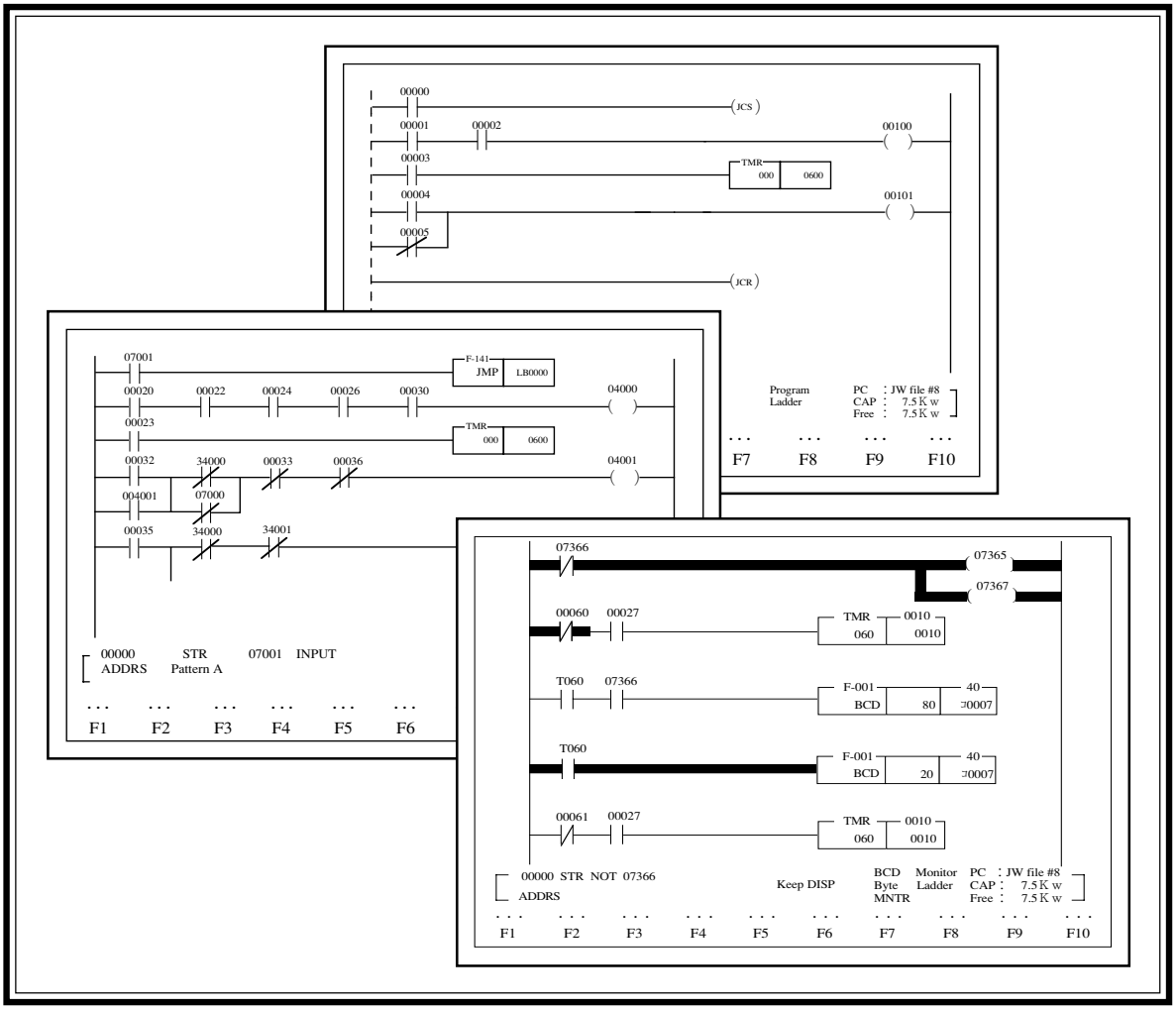
SHARP®

Version 2.1-2
Produced in July. 1997

Ladder Software

Model: JW-50SP

Instruction Manual



Available with software version 5.6AI

Thank you for purchasing the JW-50SP Ladder Software.
Read this manual thoroughly to completely familiarize yourself with the operation according to the examples.
Keep this manual for future reference. We are confident that this manual will be helpful whenever you encounter a problem.
Refer to "Structural programming manual" for explanation about structured programming of JW-50SP.

Note

★This manual describes the version 5.3I of JW-50SP.

★In this manual, only essential areas of the screen are shown for indication. Therefore, the indication of each description may be different from the actual screen display.

★In this manual, programmable controller is referred to as "PC."

Note

- This manual was written with the utmost care, if you have any questions, contact your dealer or our service company.
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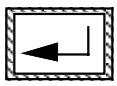
- The software and the contents of this manual are subject to change without prior notice.
- The user is also requested to take note in advance that we assume no responsibility for any damage or loss which may eventually be caused to the user as a result of use of this software or for any claim by third parties.

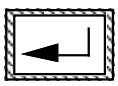
How to install "JW-50SP Ladder Software"

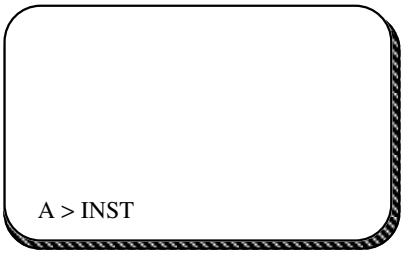
1. Insert ' "**Ladder Software diskette**" into the floppy disk drive.

→ Input A: →



2. Input INST →





Copying the contents of the diskette to hard-disk (for about 5 minutes)

System requirements

Personal computer	IBM PC/AT or compatible
Display adapter	VGA or compatible
Hard disk (available disk space)	2.5 Mbytes or more
EMS memory	256 Kbytes or more
Conventional memory	470 Kbytes or more
Floppy disk drive (3.5")	1
RS-232C port	1
Printer port	1

JW-50SP Ladder software
Instruction manual

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JW-50SP Ver. 5.6A-I additional functions

As of February 1997

The JW-50SP, Ver. 5.6A-I, has the following additional functions:

1) Applies to the new JW30H models (JW-31CUH1/32CUH2/33CUH1/33CUH2/33CUH3)
2) Expanded number of relay points for the JW50H/70H/100H

In order to use the JW-50SP Ver. 5.6A-I, approximately 5 M-bytes of hard disc, 256 K-bytes of EMS memory, and 470 K-bytes of RAM are required.
Also, at least 15 files must be opened to start this program. Set the minimum number of files in "config.sys" to at least 20. (A minimum number of files = 30 is recommended, when taking into consideration the use of this program with other application software.)

[1] Application to the new JW30H models

Version 5.5 can be used with the new control modules JW-31CUH1/32CUH2/33CUH1/33CUH2/33CUH3 for the JW30H series, as well as to the conventional control modules JW-31CUH/32CUH/33CUH.

Please note the following points for the related functions:

(1) Model selection (See page 7·2 in this manual for details about operation procedures)

The table below shows the correspondance between the model names used for the JW-50SP and those used for the JW30H control modules.

Name of PC	Name of control modules		Name of models in the JW-50SP
	Conventional models	New models	
JW30H	JW-31CUH	JW-31CUH1	JW-31H/H1
	JW-32CUH	JW-31CUH2	JW-32H/H1
	JW-33CUH	JW-33CUH1	JW-33H/H1
	–	JW-33CUH2 JW-33CUH3	JW-33H2/H3

When an conventional model is replaced with a new models without clearing memory, the memory content will be as per the JW31H/32H/33H (conventional models) described in the user's manual. However, when a JW50/70/100 or JW50H/70H/100H model is changed to a JW33H2/33H3, files from 4 to F in the programs will be referenced as files 10 to 1B, and vice-versa.

(2) Setting a program indication area

Select a file number to be used as program memory when the JW33H2/H3 is used as the PC.

[Operation outline]

"Initial setting" → "specified value setting" → "program indication area" →
select either "0 to 31.5 Kw (#8)" or "31.5 to 63.0 Kw(#9)"

When "0 to 31.5 Kw (#8)" is selected, the program address will be 00000 to 76777. When "31.5 to 63.0 Kw(#9)" is selected, it will be 1000,00 to 176777.

(3) Setting the communication baud rate when communicating with a PC

When a new JW30H model (JW-31CUH1/32CUH2/33CUH1/33CUH2/33CUH3) is used as a main programmable controller, one of two communication baud rates can be selected.

[Operation outline]

"Initial setting" → "communication setting" → "connection with PC main body" →
select either "standard (19.2 Kbps)" or "high speed (115.2 Kbps)"

"High speed (115.2 Kbps)" can be selected only when the personal computer can support the 115.2 Kbps communication baud rate. If it cannot, the personal computer will communicate at 19.2 Kbps, even if the high-speed (115.2 Kbps) is selected.

(4) File memory area assignment

When a JW32H/H1, JW33H/H1, or JW33H2/H3 is used as a programmable controller, a seperate file area can be assigned for each "memory clear," "PC transfer," or "FD transfer" operation.

[Operation outline]

"Program edit" → "memory clear" → "file memory" →
select "yes" → enter the first file number → (→) → enter the last file number

The same procedure can be used for "PC transfer" and "FD transfer" operations to assign file areas.

[2] Relay point expansion in the JW50H/70H/100H

When a JW50H/70H/100H is used as a PC, the number of relay points can be expanded from 20000 to 57777.

[Operation outline]

"Initial setting" → "specified value setting" → "relay point expansion" →
select "yes" or "no"

When "yes" is selected, the top 1 Kbytes (file address 000000 to 001777) of file 1 and file 2 can be assigned as the relay area 20000 to 57777 (expanded relay area: 16384 points). Each instruction in the expanded relay area takes the space of a 2-word instruction.

The following points must be noted when using the expanded relay area:

(1) Byte addresses and file addresses

The relation between byte addresses and file addresses in the expansion area is shown in the table below.

Relay	Relay number	Byte address	File number	File address
Standard relay	00000 to 15777	000 to 1577	File 0	000000 to 001577
Expansion relay	20000 to 35777	_	File 1	000000 to 001777
	40000 to 55777	_	File 2	000000 to 001777

(2) Instruction processing time

The instruction processing time of the expansion relay is shown below:

STR, STR NOT, AND, AND NOT, OR, OR NOT: Approximately 0.7 μs (0.25 μs for standard relays)

OUT : Approximately 0.95 μs (0.48 μs for standard relays)

(3) Memory clear of expanded relay area

To clear the memory of the expanded relay area, clear both file 1 and file 2.

(4) Expansion relay area 40000 to 57777

An expansion relay area, 40000 to 57777, can only be used when either a JW-3MAH or JW-4MAH memory module has been installed. Therefore, this area cannot be used with the JW50H module.

(5) Use of the expansion relay area with application instructions

The expansion relay area cannot be used by instructions which are used to assign relay numbers, including F-32 (SET), F-33 (RST), F-260 (RTMR), or F-261 (RCNT).

(6) Sampling trace

When a sampling trace is used, the expansion relays cannot be used for trace data or trigger conditions.

(7) Forced set/reset

A forced set/reset cannot be performed for the expansion relays.

(8) Break

A break cannot be set in an expansion relay.

(9) Display using a hand-held programmer

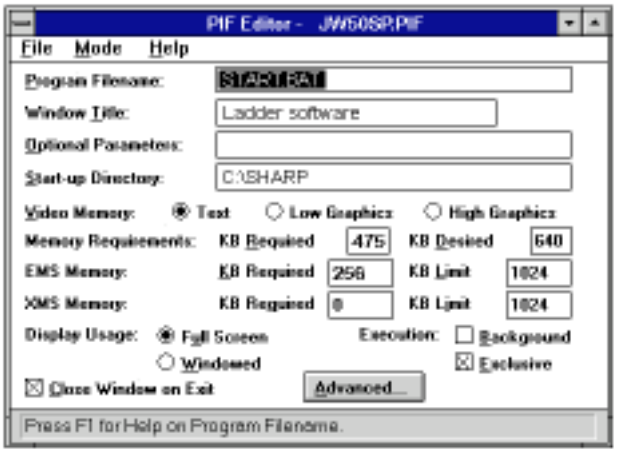
A hand-held programmer, such as the JW-13PG, does not display the expansion relay area normally. (Be sure to use ladder software when using the expansion relay.)

