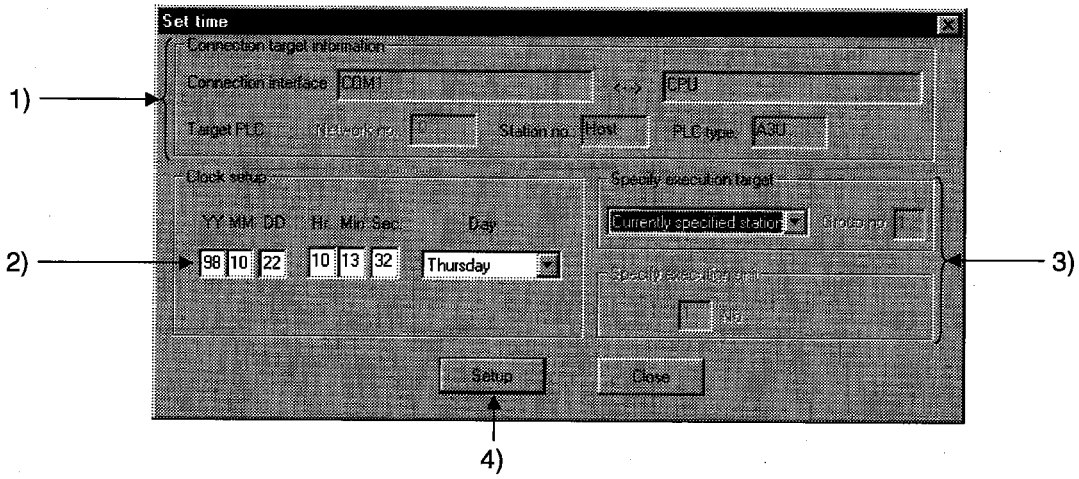
21.4 Setting for the PLC's Clock

A	QnA	FX
•	•	•

[Purpose]
Sets the time for the internal clock of the PLC.

[Operating Procedure]
Select [Online] → [Set time]

[Dialog Box]



[Description]

1) Connection target information
Indicates information on the connection destination designation.

2) Clock setup
Sets the date, time, and day of the week.

3) Specify execution target
Sets the location where the clock setting is to be made.

Currently specified station	Executed only at the station with the connection destination designation.
Specify all station	Executed at all stations of the network designated as the presently designated station. 1 to 4 modules can be set for execution module designation.
Specify group	Executed in a specific group of the network designated as the presently designated station. Set 1 to 4 modules for execution module designation and set the group number.

This setting is not possible with the FX series.

4) Setup button
Click this button after setting the necessary settings.
With the A series, clock setting can only be executed when the PLC is in the STOP state.
With the QnA series and FX series, it can be executed even when the PLC is in the RUN state.

POINTS

- Clock setting is not possible for A0J2HCPU, A2CCPU and A2CJCPU since they do not have a clock function.
- With the A series, when the applicable station is in the RUN state, first set it to the STOP state using remote operation or other means, then carry out clock setting.
- With the A series, clock setting is possible regardless of the ON/OFF setting of the special relay for clock setting "M9028."
  However, after execution, "M9208" goes OFF.
- With the QnA series, clock setting is possible regardless of the ON/OFF status of the device for clock setting "SM1028."
  Note that the ON/OFF status of "SM1028" does not change after execution.
- The applicable PLCs in the FX series are as follows.
  FX_{2N} series (internal clock)
  FX, FX_2, FX_{2C} (only when RTC cassette is mounted)
- With the FX series, clock setting is possible regardless of the ON/OFF status of the special relay for clock setting.
- Note that in clock setting, an error equivalent to the transmission time is generated.

22. DIAGNOSIS

Diagnosis displays the error statuses, fault history, etc. of the programmable controller, and carries out checks which depend on the network, including system status checks.

22.1 Diagnosing the PLC

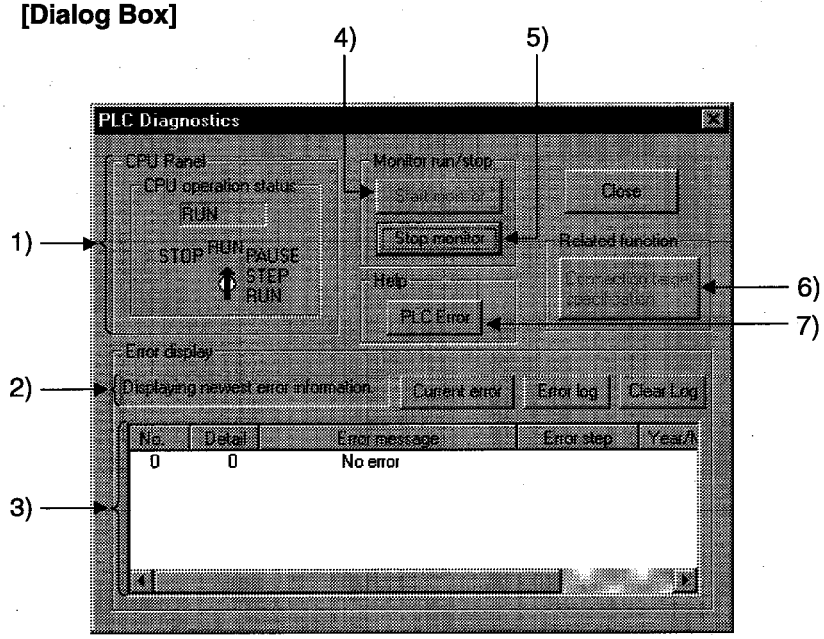
22.1.1 Diagnosing an ACPU

A	QnA	FX
•	×	×

[Purpose]
Displays the status and error codes of an A series CPU.

[Operating Procedure]
Select [Diagnostics] → [Diagnostics PLC].

[Dialog Box]



[Description]

1) CPU Panel
Indicates the status of the PLC designated as the connection destination.

2) Error display explanation
Explains whether it is the current error or the error history that is displayed in the error display field.

3) Error display
Clicking the [Current error] button displays the error that has occurred at the applicable PLC.
In the case of AnACPU or AnUCPU, clicking the [Error log] button displays up to 16 of the most recent errors.
In the case of AnACPU and AnUCPU, clicking the [Clear log] button clears the error history.

4) [Start monitor] button
Clicking this button initiates communication with the PLC and updates the display.
On clicking the [Current error] button or the [Error log] button, monitoring is automatically stopped.

5) [Stop monitor] button
Clicking this button stops communication with the PLC and holds the display.

6) [Connection target specification] button
Clicking this button displays the connection destination designation dialog box.
See Section 17.2 "Specifying the Connection Destination."

7) [PLC Error] button
Opens details of PLC errors under "help."
If there is a present error, check the error code details.

POINT

- Display and clearance of the error history is possible only with AnACPU and AnUCPU.

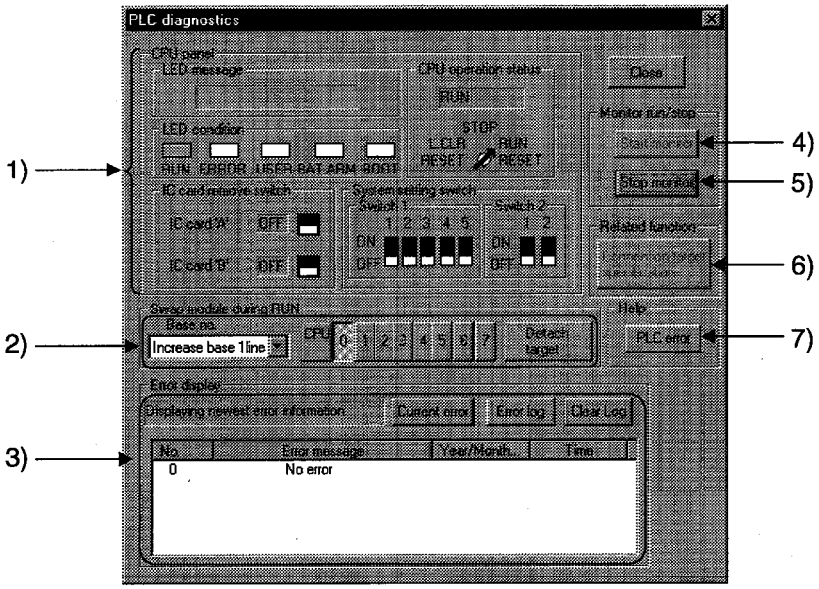
22.1.2 Diagnosing a QnACPU

A	QnA	FX
×	•	×

[Purpose]
Checks the status and errors of a QnA PLC.

[Operating Procedure]
Select [Diagnostis] → [Diagnostics PLC]

[Diagnosis]



[Description]

1) CPU panel
Indicates the status of the PLC designated as the connection destination.

2) Swap module during RUN
Set the base and slot number for the module to be mounted or removed in the RUN status, then click the Detach target button.

3) Error display
Clicking the Current error button displays the error that has occurred at the applicable PLC.
Clicking the Error log button displays up to 16 of the most recent errors.
Clicking the Clear log button clears the error history in the PLC.

4) Start monitor button
Clicking this button initiates communication with the PLC and updates the panel display.

5) Stop monitor button
Clicking this button initiates communication with the PLC and updates the display.
On clicking the Current error button or the Error log button, monitoring stops automatically.

6) Connection target specification button
Clicking this button displays the connection destination designation dialog box.
See Section 17.2 "Specifying the Connection Destination."

7) PLC error button
Clicking this button opens help relating to PLC errors.
If there is a current error, check the details of the error code.