Cautions when using the software with Windows DOS

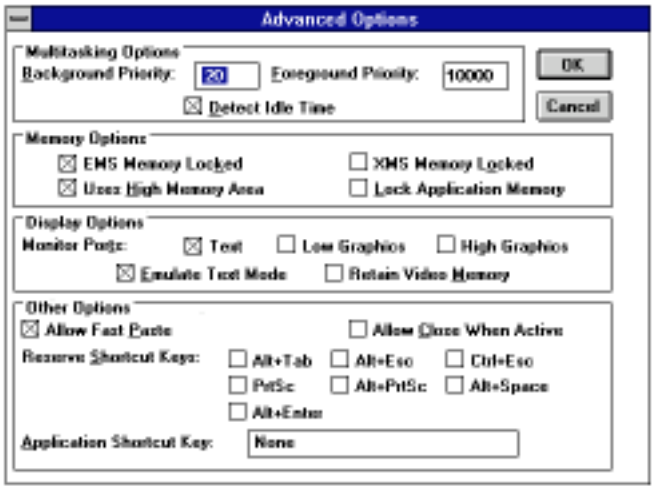
The following items must be set when using this ladder software in Windows DOS. Refer to the Windows user's manual for details about the setting procedures.

[1] When using Windows 3.1

Set the following items using the PIF editor.
"Program Filename" : START.BAT
"Start-up Directory" : C:\SHARP
(Enter the directory where JW50SP is installed)
"Memory Requirements" KB Required: 475 Kbytes
"EMS Memory" KB Required : 256 Kbytes
Check "Exclusive Execution" and "Close Window on Exit."



In the "Advanced Options"
Set the "Foreground Priority" in the "Multitasking Options" area to 10000.

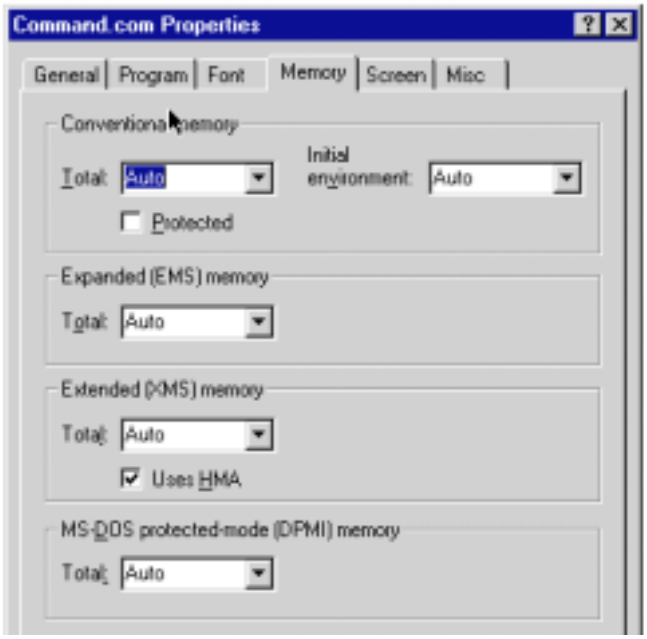


[2] When using Windows95

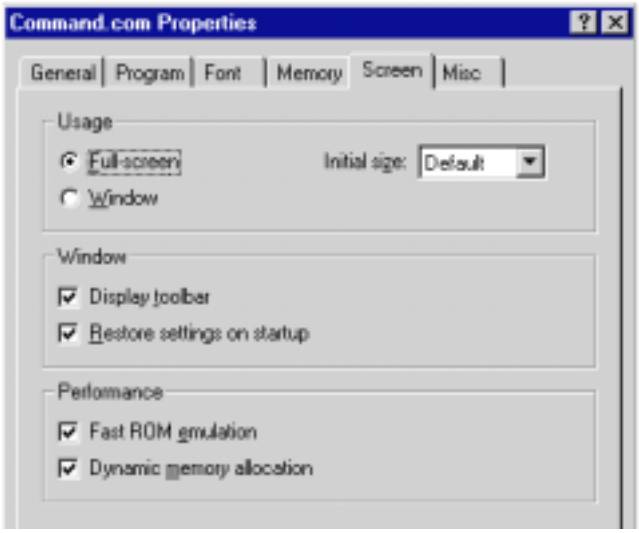
Set the properties of the START.BAT as follows. (In order to set the "Command.com Properties," highlight "START.BAT" using the explorer and then click the right mouse button. Refer to the Windows95 user's manual for details.)

Enter the directory name where the program is installed on the "Cmd line" and "Working" directory fields in the "Program" tab.
Be sure to enter "DOSIME" for the "Batch file."
Choose "Maximum" in the "Run" size column.
Check "Close on exit."

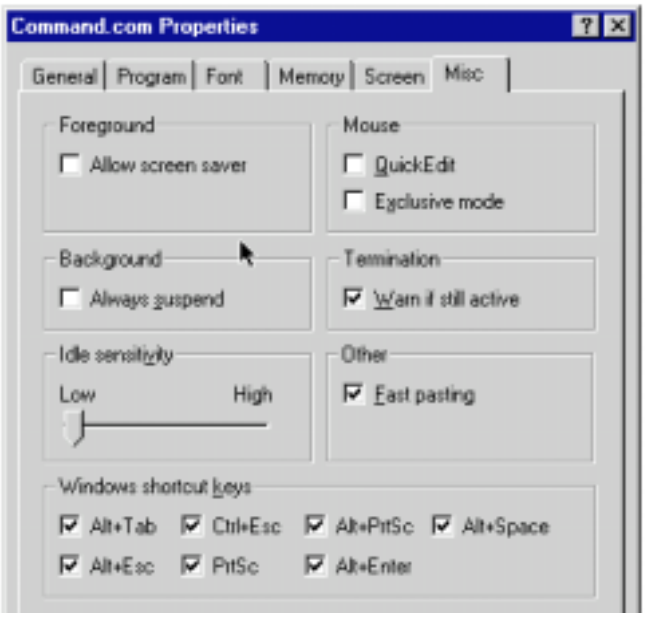
Set all the entries for the "Memory" items to auto.



Check "Full-screen" display in the “Usage” area on the "screen" tab.
Set the "Window" and "Performance" fields if it is necessary. (The figure on the right shows one example.)



Do not check "Allow screen saver" for the "Foreground" setting on the "Misc" items. (A screen saver should not be used.)
Set the "Idle sensitivity" slide to low.
Set items such as "Mouse," "Background," "Termination," "Other," and "Windows shortcut keys" if it is necessary. (The figure on the right shows one example.)



Chapter 1 Features and functions

This software is used with personal computers compatible with IBM PC/AT (alias DOS/V) (hereinafter referred to as "personal computer") for program editing, parameter setting, monitoring, PC transfter, printing, etc. of a programmable controller.

1-1 Features

(1) Entering contact or coil symbol/comment are available.

- Symbol and comment can be registered for contacts and coils as easily as on a word processor, serving to improvement of maintainability.

(2) Abundant program editing functions.

- Abundant editing functions such as moving and copying of circuits, registration of standard circuits, etc. minimize the time required for programming. Moreover, the library function is enhanced so you can create similar circuits very quickly.

(3) Variety of printing functions.

- Making precision drawings with titles for ladder diagrams, instruction words, system memory, symbol and comment is possible within a short time.
  Selectable printing function for each application such as cross reference, yes/no of title column, high resolution/high speed, or with symbol/comment.

(4) Possibility of centralized control and remote-controlled monitoring of program with the use of network module (ZW-20AX) or ME-NET module (JW-90MN).

- If ZW-20AX or JW-90MN is mounted on a personal computer, it enables high-speed communication with another personal computer loaded with either a network module (ZW-20CM, JW-20CM/22CM) or a ME-NET module (ZW-20CM2, JW-20MN/21MN). Moreover, it also realizes centralized control because monitoring of other station on a satellite network or a ME-NET is possible.
  [ME-NET is a communication network connecting between different models of different manufacturers of equipment control devices promoted by the initiative of Toyota Motor Co., Ltd.]

(5) Possibility of remote-controlled programming and remote-controlled monitoring with the use of satellite network/ME-NET/SUMINET-3200.

- By connecting SUMINET-3200 to either a network module (ZW-20CM/30CM, JW-20CM/22CM) or a ME-NET module (ZW-20CM2, JW-20MN/21MN), it becomes possible to perform programming or monitoring of other PC (JW20, JW20H, JW30H, JW50/70/100, JW50H/70H/100H) connected on the satellite network/ME-NET/SUMINET-3200, realizing centralized maintenance control.
  Moreover, by connecting to a remote I/O slave module (ZW/JW-20RS), it becomes possible to perform programming or monitoring of master station PC (JW20, JW20H, JW30H, JW50/70/100, JW50H/70H/100H), enabling smooth execution of test run and maintenance of the equipment.
  [SUMINET-3200 is a registered trademark of Sumitomo Electric Industries, Ltd.]

(6) Debugging function demonstrating great power in test run and case of occurrence of abnormality.

- Measurement of tact time, detection of cause of failure, etc. can be made smoothly thanks to the possibility of sampling and storing any optional ON/OFF information of relay at any desired frequency and indicating it in time chart.

(7) Possibility of programming with step-flow instruction (JW20/20H).

- This is a convenient instruction enabling sequential design with preparation of an operation chart of machine only. It demonstrates excellent power in many different phases of design, test run and maintenance.

(8) Structured program (JW30H).

- The programs can be prepared by sharing in blocks for failure treating section, operating section, data processing section, etc. and then combined together. For the details, refer to the "JW-50SP Structural programming manual". (See page 7•9, 44.)

(9) Number notation selectable (JW10, JW30H).

- Data memory addresses, program memory addresses, constants for application instructions, etc. can be set and monitored in octal, decimal or hexadecimal notation. You can perform programming using the desired number notation. (Refer to "7-7 System memory set".)

1-2 Functions

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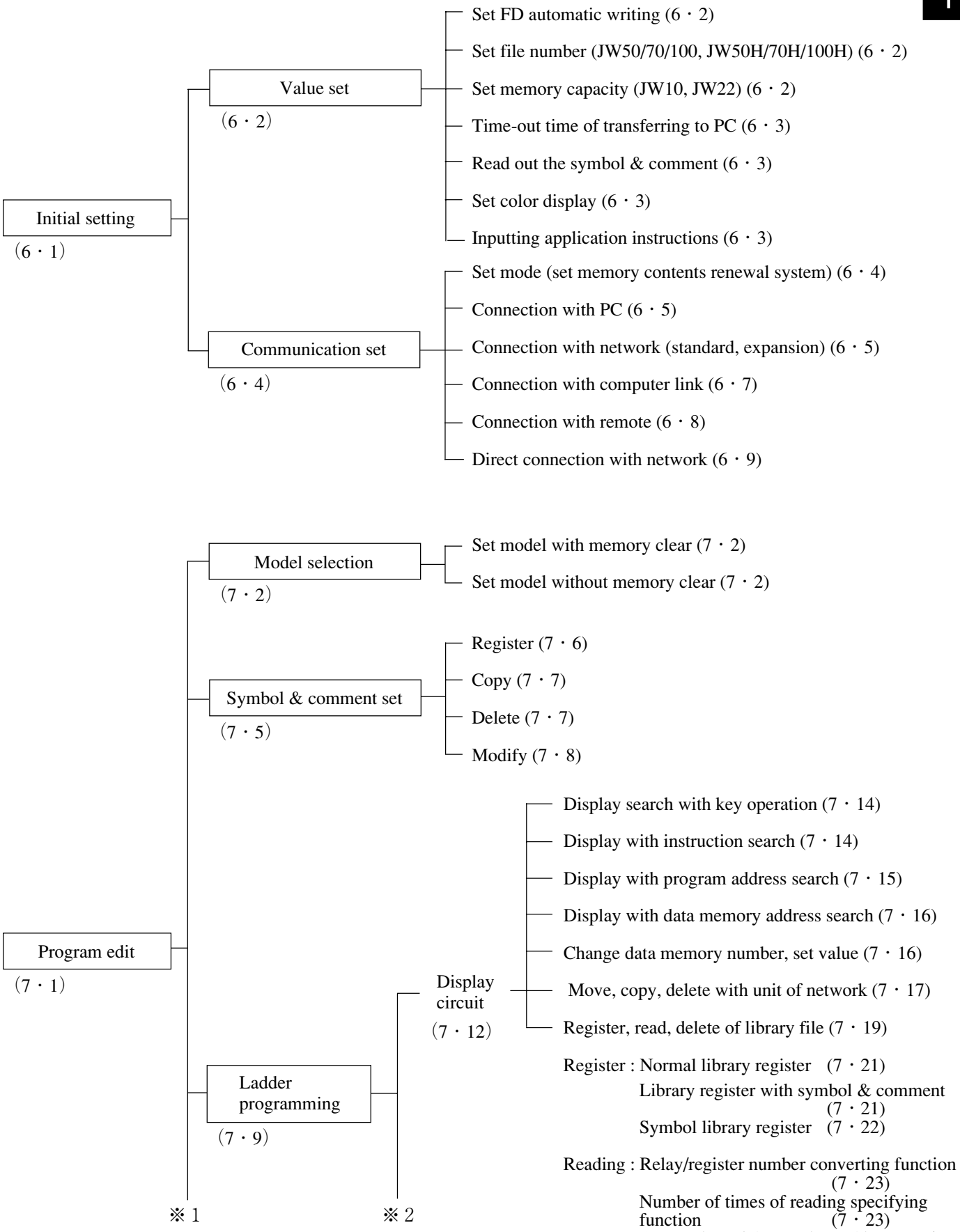
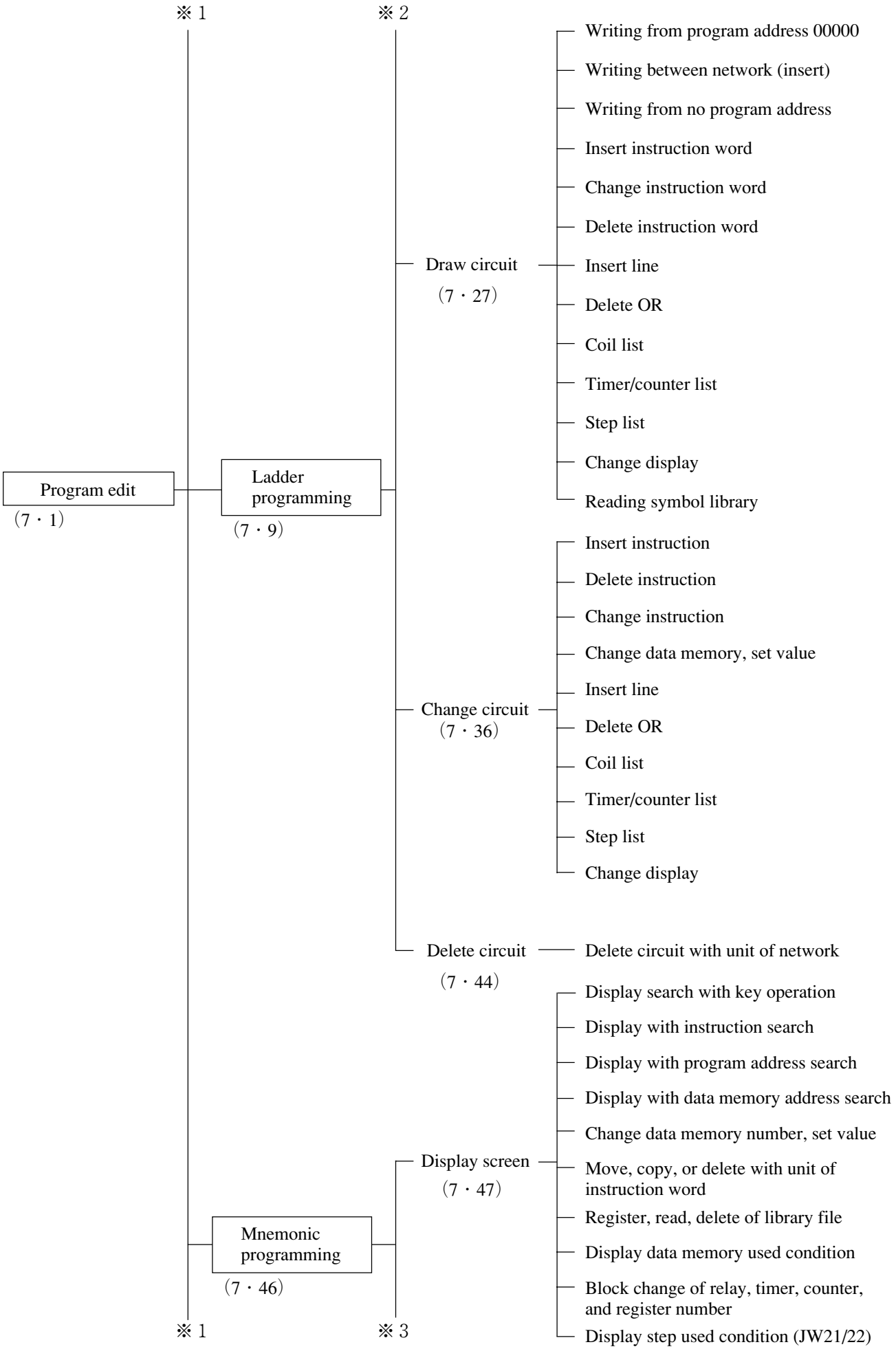
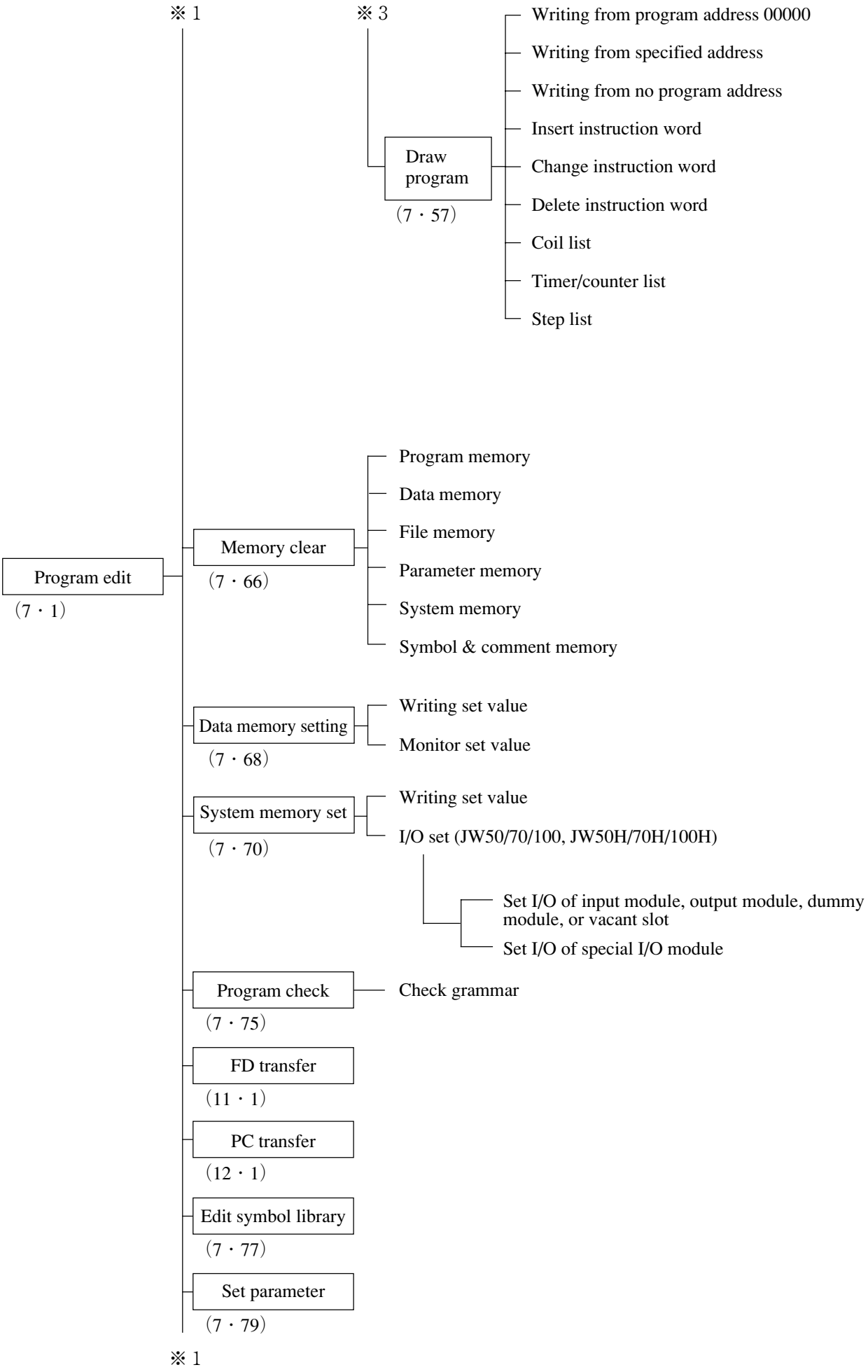
	Preparation of library	7 · 77
	Parameter set	7 · 79
Monitor	Ladder monitor	8 · 2
	Mnemonic monitor	8 · 32
	Sampling trace	8 · 35
	SF monitor	8 · 38
	FD transfer	11 · 1
	PC transfer	12 · 1
Print	Ladder print	9 · 3
	Mnemonic print	9 · 8
	Used contact list	9 · 11
	System memory print	9 · 14
	Data memory print	9 · 16
	Symbol & comment print	9 · 18
	Setting of title	9 · 20
	Setting of cover	9 · 22
	Printer setting	9 · 24
	Parameter print	9 · 26
	FD transfer	11 · 1
	PC transfer	12 · 1
Tool transfer	PROM programmer transfer	10 · 2
	Z-100LP2S FD transfer	10 · 5
	Satellite net & ME-NET parameter set, print	10 · 10
	SUMINET parameter set, print	10 · 37
	FD transfer	11 · 1
	PC transfer	12 · 1
	Other parameters set	10 · 42
Initial setting	Value set	6 · 2
	Communication set	6 · 4
	FD transfer	11 · 1
	PC transfer	12 · 1
FD transfer	Write, read, or verify with FD (floppy diskette)	11 · 1
PC transfer	Write, read, or verify with PC	12 · 1

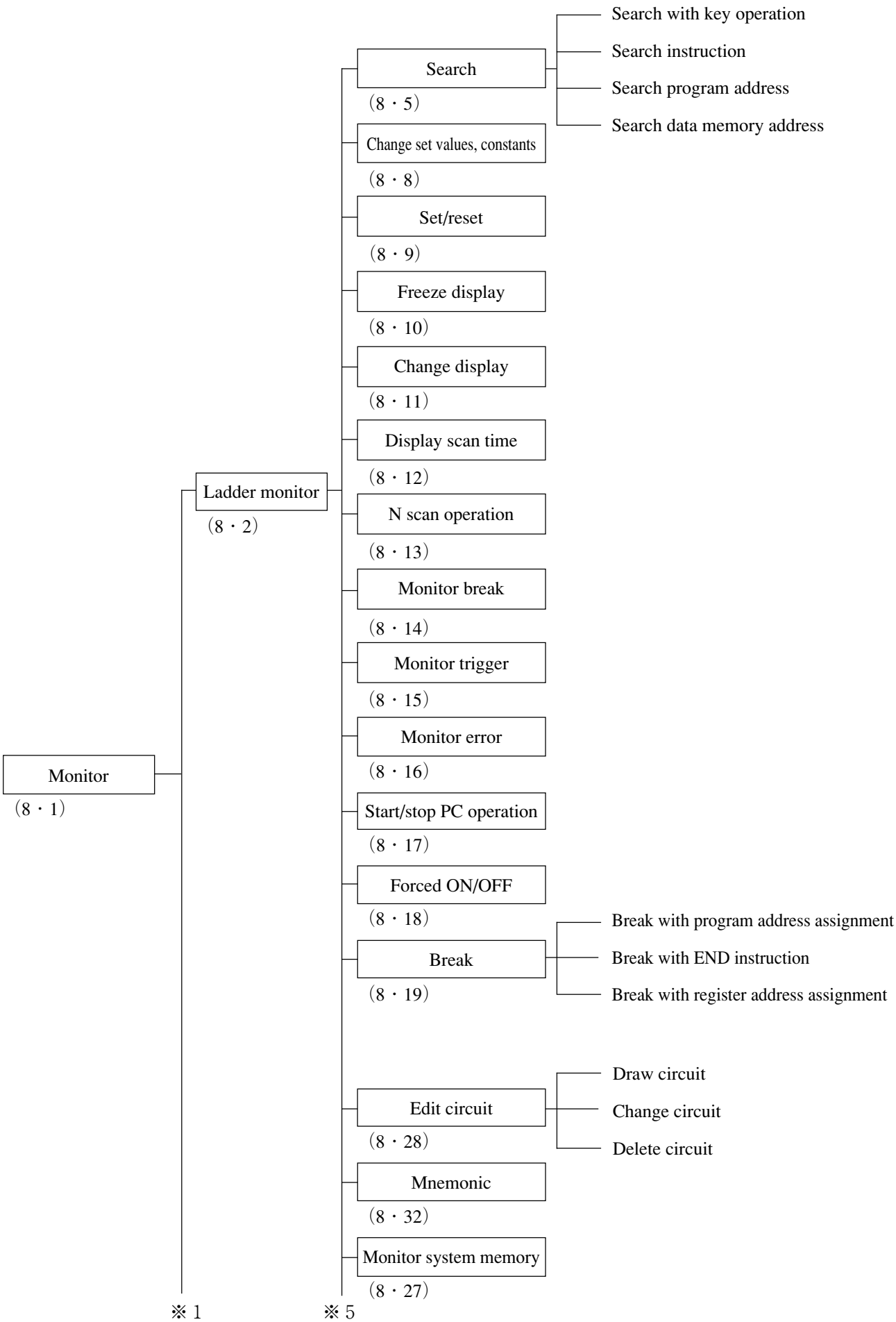
[Functional block diagram]