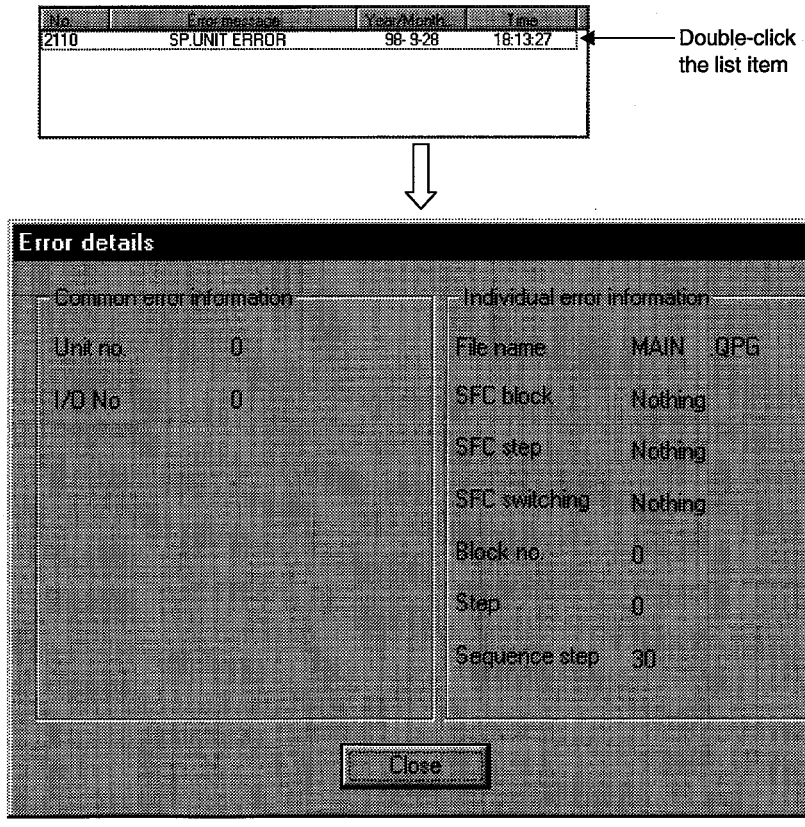
[Operating Procedure]

The procedure for mounting/removing a module in the RUN status is as follows.

1. Set the applicable base and slot at 2) and click the Detach target button: the RUN module mount/remove dialog box is displayed.
2. Mount or remove the module at the designated slot of the designated base.
3. After completing mounting/removal of the module, click the End substitution button in the RUN module mount/remove dialog box.

POINT

- By double-clicking the current error in the error display list box, the Common error information dialog box opens and displays the contents of SD5 to 15 (common information for errors), and SD16 to 26 (information on an individual error) of the PLC.



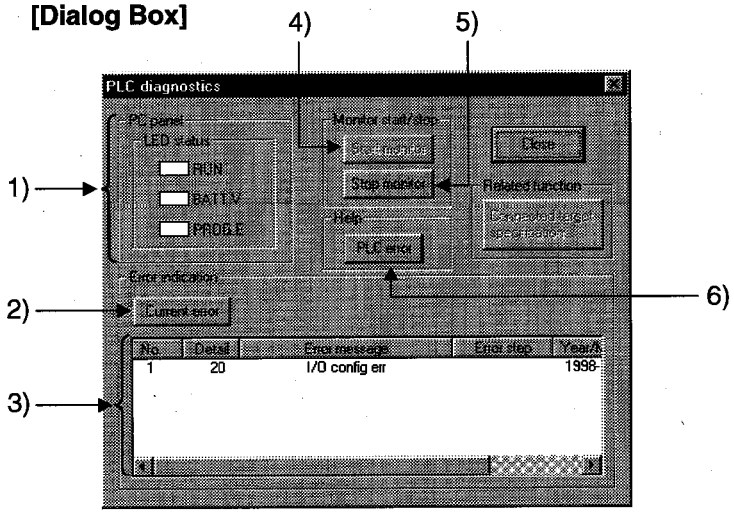
22.1.3 Diagnosing an FXCPU

A	QnA	FX
×	×	•

[Purpose]
Displays the status and error codes of an FX series PLC.

[Operating Procedure]
Select [Diagnostics] → [Diagnostics PLC].

[Dialog Box]



[Description]

1) PLC Panel
Indicates the status of the connected PLC.
RUN : Lit in green when the PLC is in the RUN status.
BATT.V : Lit in red when the voltage of the battery for memory back up has dropped.
PROG.E : Lit in red when an error has occurred (when one of the following is ON: M8061, M8064, M8065, M8066).

2) Current error button
Clicking this button displays errors that have occurred at the PLC.
The date and time values are not those when the error occurred but when the Current error button was clicked.

3) Error indication
Displays current errors at the PLC.
The error details are displayed as the error code and error message.

4) Start monitor button
Clicking this button initiates communication with the PLC and updates the display.

5) Stop monitor button
Clicking this button initiates communication with the PLC and holds the display.

6) PLC error button
Clicking this button opens help relating to PLC errors.
If there is a present error, check the details of the error code.

22.2 Diagnosing a Network

A	QnA	FX
•	•	×

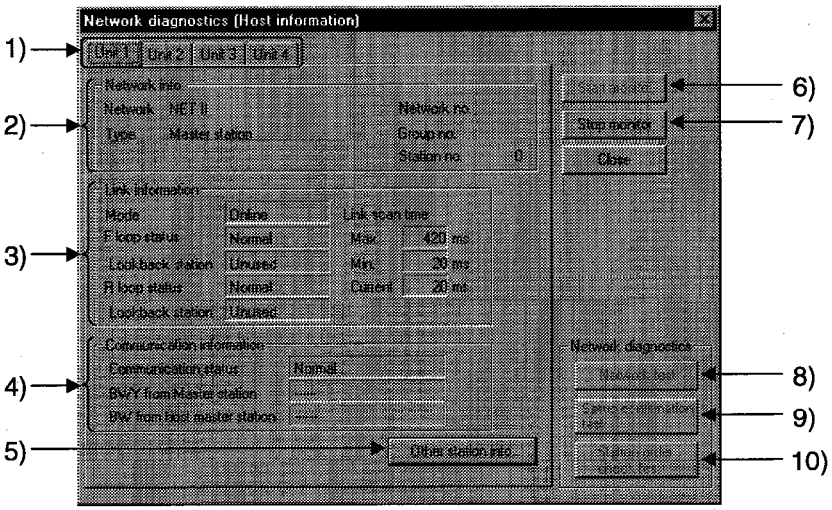
[Purpose]

Checks the status of MELSECNET (II) or MELSECNET/10 from the host station, which is designated the connection destination.

[Operating Procedure]

Select [Diagnostics] → [Diagnostics network].

[Dialog Box]



[Description]

1) Link module selection tabs
   Switch among network diagnosis result displays for the first to fourth link modules.
   With AnNCPU and AnACPU, there are only module 1 and module 2.

2) Network info.
   Indicates the network information of the host station set in connection destination designation.
   With MELSECNET (II), the network No. and group No. are not displayed.

3) Link information
   Indicates the network status.

4) Communication information
   Indicates the communication status of the applicable network.
   For MELSECNET/10, only the communication status is indicated.

5) [Other station info] button
See Section 22.2.1.

6) [Start monitor] button
Clicking this button starts the execution of network diagnosis.
During monitoring, the display is updated.

7) [Stop monitor] button
Clicking this button stops network diagnosis.
While monitoring is stopped, the display is held.

8) [Network test] button
See Section 22.2.2.

9) [Setup confirmation test] button
See Section 22.2.3.

10) [Station order check test] button
See Section 22.2.4.

POINTS

- Indicates the number of link modules that can be mounted for each network type.
  MELSECNET (II) 2
  MELSECNET/10 4
- The object of network diagnosis is the network of the connected host station. To change the network that is the object of diagnosis, change the applicable station in the connection destination designation.
- Network diagnosis is not possible if remote I/O stations are connected.
- About host station information and other station information:
  When the routing is through E71, an AnUCPU executes monitoring equivalent to that of an AnACPU, which means that MELSECNET (II) information can be monitored but MELSECNET/10 modules cannot be monitored.

22.2.1 Monitoring other station information

A	QnA	FX
•	•	×

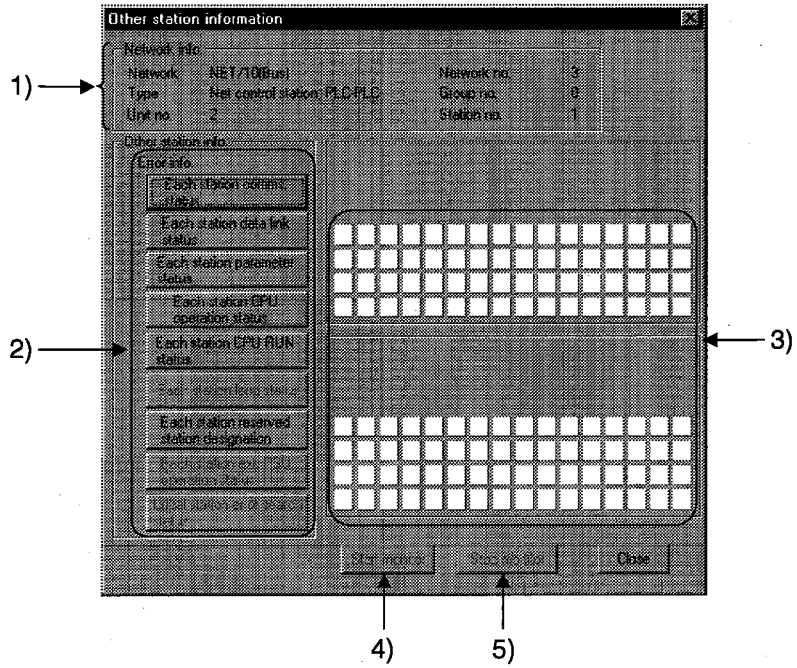
[Purpose]

Monitors other stations connected to MELSECNET(II/10).