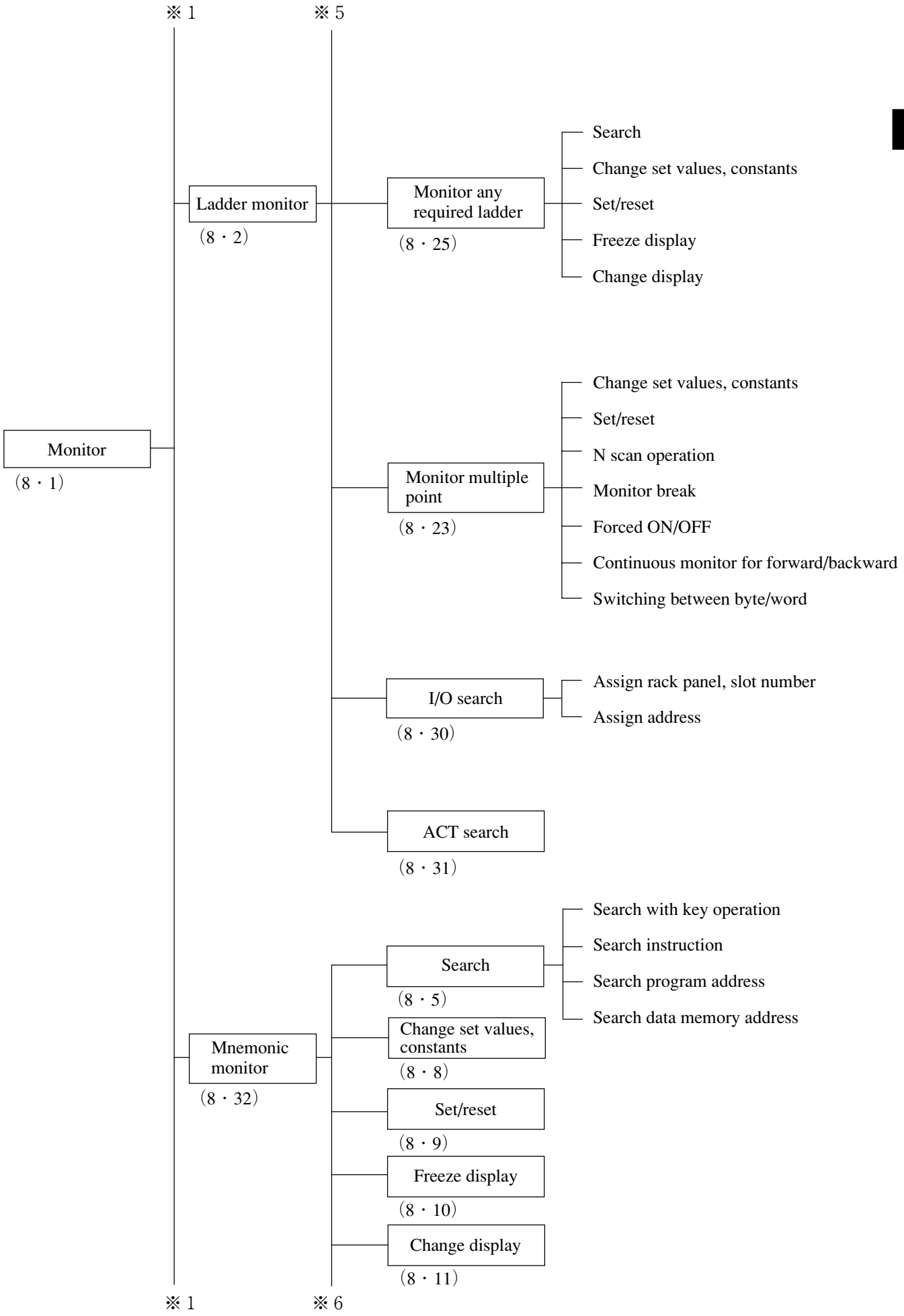
Figures in parenthesis means reference page.

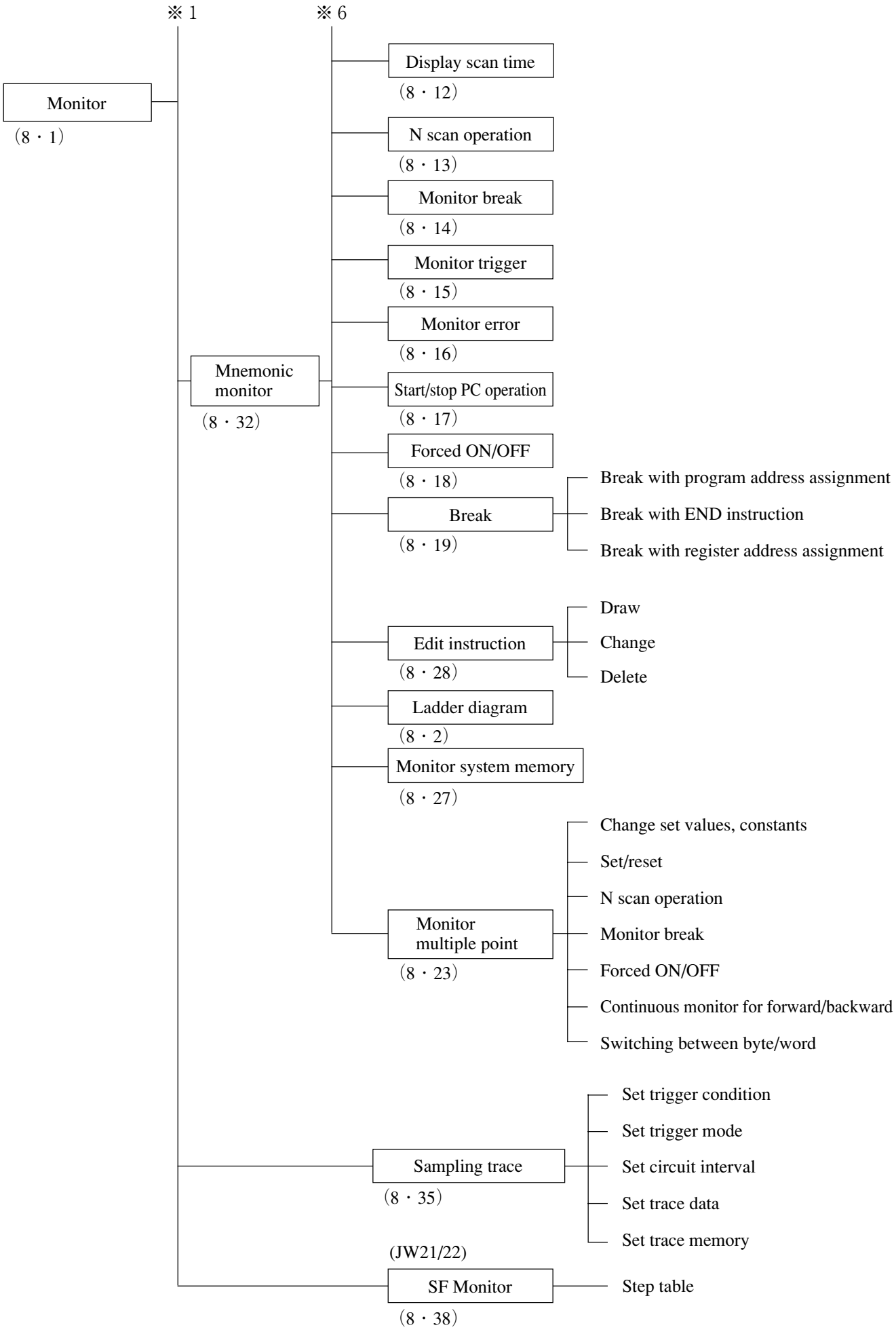


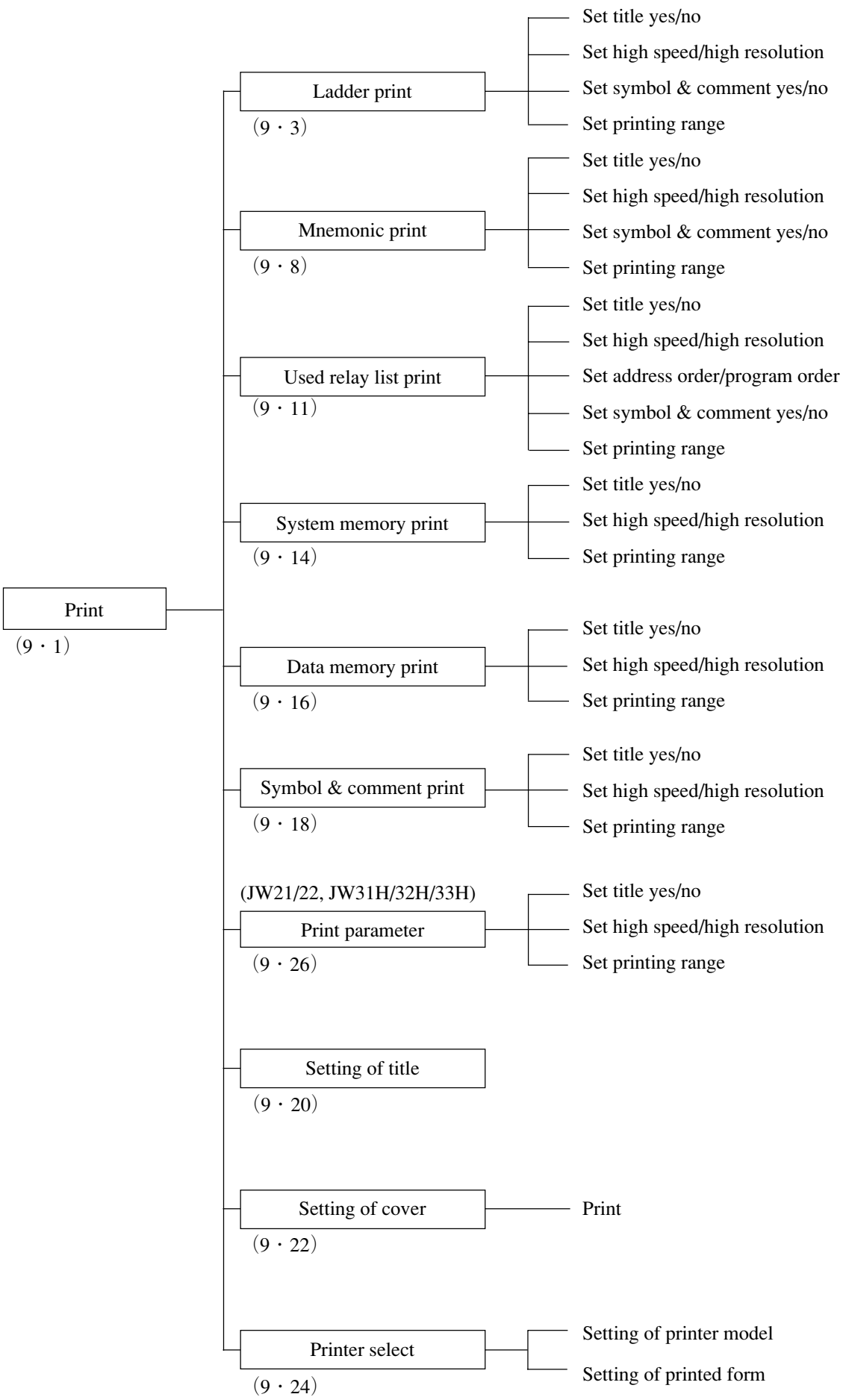

※ 1
※ 2
Program edit
(7・1)
Ladder programming
(7・9)
Draw circuit
(7・27)
Writing from program address 00000
Writing between network (insert)
Writing from no program address
Insert instruction word
Change instruction word
Delete instruction word
Insert line
Delete OR
Coil list
Timer/counter list
Step list
Change display
Reading symbol library
Change circuit
(7・36)
Insert instruction
Delete instruction
Change instruction
Change data memory, set value
Insert line
Delete OR
Coil list
Timer/counter list
Step list
Change display
Delete circuit
(7・44)
Delete circuit with unit of network
Display screen
(7・47)
Display search with key operation
Display with instruction search
Display with program address search
Display with data memory address search
Change data memory number, set value
Move, copy, or delete with unit of instruction word
Register, read, delete of library file
Display data memory used condition
Block change of relay, timer, counter, and register number
Display step used condition (JW21/22)
Mnemonic programming
(7・46)
※ 1
※ 3

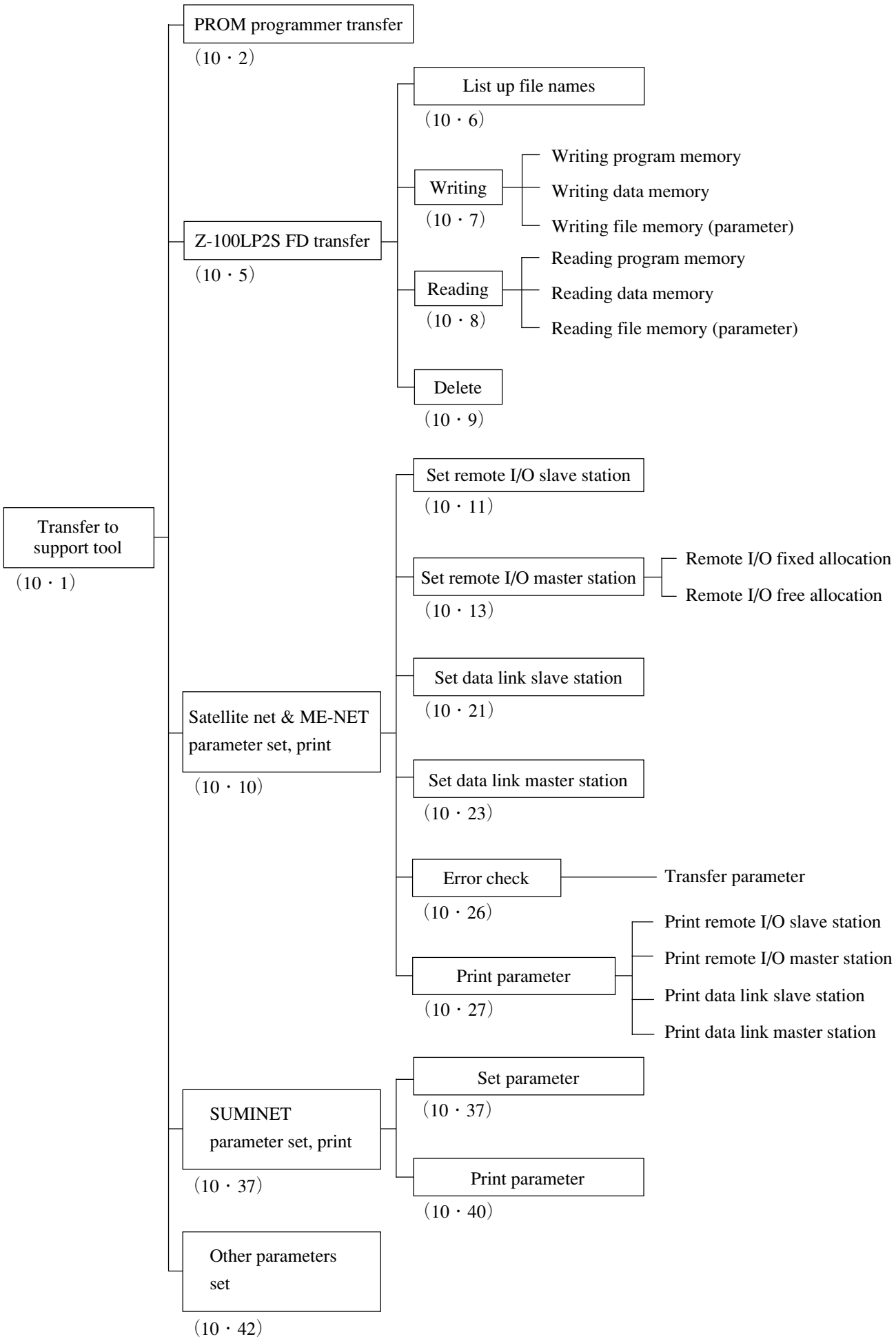

※ 1
※ 3
Writing from program address 00000
Writing from specified address
Writing from no program address
Insert instruction word
Change instruction word
Delete instruction word
Coil list
Timer/counter list
Step list
Draw program
(7・57)
Program memory
Data memory
File memory
Parameter memory
System memory
Symbol & comment memory
Memory clear
(7・66)
Program edit
(7・1)
Writing set value
Monitor set value
Data memory setting
(7・68)
Writing set value
I/O set (JW50/70/100, JW50H/70H/100H)
System memory set
(7・70)
Set I/O of input module, output module, dummy module, or vacant slot
Set I/O of special I/O module
Check grammar
Program check
(7・75)
FD transfer
(11・1)
PC transfer
(12・1)
Edit symbol library
(7・77)
Set parameter
(7・79)
※ 1

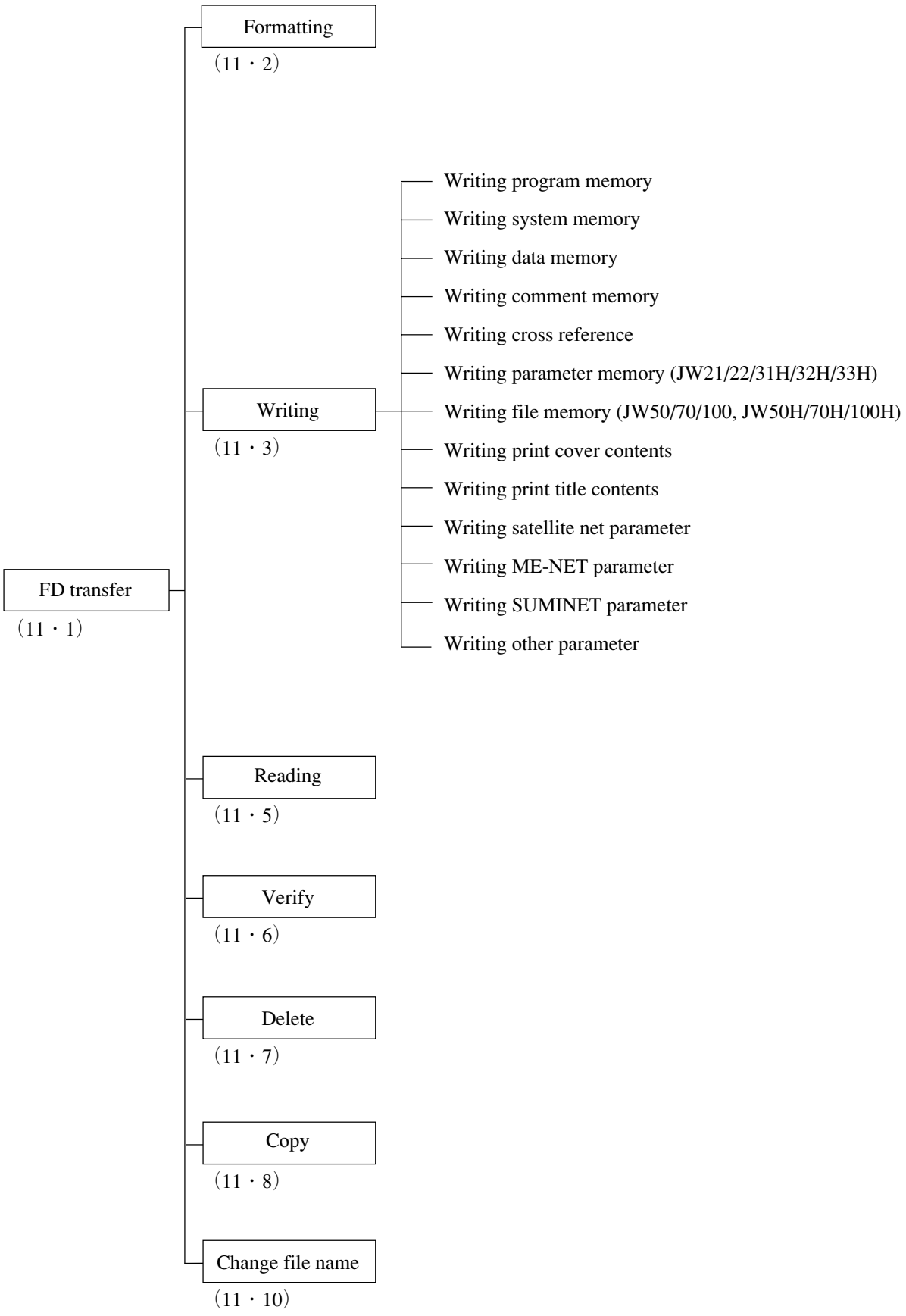

Monitor
(8・1)
※1
Ladder monitor
(8・2)
※5
Search
(8・5)
Search with key operation
Search instruction
Search program address
Search data memory address
Change set values, constants
(8・8)
Set/reset
(8・9)
Freeze display
(8・10)
Change display
(8・11)
Display scan time
(8・12)
N scan operation
(8・13)
Monitor break
(8・14)
Monitor trigger
(8・15)
Monitor error
(8・16)
Start/stop PC operation
(8・17)
Forced ON/OFF
(8・18)
Break
(8・19)
Break with program address assignment
Break with END instruction
Break with register address assignment
Edit circuit
(8・28)
Draw circuit
Change circuit
Delete circuit
Mnemonic
(8・32)
Monitor system memory
(8・27)