[Operating Procedure]

Select [Diagnostics] → [Diagnostics network] → then click the Other station information button.

[Dialog Box]



[Description]

1) Network info.
Indicates the network information of the other station designated at the connection destination.

2) Error info.
At each item, "ERR" is displayed in the error information display field when a faulty station, STOP station, reserve station, or station to which external power is being supplied, is detected.
"ERR" is displayed in the error information display field.
Details are displayed at 3) in response to button selection at each item.

3) Detailed error information display field
When a station information item is selected, indicates the station status relevant to that item.

4) Start monitor button
Starts monitoring if it is stopped.
Not effective if monitoring is in progress.

5) Stop monitor button
Stops monitoring when it is in progress.
Not effective if monitoring is already stopped.

- The following other station information items cannot be selected with the A series.

		MELSECNET/10						MELSECNET(II)	
		MELSECNET/10				MELSECNET(II)			
		Control Station		Normal Station		Master Station		Master	Local
		Loop	Path	Loop	Path	Loop	Path		
1	Communication status for each station	•	•	•	•	•	•	•	X
2	Data link status for each station	•	•	•	•	•	•	X	X
3	Parameter status for each station	•	•	X	X	•	•	•	X
4	CPU operating state for each station	•	•	•	•	X	X	X	X
5	CPU RUN state for each station	•	•	•	•	X	X	•	•
6	Loop status for each station	•	X	•	X	•	X	•	X
7	Reserve station designation for each station	•	•	•	•	•	•	X	X
8	External power supply operation status for each station	X	X	X	X	X	X	X	X
9	Local station error detection status	X	X	X	X	X	X	•	X

• : Can be selected X : Cannot be selected (mask display)
: Different selection to GPPA, GPPQ possible/not possible

- The following other station information items cannot be selected with the QnA series.

		MELSECNET/10						MELSECNET(II)	
		MELSECNET/10				MELSECNET(II)			
		Control Station		Normal Station		Master Station		Master	Local
		Loop	Path	Loop	Path	Loop	Path		
1	Communication status for each station	•	•	•	•	•	•	•	X
2	Data link status for each station	•	•	•	•	•	•	X	X
3	Parameter status for each station	•	•	X	X	•	•	•	X
4	CPU operating state for each station	•	•	•	•	X	X	X	X
5	CPU RUN state for each station	•	•	•	•	X	X	•	•
6	Loop status for each station	•	X	•	X	•	X	•	X
7	Reserve station designation for each station	•	•	•	•	•	•	X	X
8	External power supply operation status for each station	•	X	•	X	•	X	X	X
9	Local station error detection status	X	X	X	X	X	X	•	X

• : Can be selected X : Cannot be selected (mask display)
: Different selection from GPPA, GPPQ possible/not possible

22.2.2 Testing a network

A	QnA	FX
•	•	×

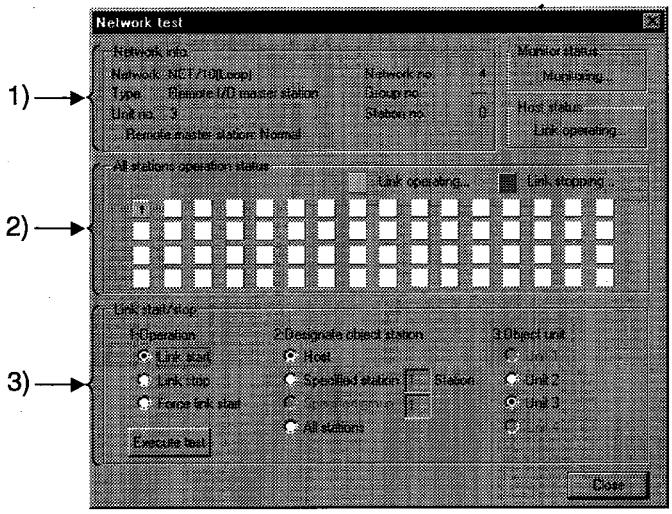
[Purpose]

Starts/stops link operation for the MELSECNET/10 host station / designated station / all stations.

[Operating Procedure]

Select [Diagnostics] → [Diagnostics network] → then click the Network test button.

[Dialog Box]



[Description]

1) Network info.
Indicates the network information of the host station designated in the connection destination designation.

2) All stations operation status
Indicates the link status of the modules for which the test is executed.

3) Link start/stop
The order of priority for link start/stop is as follows:
Link start < Link stop < Forced link start

<Start>
- Stations that have been stopped from the host station can be started.
- Stations that have been stopped from an other station cannot be started.

<Stop>
- Stations can be stopped from the host station or other stations.

<Forced start>
- Stations can be started regardless of whether they were stopped from the host station or an other station.
  However, forced starting in station units is not possible when all stations are stopped.
- Forced start is not possible when there is an other station designation for the connection destination.
- Whether or not execution is possible at a peripheral device can be checked by monitoring SB and SW; whether execution has been started/stopped at the host station can be checked by monitoring SW0000 to SW0004 and SB0000 to SB0003.
- When the connection destination is routed through C24, UC24, or QC24, execution is possible.
- Execution is not possible when using a MELSECNET (II)/MELSECNET/10 board.
- Execution is not possible with routing through E71/QE71.

22.2.3 Performing a setting confirmation test

A	QnA	FX
•	•	×

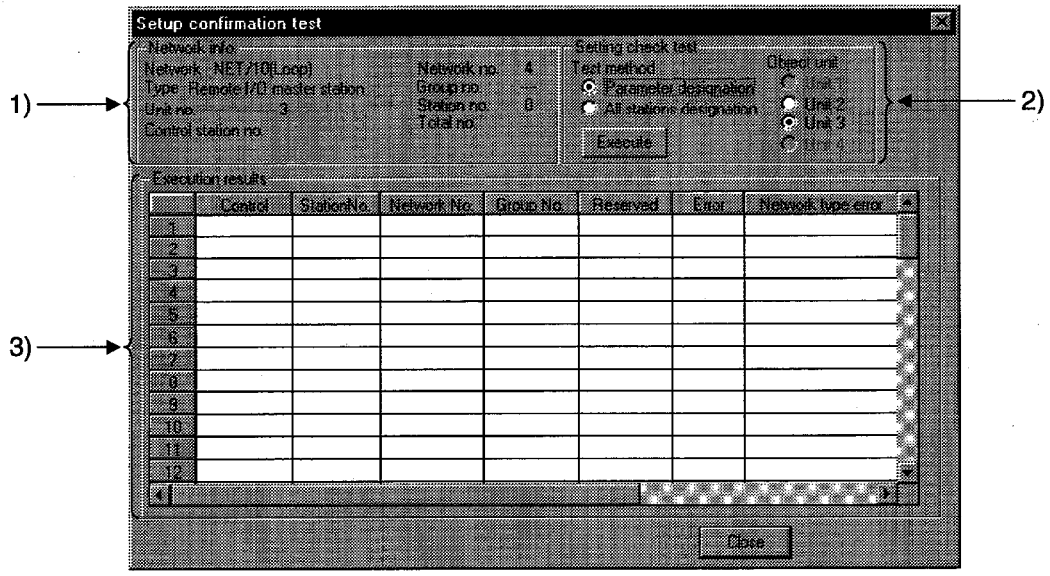
[Purpose]

Checks the status of the following settings made for each station: station number, network number, group number.

[Operating Procedure]

Select [Diagnostics] → [Diagnostics network] → then click the Setup confirmation test button.

[Dialog Box]



[Description]

1) Network info.
Indicates the network information of an other station designated at the connection destination.

2) Setting check test
⊙ Parameter designation
All the stations set in the parameters, with the exception of reserve stations, are subject to the setting confirmation test.
If no network settings have been set (default), all stations are subject to the test.
⊙ All stations designation
All stations are subject to the setting confirmation test.
There is no number of stations designation.
⊙ Object unit
The module selected for the line monitor (host station) is set as the default.
If there is no MELSECNET/10 module, an error occurs.

3) Execution results
<Station No.>
Indicates station numbers up to that subject to the setting confirmation test.
Up to 64 stations are indicated.

<Control>
If control stations have been set at two or more locations, " *" is displayed.

<Station No.>
If stations have been set at two or more locations, " * " is displayed.

<Network No. >
If the same station number has been set at two or more locations, " * " is displayed.
Stations whose network number differs from the network number of the host station are indicated in red.

<Group No.>
Indicates the group number of the station where the setting confirmation test is carried out.
In the case of a remote I/O net, the indication for stations with errors is blank.

<Reserve stations>
" * " is displayed for stations set as reserve stations in the parameters.
(Where "Parameter designation" has been set as the test execution designation.)

<Error>
If a station is reserved in the parameter settings, or a module in all station designation is faulty, " * " is displayed.

<Network type error> QnA series only
" * " is displayed for stations whose parameter setting and actual connection type do not agree.

<Multiplex remote master station duplication> QnA series only
" * " is displayed for stations where there is more than one submaster station of the same network.

<Parallel remote submaster station duplication> QnA series only
" * " is displayed for stations where there is more than one submaster station of the same network.

POINTS

- The test cannot be executed at more than one station at the same time.
- Note that cyclic transmission is stopped while the test is being executed.