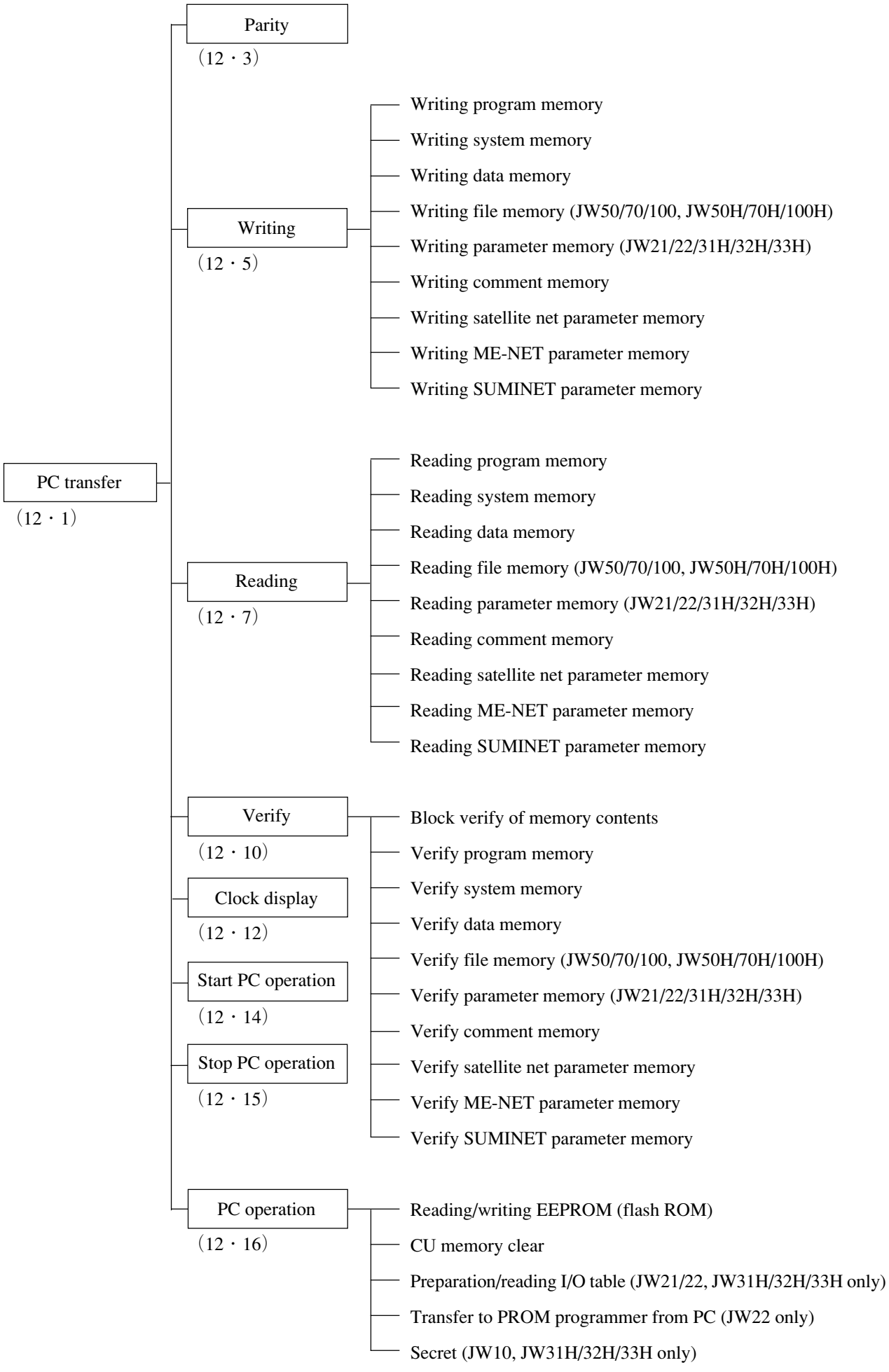

※ 1
※ 5
Monitor
(8・1)
Ladder monitor
(8・2)
Monitor any required ladder
(8・25)
Search
Change set values, constants
Set/reset
Freeze display
Change display
Monitor multiple point
(8・23)
Change set values, constants
Set/reset
N scan operation
Monitor break
Forced ON/OFF
Continuous monitor for forward/backward
Switching between byte/word
I/O search
(8・30)
Assign rack panel, slot number
Assign address
ACT search
(8・31)
Mnemonic monitor
(8・32)
Search
(8・5)
Search with key operation
Search instruction
Search program address
Search data memory address
Change set values, constants
(8・8)
Set/reset
(8・9)
Freeze display
(8・10)
Change display
(8・11)
※ 1
※ 6


※ 1
※ 6
Monitor
(8・1)
Display scan time
(8・12)
N scan operation
(8・13)
Monitor break
(8・14)
Monitor trigger
(8・15)
Monitor error
(8・16)
Mnemonic monitor
(8・32)
Start/stop PC operation
(8・17)
Forced ON/OFF
(8・18)
Break
(8・19)
Break with program address assignment
Break with END instruction
Break with register address assignment
Edit instruction
(8・28)
Draw
Change
Delete
Ladder diagram
(8・2)
Monitor system memory
(8・27)
Monitor multiple point
(8・23)
Change set values, constants
Set/reset
N scan operation
Monitor break
Forced ON/OFF
Continuous monitor for forward/backward
Switching between byte/word
Sampling trace
(8・35)
Set trigger condition
Set trigger mode
Set circuit interval
Set trace data
Set trace memory
(JW21/22)
SF Monitor
(8・38)
Step table


Print
(9・1)
Ladder print
(9・3)
Set title yes/no
Set high speed/high resolution
Set symbol & comment yes/no
Set printing range
Mnemonic print
(9・8)
Set title yes/no
Set high speed/high resolution
Set symbol & comment yes/no
Set printing range
Used relay list print
(9・11)
Set title yes/no
Set high speed/high resolution
Set address order/program order
Set symbol & comment yes/no
Set printing range
System memory print
(9・14)
Set title yes/no
Set high speed/high resolution
Set printing range
Data memory print
(9・16)
Set title yes/no
Set high speed/high resolution
Set printing range
Symbol & comment print
(9・18)
Set title yes/no
Set high speed/high resolution
Set printing range
(JW21/22, JW31H/32H/33H)
Print parameter
(9・26)
Set title yes/no
Set high speed/high resolution
Set printing range
Setting of title
(9・20)
Setting of cover
(9・22)
Print
Printer select
(9・24)
Setting of printer model
Setting of printed form


Transfer to support tool
(10・1)
PROM programmer transfer
(10・2)
Z-100LP2S FD transfer
(10・5)
List up file names
(10・6)
Writing
(10・7)
Writing program memory
Writing data memory
Writing file memory (parameter)
Reading
(10・8)
Reading program memory
Reading data memory
Reading file memory (parameter)
Delete
(10・9)
Satellite net & ME-NET parameter set, print
(10・10)
Set remote I/O slave station
(10・11)
Set remote I/O master station
(10・13)
Remote I/O fixed allocation
Remote I/O free allocation
Set data link slave station
(10・21)
Set data link master station
(10・23)
Error check
(10・26)
Transfer parameter
Print parameter
(10・27)
Print remote I/O slave station
Print remote I/O master station
Print data link slave station
Print data link master station
SUMINET parameter set, print
(10・37)
Set parameter
(10・37)
Print parameter
(10・40)
Other parameters set
(10・42)


FD transfer
(11・1)
Formatting
(11・2)
Writing
(11・3)
Writing program memory
Writing system memory
Writing data memory
Writing comment memory
Writing cross reference
Writing parameter memory (JW21/22/31H/32H/33H)
Writing file memory (JW50/70/100, JW50H/70H/100H)
Writing print cover contents
Writing print title contents
Writing satellite net parameter
Writing ME-NET parameter
Writing SUMINET parameter
Writing other parameter
Reading
(11・5)
Verify
(11・6)
Delete
(11・7)
Copy
(11・8)
Change file name
(11・10)


PC transfer
(12・1)
Parity
(12・3)
Writing
(12・5)
Writing program memory
Writing system memory
Writing data memory
Writing file memory (JW50/70/100, JW50H/70H/100H)
Writing parameter memory (JW21/22/31H/32H/33H)
Writing comment memory
Writing satellite net parameter memory
Writing ME-NET parameter memory
Writing SUMINET parameter memory
Reading
(12・7)
Reading program memory
Reading system memory
Reading data memory
Reading file memory (JW50/70/100, JW50H/70H/100H)
Reading parameter memory (JW21/22/31H/32H/33H)
Reading comment memory
Reading satellite net parameter memory
Reading ME-NET parameter memory
Reading SUMINET parameter memory
Verify
(12・10)
Block verify of memory contents
Verify program memory
Verify system memory
Verify data memory
Verify file memory (JW50/70/100, JW50H/70H/100H)
Verify parameter memory (JW21/22/31H/32H/33H)
Verify comment memory
Verify satellite net parameter memory
Verify ME-NET parameter memory
Verify SUMINET parameter memory
Clock display
(12・12)
Start PC operation
(12・14)
Stop PC operation
(12・15)
PC operation
(12・16)
Reading/writing EEPROM (flash ROM)
CU memory clear
Preparation/reading I/O table (JW21/22, JW31H/32H/33H only)
Transfer to PROM programmer from PC (JW22 only)
Secret (JW10, JW31H/32H/33H only)

Chapter 2 Safety precautions

⚠ Caution	When performing a dielectric strength test of a programmable controller or a personal computer, be sure to remove the "cable" and "communication adapter" connecting between the programmable controller and the personal computer.

2-1 Precautions to take for utilization

- **This software will not work normally if its contents are destroyed with operating error, etc. When installing this software (master disk) on a hard disk, prepare a backup copy and use that copy.**
- Avoid inserting or extracting floppy disk while the floppy disk drive is working (access lamp lit).
- To terminate operation of this software, press the) (end) key after saving the data and then press the R (enter) key.

2-2 Precautions to take for copying

- **The following actions are strictly prohibited:**

  ① **Copying this software for distribution or resale to other persons.**

  ② **Partially modifying this software for distribution or resale to other persons.**

2-3 Precautions to take for preservation

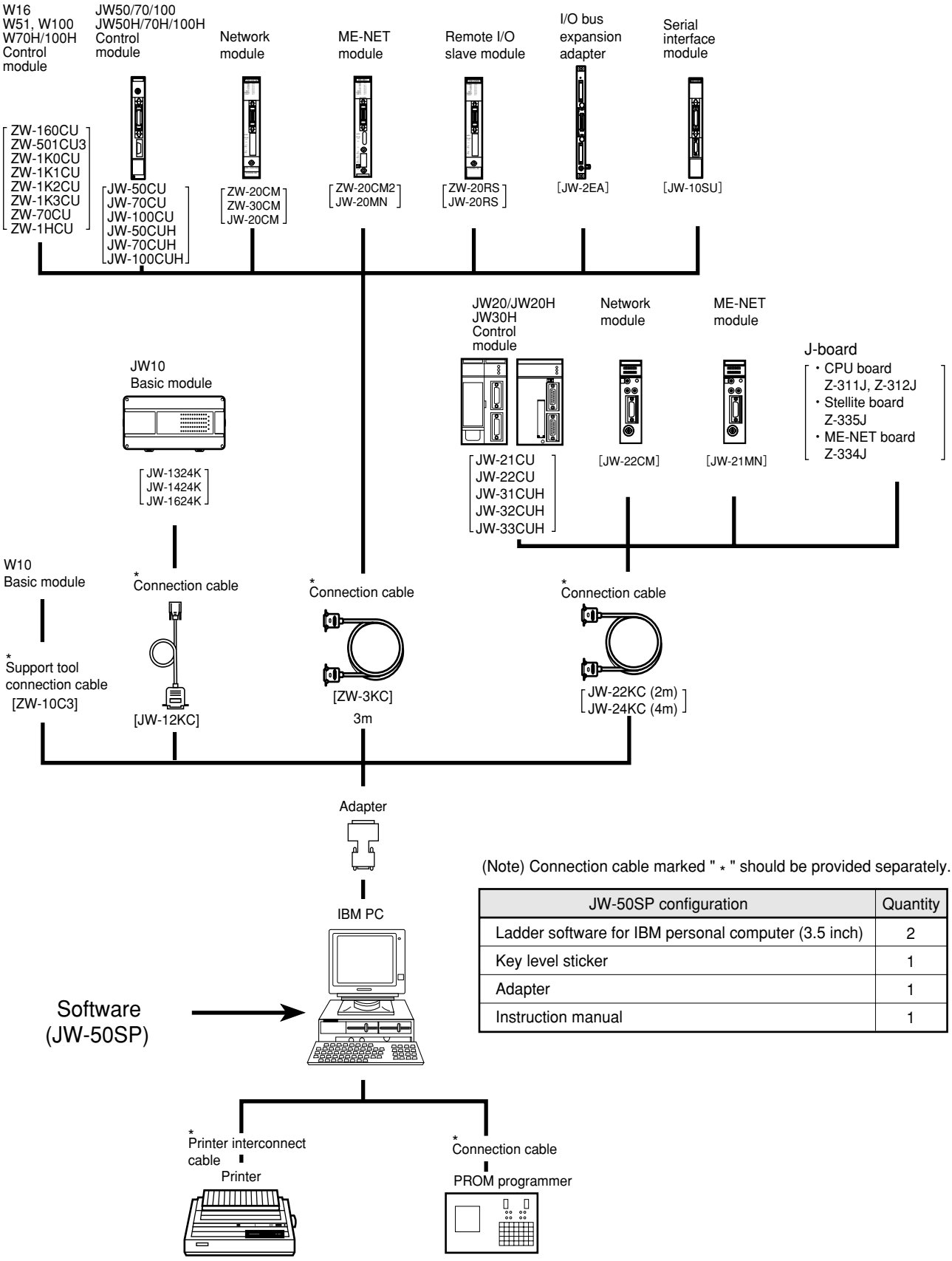
- Take care not to touch the magnetized face with fingers or damage it in any way.
- When entering file name, date, etc. on a label, do so before pasting the label on the floppy disk.
- Avoid placing (the disk) near any heating apparatus.
- Do not store in a dusty place.
- Avoid pinching floppy disk with clip, etc.
- Avoid places subject to sudden changes of temperature or humidity.
- Do not use any floppy disk wet with water or any deformed or damaged disk.
- Do not bring a magnet close to (the disk).