22.2.4 Performing a station order confirmation test

A	QnA	FX
•	•	×

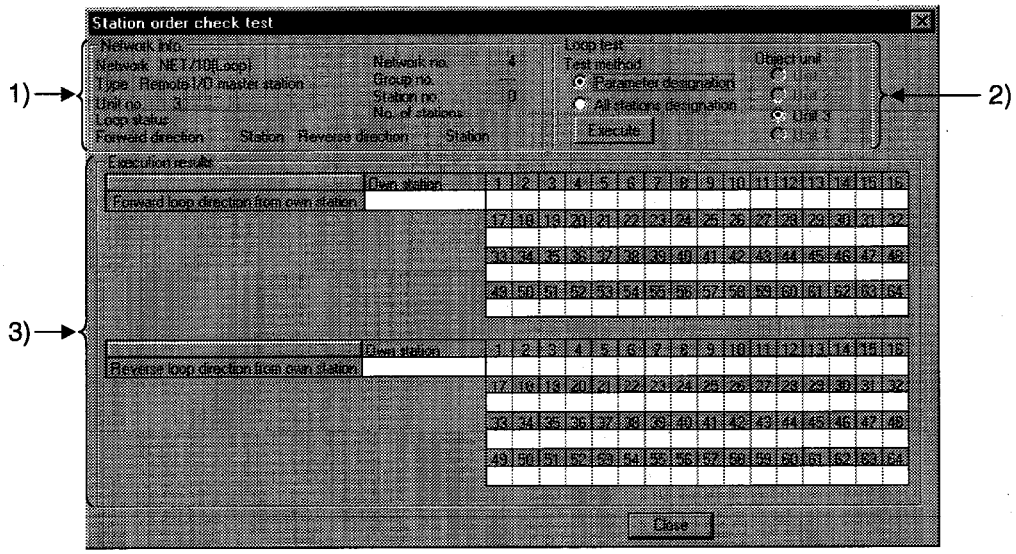
[Purpose]

Confirms the station order in the forward/reverse loops of a MELSECNET/10 system.

[Operating Procedure]

Select [Diagnostics] → [Diagnostics network] → click the Station order check test button.

[Dialog Box]



[Description]

1) Network info.
Indicates the network information of an other station designated at the connection destination.
For the loop status, the forward/reverse loop / forward loop / reverse loop / loopback status is indicated.
The total number of stations indicated is that determined by including the reserve stations in the test.

2) Loop test
⊙ Parameter designation
Stations set in the parameters, with the exception of reserve stations, are subject to the test.
If the network parameters have not been set (default), all stations are subject to the test.
⊙ All stations designation
All stations are subject to the station order confirmation test.
There is no number of stations designation.
⊙ Object unit
The module selected for the line monitor (host station) is set as the default.
If there is no MELSECNET/10 module, an error occurs.

3) Execution results
The order of stations in the forward loop direction and reverse loop direction, starting from the host station, is indicated.
For loopback, only the order in the forward loop direction from the host station is indicated.
The station numbers of reserve stations are not indicated.

POINTS

- The test cannot be executed at more than one station at the same time.
- Note that cyclic transmission is stopped while the test is being executed.

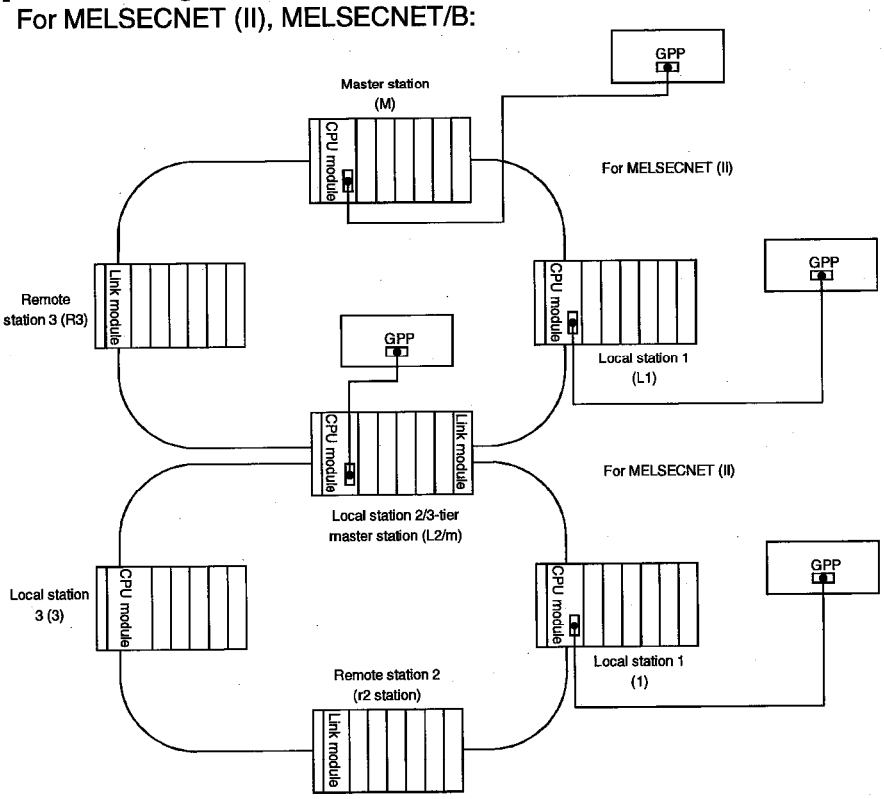
APPENDICES

Appendix 1 GPP Function Access Ranges in MELSECNET(II/10) Systems

1.1 Access Range with MELSECNET (II)

A	QnA	FX
•	•	×

[PLC No. Designation Example]
For MELSECNET (II), MELSECNET/B:



Designated PLC number

GPP-connected Station	PLC Accessed by GPP						
	M	L1	L2/m	R3	I1	r2	I3
M	•	•	•	×	×	×	×
L1	•	•	×	×	×	×	×
L2/m	•	×	•	×	•	×	•
R3	•	×	×	×	×	×	×
I1	×	×	•	×	•	×	×
r2	×	×	•	×	×	×	×
I3	×	×	•	×	×	×	•

□ ... Designating the PLC number (station number) of the relevant programmable controller allows access to all devices.

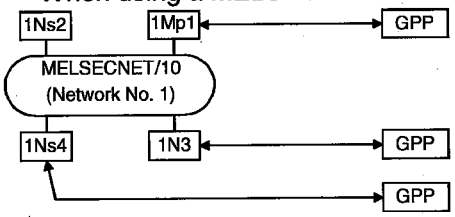
POINT

1. Even if any tier in the figure above is MELSECNET/B, the designated numbers are the same.

1.2 Access Range for an A Series Start

A	QnA	FX
•	•	×

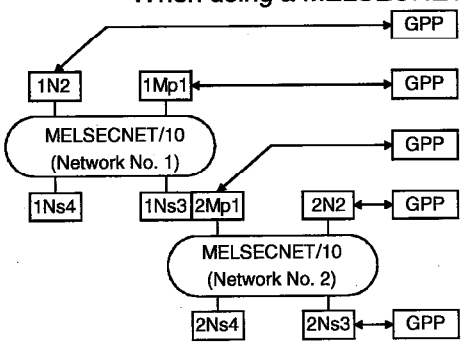
For PLC to PLC network
When using a MELSECNET/10 2-tier system:



GPP-connected station	Station Accessible from GPP			
	1Mp1	1Ns2	1N3	1Ns4
1Mp1	FF	02	03	04
1N3	01	×	FF	×
1Ns4	01	02	03	FF

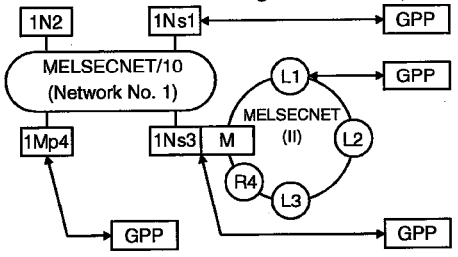
[MELSECNET/10 [PLC to PLC network]]
Mp station... Control station
Ns station... Normal station (AnUCPU)
N station..... Normal station
[CPUs excluding AnU (AnA/AnNCPU)]
[MELSECNET (II)]
M station.....Master station
L station..... Local station
R station..... Remote station
FF: Host station

- When using a MELSECNET/10 multi-tier system:



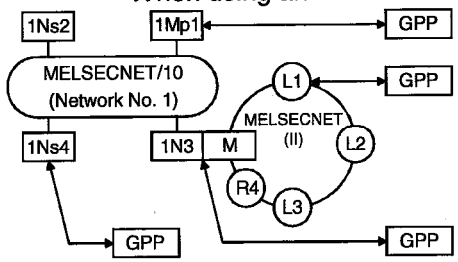
GPP-connected Station	Station Accessible from GPP						
	1Mp1	1N2	1Ns3/2Mp1	1Ns4	2N2	2Ns3	2Ns4
1Mp1	FF	02	03	04	02	03	04
1N2	01	FF	×	×	×	×	×
1Ns3/ 2Mp1	01	02	FF	04	02	03	04
2N2	×	×	01	×	FF	×	×
2Ns3	01	02	03	04	02	03	FF

- When using a MELSECNET/10 / MELSECNET(II) composite system:



GPP-connected Station	Station Accessible from GPP							
	1Ns1	1N2	1Ns3/M	1Mp4	L1	L2	L3	R4
1Ns1	FF	02	03	04	×	×	×	×
1Ns3/M	01	02	FF	04	01	02	03	×
1Mp4	01	02	03	FF	×	×	×	×
L1	×	×	00	×	FF	×	×	×

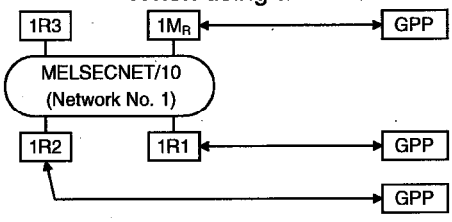
- When using an AnA/AnNCPU as an intermediate station:



GPP-connected station	Station Accessible from GPP							
	1Mp1	1Ns2	1N3/M	1Ns4	L1	L2	L3	R4
1Mp1	FF	02	03	04	×	×	×	×
1N3/M	01	×	FF	×	01	02	03	×
1Ms4	01	02	03	FF	×	×	×	×
L1	×	×	00	×	FF	×	×	×

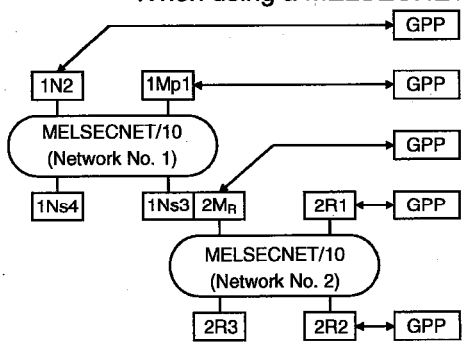
For remote I/O network

- When using a MELSECNET/10 2-tier system:



GPP-connected Station	Station Accessible from GPP			
	$1M_R$	1R1	1R2	1R34
$1M_R$	FF	×	×	×
1R1	01	×	×	×
1R2	01	×	×	×

- When using a MELSECNET/10 multi-tier system:



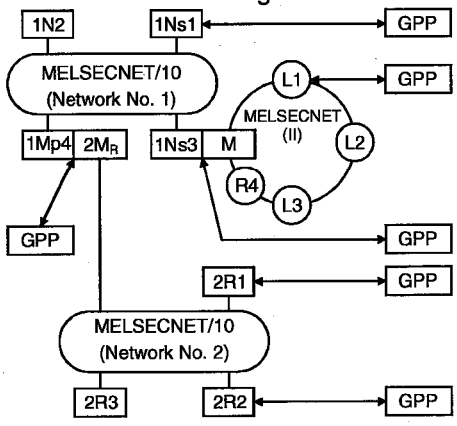
GPP-connected Station	Station Accessible from GPP						
	1Mp1	1N2	1Ns3/ $2M_R$	1Ns4	2R1	2R2	2R3
1Mp1	FF	02	03	04	×	×	×
1N2	00	FF	×	×	×	×	×
1Ns3/$2M_R$	01	02	FF	04	×	×	×
2R1	01	02	00	04	×	×	×
2R2	01	02	00	04	×	×	×

[MELSECNET/10
[PLC to PLC network]
Mp station...Control station
Ns station....Normal station (AnUCPU)
N station.....Normal station
(CPUs excluding AnU (AnA/AnNCPU)

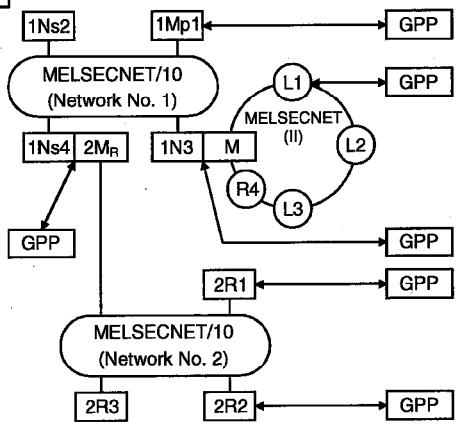
[MELSECNET/10
[Remote I/O network]
MR station...
Master station (AnUCPU)
R station.....Remote station

[MELSECNET(II)]
M station.....
Master station
L station.....
Local station
R station.....Remote station
FF: Host station

- When using a MELSECNET/10, MELSECNET (II) composite system:



GPP-connec-ted Station	Station Accessible from GPP										
	1Ns1	1N2	1Ns3 /M	1Mp4/ $2M_R$	2R1	2R2	2R3	L1	L2	L3	R4
1Ns1	FF	02	03	04	×	×	×	×	×	×	×
1Ns3/M	01	02	FF	04	×	×	×	01	02	03	×
1Mp4/ $2M_R$	01	02	03	FF	×	×	×	×	×	×	×
2R1	01	02	03	04	×	×	×	×	×	×	×
2R2	01	02	03	04	×	×	×	×	×	×	×
L1	×	×	00	×	×	×	×	FF	×	×	×



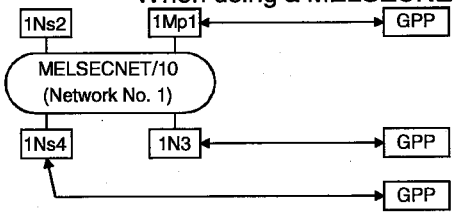
GPP-connec-ted Station	Station Accessible from GPP										
	1Mp1	1Ns2	1N3/ M	1Ns4/ $2M_R$	2R1	2R2	2R3	L1	L2	L3	R4
1Mp1	FF	02	03	04	×	×	×	×	×	×	×
1N3/M	01	×	FF	×	×	×	×	01	02	03	×
1Ns4/ $2M_R$	01	02	03	FF	×	×	×	×	×	×	×
2R1	01	02	03	04	×	×	×	×	×	×	×
2R2	01	02	03	04	×	×	×	×	×	×	×
L1	×	×	00	×	×	×	×	FF	×	×	×

1.3 Access Range for a QnA Series Start

A	QnA	FX
×	•	×

For MELSECNET/10 PLC to PLC network

- When using a MELSECNET/10 2-tier system:

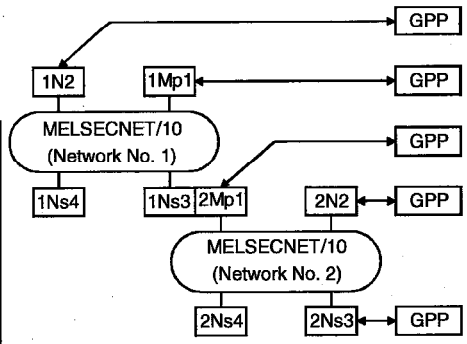


Designated PLC number

GPP-connected Station	PLC Accessed by GPP			
	1Mp1	1Ns2	1N3	1Ns4
1Mp1	FF	02	×	04
1N3	×	×	×	×
1Ns4	01	02	×	FF

×: Access not possible

- When using a MELSECNET/10 multi-tier system:



Designated PLC number

GPP-connec-ted Station	PLC Accessed by GPP						
	1Mp1	1N2	1Ns3/ 2Mp1	1Ns4	2N2	2Ns3	2Ns4
1Mp1	FF	×	03	04	×	03	04
1N2	×	×	×	×	×	×	×
1Ns3/ 2Mp1	01	×	FF	04	×	03	04
2N2	×	×	×	×	×	×	×
2Ns3	01	×	01	04	×	FF	04

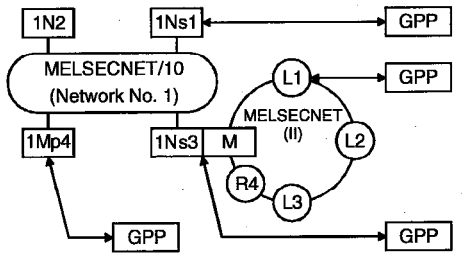
×: Access not possible

Mp station...Control station
Ns station... Normal station (QnACPU)
N station.....Normal station

[CPUs excluding QnA (AnU/AnA/AnNCPU)]

In the figure to the right, the first digit for each station indicates the network number and the final line indicates the station number.
FF: Host station

- When using a MELSECNET/10, MELSECNET (II) composite system:
(Intermediate station: QnACPU)

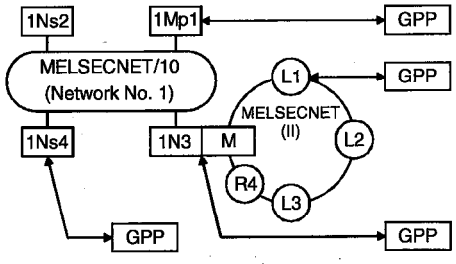


Designated PLC number

GPP-connec-ted Station	PLC Accessed by GPP							
	1Ns1	1N2	1Ns3/ M	1Mp4	L1	L2	L3	R4
1Ns1	FF	×	03	04	×	×	×	×
1Ns3/M	01	×	FF	04	01	02	03	×
1Mp4	01	×	03	FF	×	×	×	×
L1	×	×	00	×	FF	×	×	×

×: Access not possible

(Intermediate station: AnU/AnA/AnNCPU)



Designated PLC number

GPP-connec-ted Station	PLC Accessed by GPP							
	1Mp1	1Ns2	1N3/ M	1Ns4	L1	L2	L3	R4
1Mp1	FF	02	×	04	×	×	×	×
1N3/M	×	×	×	×	×	×	×	×
1Ns4	01	02	×	FF	×	×	×	×
L1	×	×	×	×	FF	×	×	×

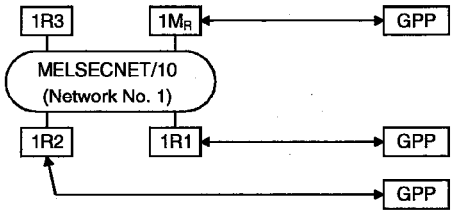
×: Access not possible

POINT

1. To access a PLC in another station, routing parameters must be set by using the GPP function.
   For details on setting network parameters, refer to the "online" manual.
   For details of the network parameters themselves, refer to the MELSECNET/10 Network System Reference Manual.

For MELSECNET/10 remote I/O network

- When using a MELSECNET/10 2-tier system



Designated PLC number

GPP-connected Station	PLC Accessed by GPP			
	1MR	1R1	1R2	1R3
1MR	FF	×	×	×
1R1	00	×	×	×
1R2	00	×	×	×

X: Access not possible

*1:
1. The following devices of a remote I/O station connected to GPPW can be monitored: X, Y, B, W.
2. Ladder monitoring, status monitoring (in remote I/O stations connected to GPPQ, the CPU connected to the master station can be monitored).
3. Loop test, setting confirmation test, station order confirmation test, communication test (testing with a remote station treated as the host station is possible).