2-4 Precautions to take for key operation

- **Absolutely avoid making any meaningless operation (simultaneous pressing of** N **and** C **keys, etc.) after starting the system. Such operation is liable to destroy the contents of the prepared data or the contents of this software.**

Chapter 3 System configuration

3-1 Basic system configuration



Printer is compatible with PC-PR201H(Japan Electric Co.) or LIPSII+ (Canon Co.)

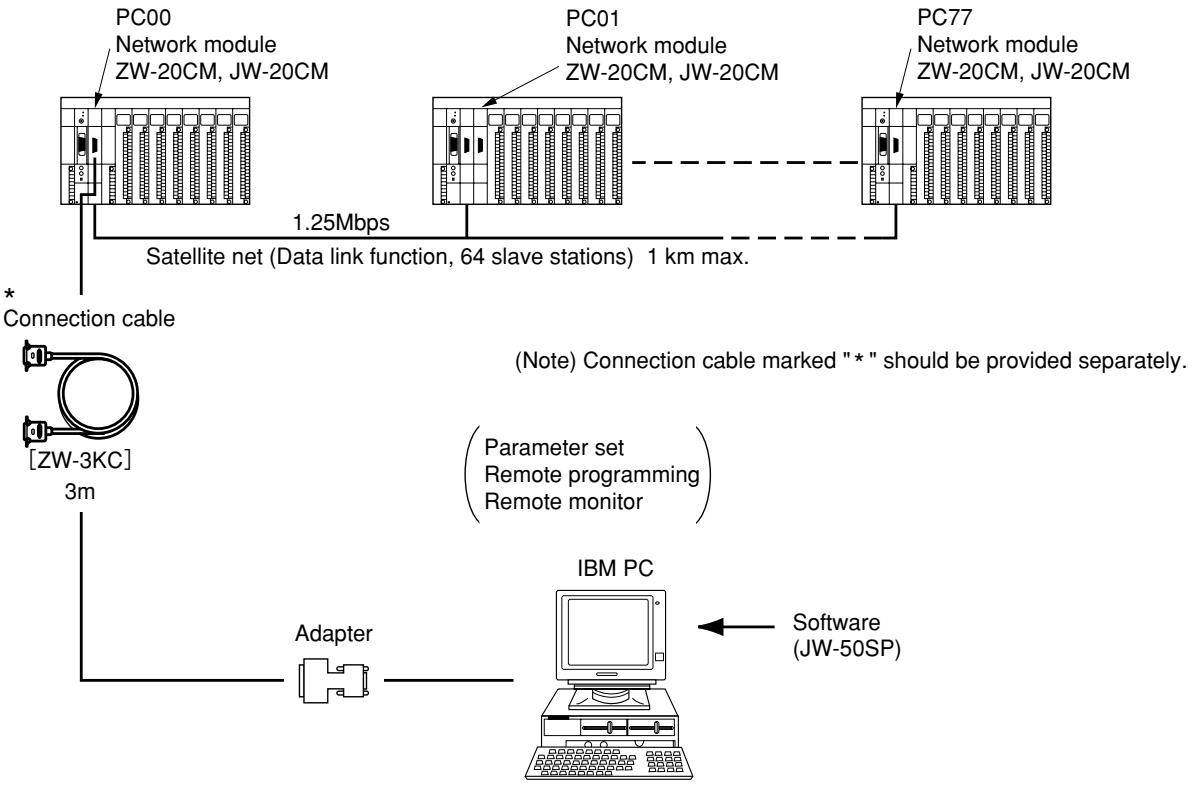
AF-9703/9704(Ando Electric Co.)
MODEL-1888A/1890A(Minato Electronics Co.)
TR4943/4944A(Advantest Co.)

(Note) Connection cable marked " * " should be provided separately.

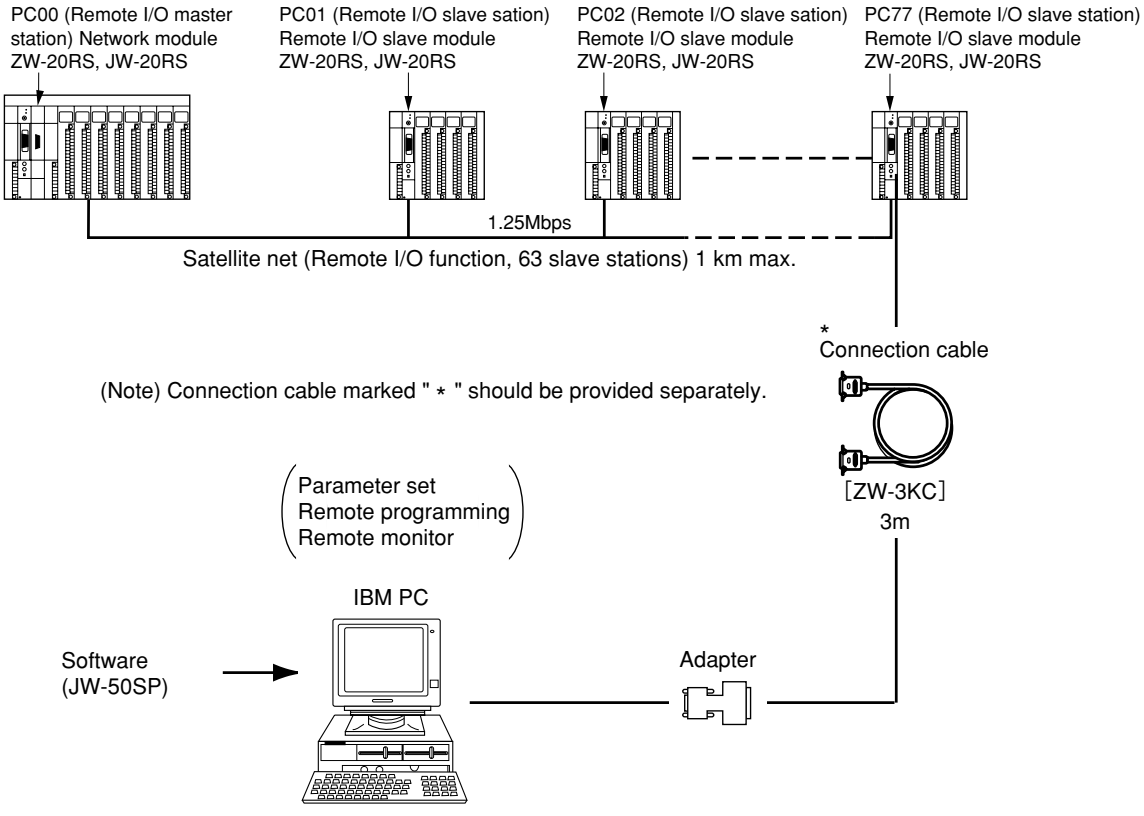
JW-50SP configuration	Quantity
Ladder software for IBM personal computer (3.5 inch)	2
Key level sticker	1
Adapter	1
Instruction manual	1

3-2 System configuration using satellite net/SUMINET-3200

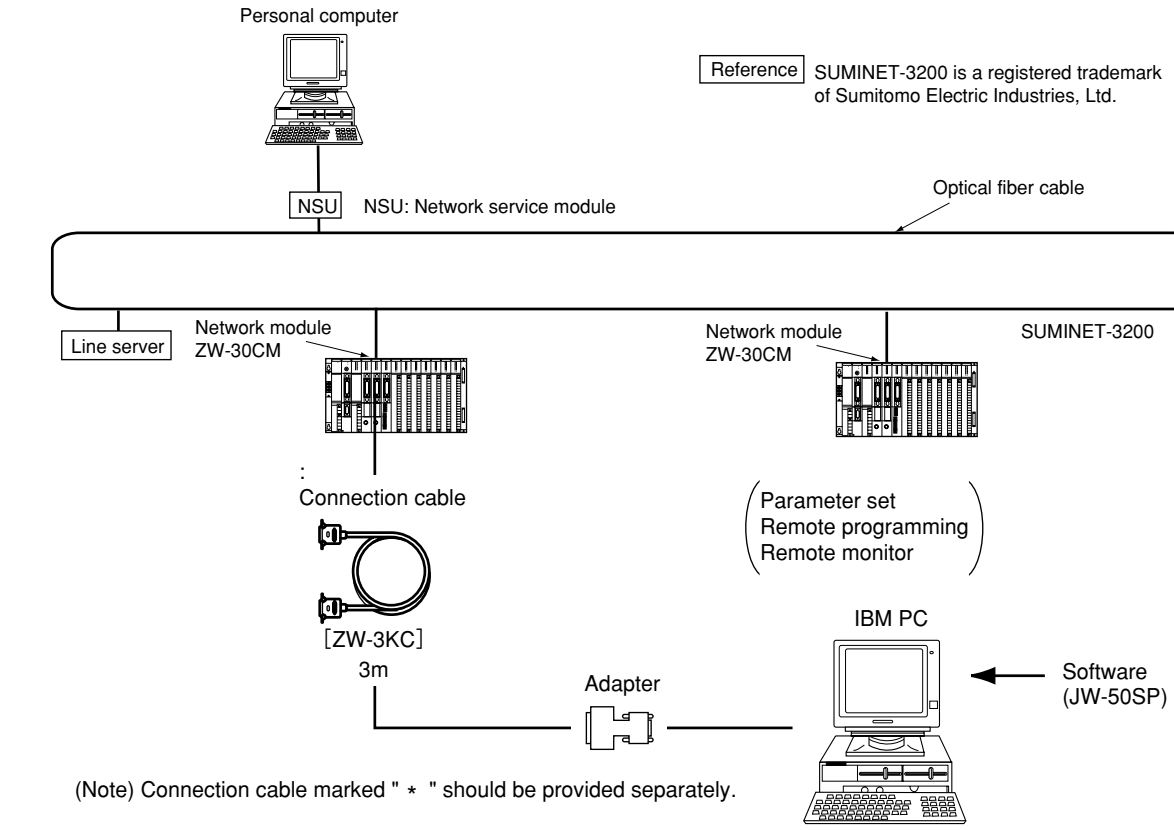
(1) Satellite net connection (Data link function)



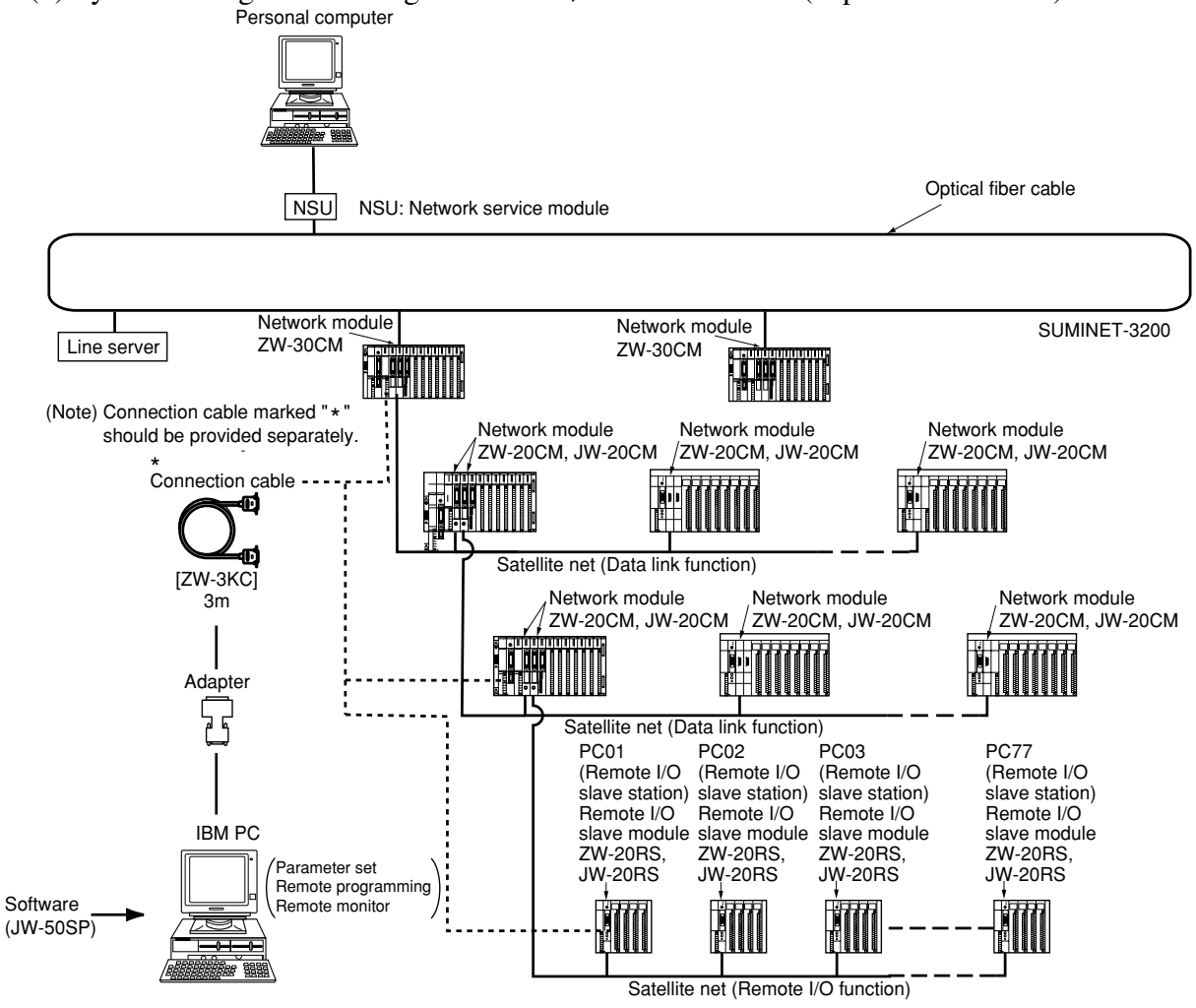
(2) Satellite net connection (Remote I/O function)