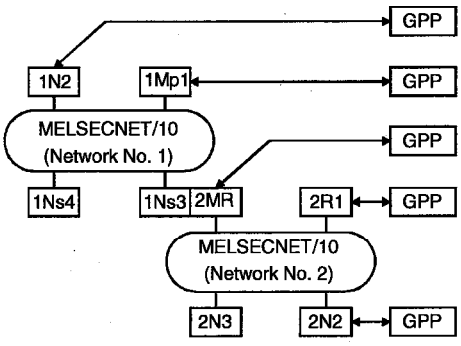
[MELSECNET/10 PLC to PLC network]
Mp station.. Control station
Ns station.. Normal station (QnACPU)
N station.... Normal station (CPUs excluding QnA (AnU/AnA/AnNCPU)

[MELSECNET/10 Remote I/O network]
MR station. Master station (QnACPU)
R station.... Remote station

[MELSECNET(II)]
M station... Master station
L station.... Local station
R station.... Remote station

In the figure to the right, the first digit for each station indicates the network number and the final line indicates the station number.
However, the station number of MR (master station) is not shown because it is "0."
FF: Host station

- When using a MELECNET/10 multi-tier system:

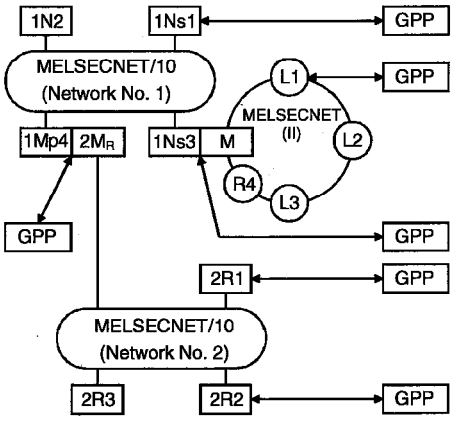


Designated PLC number

GPP-connected Station	PLC Accessed by GPP						
	1Mp1	1N2	1Ns3/2MR	1Ns4	2R1	2R2	2R3
1Mp1	FF	×	03	04	×	×	×
1N2	×	×	×	×	×	×	×
1Ns3/2MR	01	×	FF	04	×	×	×
2R1	01	×	00	04	×	×	×
2R2	01	×	00	04	×	×	×

X: Access not possible

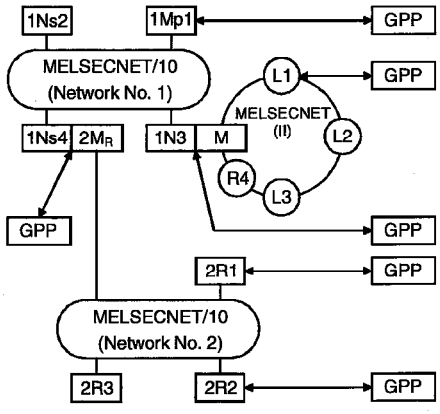
- When using a MELSECNET/10, MELSECNET (II) composite system:



Designated PLC number

GPP-connected Station	PLC Accessed by GPP										
	1Ns1	1N2	1Ns3/M	1Mp4/2MR	2R1	2R2	2R3	L1	L2	L3	R4
1Ns1	FF	×	03	04	×	×	×	×	×	×	×
1Ns3/M	01	×	FF	04	×	×	×	01	02	03	×
1Mp4/2MR	01	×	03	FF	×	×	×	×	×	×	×
2R1	01	×	03	00	×	×	×	×	×	×	×
2R2	01	×	03	00	×	×	×	×	×	×	×
L1	×	×	00	×	×	×	×	FF	×	×	×

X: Access not possible



Designated PLC number

GPP-connected Station	PLC Accessed by GPP										
	1Mp1	1Ns2	1N3/M	1Ns4/2MR	2R1	2R2	2R3	L1	L2	L3	R4
1Mp1	FF	02	×	04	×	×	×	×	×	×	×
1N3/M	×	×	×	×	×	×	×	×	×	×	×
1Ns4/2MR	01	02	×	FF	×	×	×	×	×	×	×
2R1	01	02	×	00	×	×	×	×	×	×	×
2R2	01	02	×	00	×	×	×	×	×	×	×
L1	×	×	×	×	×	×	×	FF	×	×	×

X: Access not possible

Appendix 2 MELSECNET (II/10) Board Access Range

2.1 MELSECNET/10 Board

A	QnA	FX
•	•	×

When using a MELSECNET/10 board, confirm the MELSECNET board model names and driver versions indicated below.

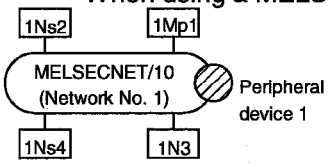
	Board	Driver
MELSECNET board for PC/AT	A70BDE-J71LP23GE(fiber optic cable)	SW1IVDWT-10P

2.1.1 "A" series start

A	QnA	FX
•	×	×

For MELSECNET/10 PLC-to-PLC network

- When using a MELSECNET/10 2-tier system:

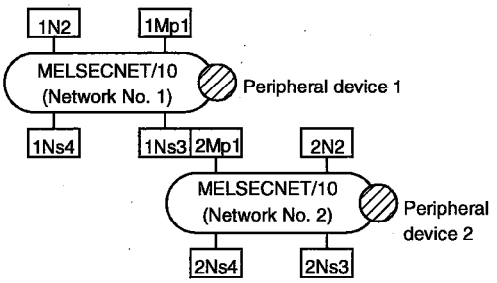


Designated PLC number

	PLC Accessed by GPP			
	1Mp1	1Ns2	1N3	1Ns4
Peripheral device 1	01	02	03	04

X: Access not possible

- When using a MELSECNET/10 multi-tier system:



Designated PLC number

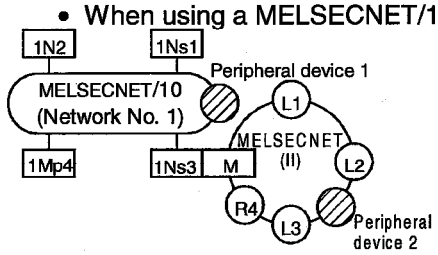
	PLC Accessed by GPP								
	1Mp1	1N2	1Ns3/ 2Mp1	Peripheral Device 1	1Ns4	2N2	2Ns3	2Ns4	Peripheral Device 2
Peripheral device 1	01	02	03	×	04	02	03	04	×
Peripheral device 2	01	02	03	×	04	02	03	04	×

X: Access not possible

Mp station..Control station
Ns station.. Normal station (AnUCPU)
N station... Normal station (CPUs excluding AnU (AnA/AnNCPU))

Peripheral devices 1 and 2 are peripheral devices that incorporate a MELSECNET/10 board.
In the figure to the right, the first digit for each station indicates the network number and the final line indicates the station number.

- When using a MELSECNET/10 / MELSECNET (II) composite system:

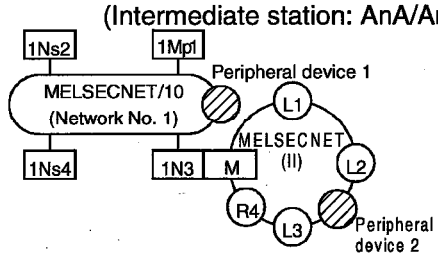


Designated PLC number

	PLC Accessed by GPP								
	1Mp1	1N2	1Ns3/ 2Mp1	1Ns4	Peripheral Device 1	L1	L2	R4	Peripheral Device 2
Peripheral device 1	01	02	03	04	×	×	×	×	×
Peripheral device 2	×	×	×	×	×	×	×	×	×

X: Access not possible

(Intermediate station: AnA/AnNCPU)



Designated PLC number

	PLC Accessed by GPP								
	1Mp1	1N2	1N3/ 2Mp1	1Ns4	Peripheral Device 1	L1	L2	R4	Peripheral Device 2
Peripheral device 1	01	02	03	04	×	×	×	×	×
Peripheral device 2	×	×	×	×	×	×	×	×	×

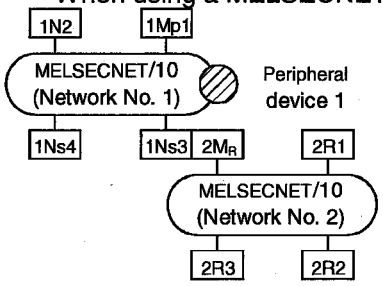
X: Access not possible

POINT

1. To access a PLC in another station, routing parameters must be set by using the GPP function.
   For details of the network parameters themselves, refer to the MELSECNET/10 Network System Reference Manual.

For MELSECNET/10 remote I/O network

- When using a MELSECNET/10 multi-tier system:

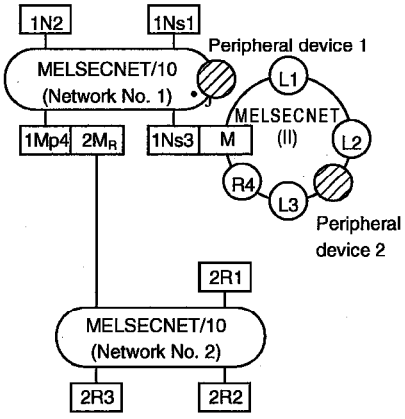


Designated PLC number

	PLC Accessed by GPP						
	1Mp1	1N2	1Ns3/ 2MR	1Ns4	2R1	2R2	2R3
Peripheral device 1	01	02	03	04	×	×	×

X: Access not possible

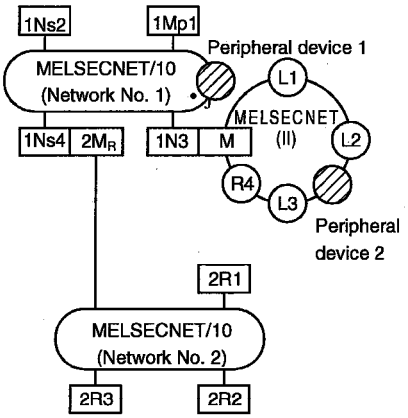
- MELSECNET/10 /MELSECNET (II) composite system



Designated PLC number

	PLC Accessed by GPP										
	1Ns1	1N2	1Ns3/ M	1Mp4/ 2MR	2R1	2R2	2R3	L1	L2	L3	R4
Peripheral device 1	01	02	03	04	×	×	×	×	×	×	×
Peripheral device 2	×	×	×	×	×	×	×	×	×	×	×

X: Access not possible



Designated PLC number

	PLC Accessed by GPP										
	1Mp1	1Ns 2	1N3/M	1Ns4/ 2MR	2R1	2R2	2R3	L1	L2	L3	R4
Peripheral device 1	01	02	03	04	×	×	×	×	×	×	×
Peripheral device 2	×	×	×	×	×	×	×	×	×	×	×

X: Access not possible

[MELSECNET/10 PC-to-PC network]
Mp station...Control station
Ns station... Normal station (AnUCPU)
N station..... Normal station
(CPUs excluding AnU (AnA/AnNCPU)

[MELSECNET/10 Remote I/O network]
MR station... Master station (AnUCPU)
R station..... Remote station

[MELSECNET(II)]
M station.....
Master station
L station.....
Local station
R station..... Remote station

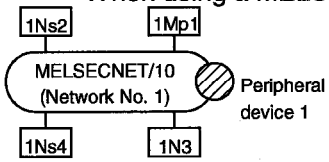
Peripheral devices 1 and 2 are peripheral devices that incorporate a MELSECNET/10 board.
In the figure to the right, the first digit for each station indicates the network number and the final line indicates the station number.
However, the station number of MR (master station) is not shown.

2.1.2 QnA series start

A	QnA	FX
×	•	×

For MELSECNET/10 PLC-to-PLC network

- When using a MELSECNET/10 2-tier system:

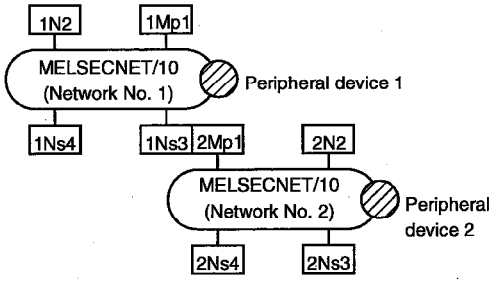


Designated PLC number

	PLC Accessed by GPP			
	1Mp1	1Ns2	1N3	1Ns4
Peripheral device 1	01	02	×	04

X: Access not possible

- When using a MELSECNET/10 multi-tier system:



Designated PLC number

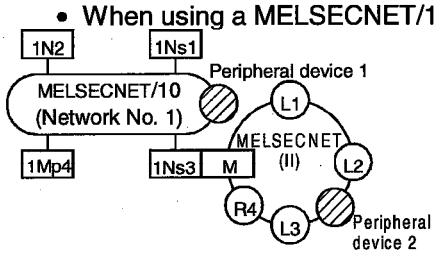
	PLC Accessed by GPP								
	1Mp1	1N2	1Ns3/ 2Mp1	Peripheral Device 1	1Ns4	2N2	2Ns3	2Ns4	Peripheral Device 2
Peripheral device 1	01	×	03	×	04	×	03	04	×
Peripheral device 2	01	×	03	×	04	×	03	04	×

X: Access not possible

Mp station..Control station
Ns station..Normal station (QnACPU)
N station... Normal station (CPUs excluding AnU (AnU/AnA/AnNCPU))

Peripheral devices 1 and 2 are peripheral devices that incorporate a MELSECNET/10 board.
In the figure to the right, the first digit for each station indicates the network number and the final line indicates the station number.

- When using a MELSECNET/10 / MELSECNET (II) composite system:

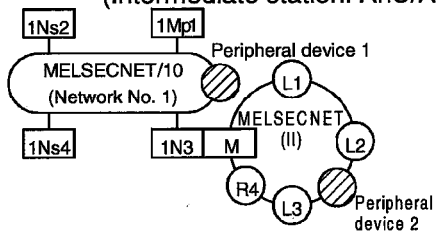


Designated PLC number

	PLC Accessed by GPP								
	1Mp1	1N2	1Ns3/ 2Mp1	1Ns4	Peripheral Device 1	L1	L2	R4	Peripheral Device 2
Peripheral device 1	01	×	03	04	×	×	×	×	×
Peripheral device 2	×	×	×	×	×	×	×	×	×

X: Access not possible

(Intermediate station: AnU/AnA/AnNCPU)



Designated PLC number

	PLC Accessed by GPP								
	1Mp1	1N2	1N3/ 2Mp1	1Ns4	Peripheral Device 1	L1	L2	R4	Peripheral Device 2
Peripheral device 1	01	02	×	04	×	×	×	×	×
Peripheral device 2	×	×	×	×	×	×	×	×	×

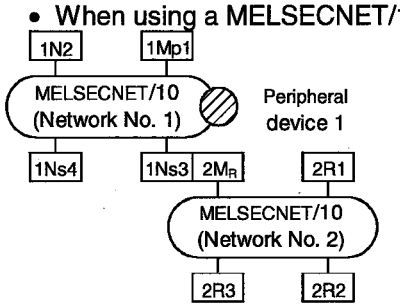
X: Access not possible

POINT

1. To access a PLC in another station, routing parameters must be set by using the GPP function.
   For details of the network parameters themselves, refer to the MELSECNET/10 Network System Reference Manual.

For MELSECNET/10 remote I/O network

- When using a MELSECNET/10 multi-tier system:

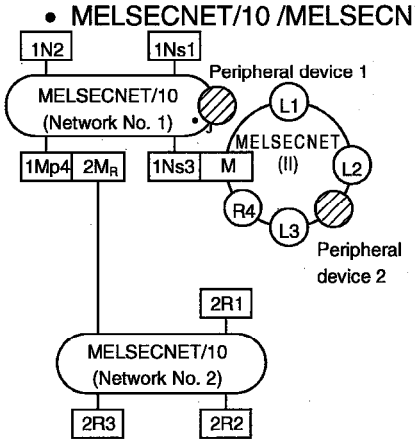


Designated PLC number

	PLC Accessed by GPP						
	1Mp1	1N2	1Ns3/ 2MR	1Ns4	2R1	2R2	2R3
Peripheral device 1	01	×	03	04	×	×	×

X: Access not possible

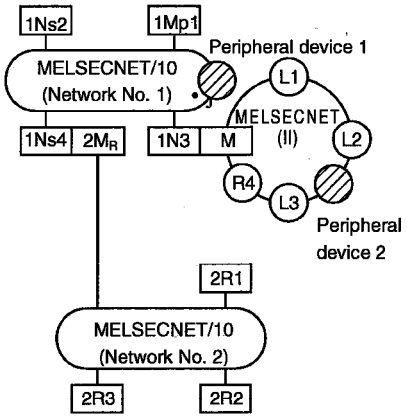
- MELSECNET/10 /MELSECNET (II) composite system



Designated PLC number

	PLC Accessed by GPP										
	1Ns1	1N2	1Ns3/ M	1Mp4/ 2MR	2R1	2R2	2R3	L1	L2	L3	R4
Peripheral device 1	01	×	03	04	×	×	×	×	×	×	×
Peripheral device 2	×	×	×	×	×	×	×	×	×	×	×

X: Access not possible



Designated PLC number

	PLC Accessed by GPP										
	1Mp1	1Ns 2	1N3/M	1Ns4/ 2MR	2R1	2R2	2R3	L1	L2	L3	R4
Peripheral device 1	01	02	×	04	×	×	×	×	×	×	×
Peripheral device 2	×	×	×	×	×	×	×	×	×	×	×

X: Access not possible

[MELSECNET/10 PC-to-PC network]
Mp station...Control station
Ns station... Normal station (QnUCPU)
N station.....Normal station (CPUs excluding QnA (AnU/AnA/AnNCPU)

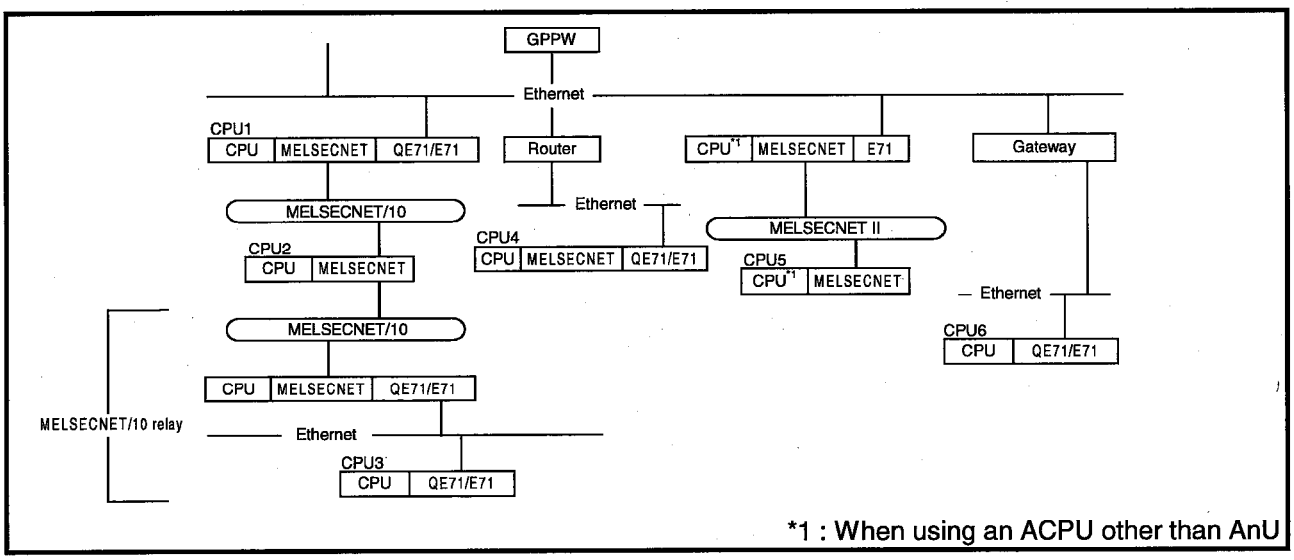
[MELSECNET/10 Remote I/O network]
M_R station... Master station (QnACPU)
R station.....Remote station

[MELSECNET(II)]
M station.....
Master station
L station.....
Local station
R station.....Remote station

Peripheral devices 1 and 2 are peripheral devices that incorporate a MELSECNET/10 board.
In the figure to the right, the first digit for each station indicates the network number and the final line indicates the station number.
However, the station number of M_R (master station) is not shown.

2.2 Access Range via an Ethernet Board

A	QnA	FX
•	•	×



- The access range to master stations/local stations/remote stations/control stations/normal stations via MELSECNET (II)/MELSECNET/10 is the same as via a PLC direct link (via MELSECNET).

Function \ Applicable PLC	CPU1	CPU2	CPU3 *1	CPU4	CPU5	CPU6
PLC read/write	•	•	•	×	•	×
Compare with PLC	•	•	•	×	•	×
Delete PLC*1	•	•	•	×	•	×
Change PLC data attributes*1	•	•	•	×	•	×
Keyword setup	•	•	•	×	•	×
Clear PLC memory	•	•	•	×	•	×
Format PLC memory*1	•	•	•	×	•	×
Arrange PLC memory *1	•	•	•	×	•	×
Set time	•	•	•	×	•	×
Remote operation	•	•	•	×	•	×
Ladder monitor	•	•	•	×	•	×
Batch monitor	•	•	•	×	•	×
Registration monitor	•	•	•	×	•	×
Buffer memory	•	•	•	×	•	×
Monitor condition/stop condition*1	•	•	•	×	•	×
Device test	•	•	•	×	•	×
Step execution	•	•	•	×	•	×
Partial execution	•	•	•	×	•	×
Skip execution*1	•	•	•	×	•	×
Sampling trace	•	•	•	×	•	×
Diagnostics PLC	•	•	•	×	•	×
Diagnostics network	•*2	•*2	•*2	×	•*2	×
Online change	•	•	•	×	•	×
Change TC setting	•	•	•	×	•	×

• : Access possible × : Access not possible
*1 : Access is possible only to QnACPU.
*2 : Only the network monitor host station and other stations can be accessed.
(AnUCPU is treated as equivalent to AnACPU.)

A series

Corresponding Models	Corresponding Versions	Remarks
AJ71E71,AJ71E71-B5	Initially shipped version and later versions	If a remote I/O is installed, or during communication, the error LED lights.
A1SJ71QE71-B2,A1SJ71QE71-B5	Initially shipped version and later versions	

QnA series

Corresponding Models	Corresponding Versions	Remarks
AJ71QE71,AJ71QE71-B5	E and later	-
A1SJ71QE71-B2,A1SJ71QE71-B5	E and later	-

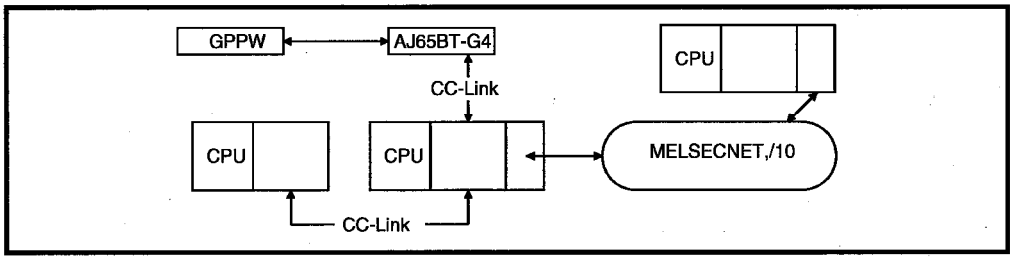
- The following restrictions apply for access to AnUCPU via Ethernet.

(1) The PLC type must be set as "AnACPU."

(2) Sequence programs, device memories, etc. can be used with the AnACPU specification range.
This means that subprogram 2, subprogram 3, devices extended with AnUCPU, and network parameters, cannot be accessed.

2.3 Access Range via CC-Link (AJ65BT-G4)

A	QnA	FX
•	•	×



- The access range to master stations/local stations/remote stations/control stations/normal stations via MELSECNET (II)/MELSECNET/10 is the same as via a PLC direct link (via MELSECNET).
- When connecting to ACPU, routing through MELSECNET (II) or MELSECNET/10 is not possible.

• : Access possible × : Access not possible - : Function not supported by ACPU

Function \ Applicable PLC	ACPU	QnACPU
PLC read/write	•	•
Compare with PLC	•	•
Delete PLC	-	•
Change PLC data attributes	-	•
Keyword setup	•	•
Clear PLC memory	•	•
Format PLC memory	-	•
Arrange PLC memory	-	•
Set time	•	•
Remote operation	•	•
Ladder monitor	•	•
Batch monitor	•	•
Registration monitor	•	•
Buffer memory	•	•
Monitor condition/stop condition	-	•
Device test	•	•
Step execution	•	•
Partial execution	•	•
Skip execution	-	•
Sampling trace	•	•
Diagnostics PLC	•	•
Diagnostics network	×	•*1
Online change	•	•
Change TC setting	•	•

*1 : Only the network monitor host station and other stations can be accessed. (AnUCPU is treated as equivalent to AnACPU.)

Confirm that the AJ65BT-G4 is running one of the following software versions.

CPU	Module Name	AJ65BT-G4 Software Version
ACPU	AJ65BT-G4	A and later
QnACPU		B and later

2.4 Access Range via C24, UC24

A	QnA	FX
•	×	×

The restrictions on each of the functions that can be used via C24 or UC24 is indicated below.

- The access range to master stations/local stations/remote stations/control stations/normal stations via MELSECNET (II)/MELSECNET/10 is the same as via a PLC direct link (via MELSECNET).

PLC	Computer Link Module
AnACPU	AJ71C24-S6/S8,A1SJ71C24-R2,A1SJ71C24-PRF
AnUCPU	AJ71UC24,A1SJ71UC24-R2,A1SJ71UC24-R4,A1SJ71UC24-PRF

Function \ Applicable PLC	ACPU
PLC read/write	•
Compare with PLC	•
Delete PLC	–
Change PLC data attributes	–
Keyword setup	•
Clear PLC memory	×
Format PLC memory	–
Arrange PLC memory	–
Set time	•
Remote operation	•
Ladder monitor	•
Batch monitor	•
Registration monitor	•
Buffer memory	×
Monitor condition/stop condition	–
Device test	•
Step execution	×
Partial execution	×
Skip execution	–
Sampling trace	×
Diagnostics PLC	•
Diagnostics network	×
Online change	×
Change TC setting	•
Clear Log	×
Log	×

•: Access possible x,– : Access not possible

The restrictions when executing ladder monitoring, batch monitoring, registration monitoring, device tests, or TC set value changes from a PLC via a computer link module are indicated below.

Connected PLC \ Computer Link	For AnACPU *2	For AnUCPU
AnACPU	•	•
AnUCPU	Possible within AnACPU range *1	•
Other than AnACPU, AnUCPU	•	•

*1 : Network parameters cannot be read.

*2 : When for AnA (C24) has been designated in connection destination designation when using a computer link module for AnUCPU.

- Setting of transmission specification setting switch

The setting switches at the C24 side are shown below.

Setting Item	Setting Made	Remarks
Main channel setting	RS-232C	–
Data bit setting	8 bits	–
Transmission speed	Match with setting at GPPW	–
Parity yes/no setting	Match with setting at GPPW	–
Even/odd parity	Match with setting at GPPW	–
Stop bits	1 bit	–
Sum check yes/no	Match with setting at GPPW	–
Online program change (write during RUN) yes/no	Match with setting at GPPW	–
Send side terminal resistor yes/no	Depends on system configuration *1	–
Receive side terminal resistor yes/no	Depends on system configuration *1	–
Computer link/multidrop setting	Computer link	AJ71UC24 A1SJ71UC24-R4 A1SJ71C24-R4

*1 : Refer to the Computer Link/Multidrop Link Module User's Manual (Computer Link/Function, Printer Function).

2.5 Access Range via QC24

A	QnA	FX
×	•	×

The restrictions on each function during access via QC24 is indicated below.

Function \ Applicable PLC	QnACPU
PLC read/write	•
Compare with PLC	•
Delete PLC	•
Change PLC data attributes	•
Keyword setup	•
Clear PLC memory	•
Format PLC memory	•
Arrange PLC memory	•
Set time	•
Remote operation	•
Ladder monitor	•
Batch monitor	•
Registration monitor	•
Buffer memory	•
Monitor condition/stop condition	•
Device test	•
Step execution	•
Partial execution	•
Skip execution	•
Sampling trace	•
Diagnostics PLC	•
Diagnostics network	•
Online change	•
Change TC setting	•

• : Access possible