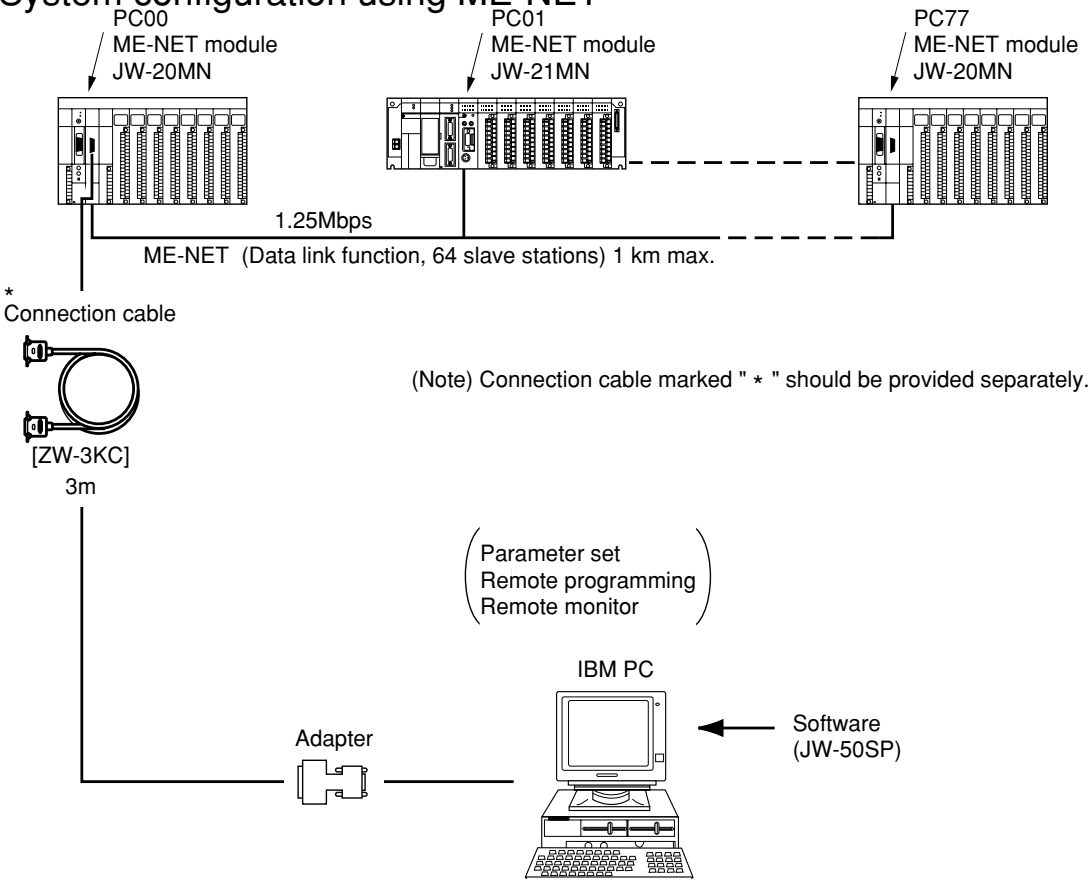
(3) SUMINET-3200 connection



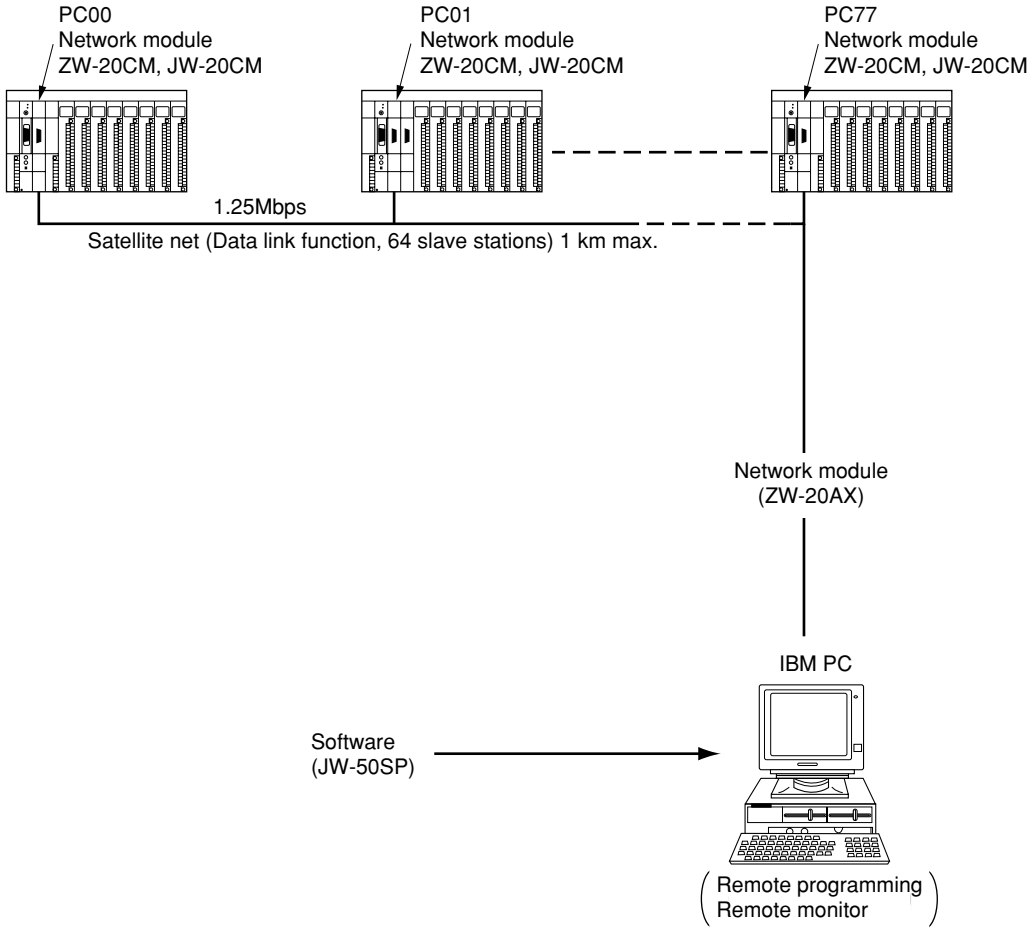
(4) System configuration using satellite net/SUMINET-3200 (expansion function)



3-3 System configuration using ME-NET



3-4 System configuration using network module (ZW-20AX)



Chapter 4 System startup

Refer to the following page and install the program onto a hard disk before using this software.

Items	Reference page
Install the program	4 · 2
Key label sticking	4 · 4
Starting the system	4 · 5
Items common for each mode	4 · 6
Special function	4 · 7

4-1 Install the program

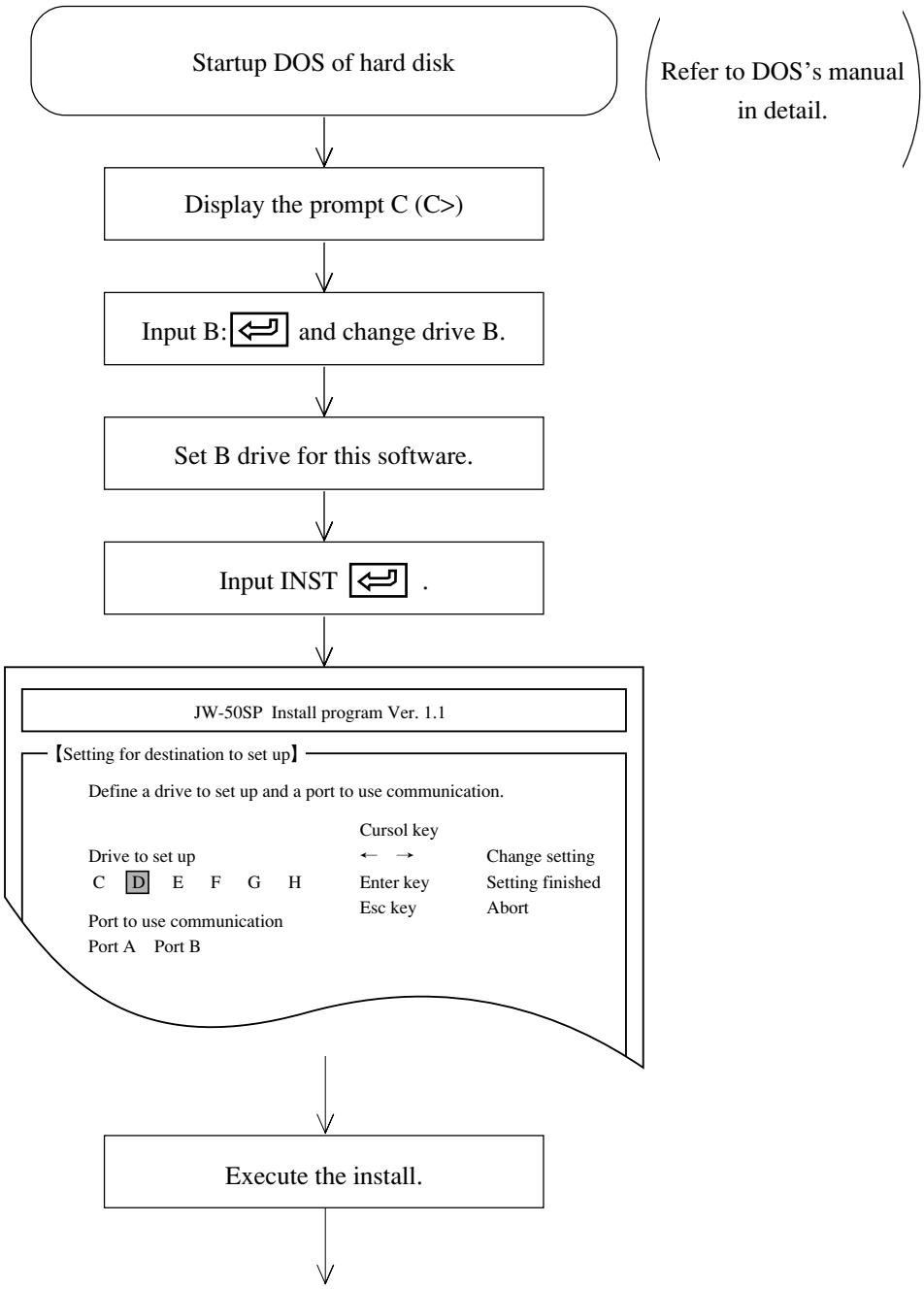
(1) Preparations of install

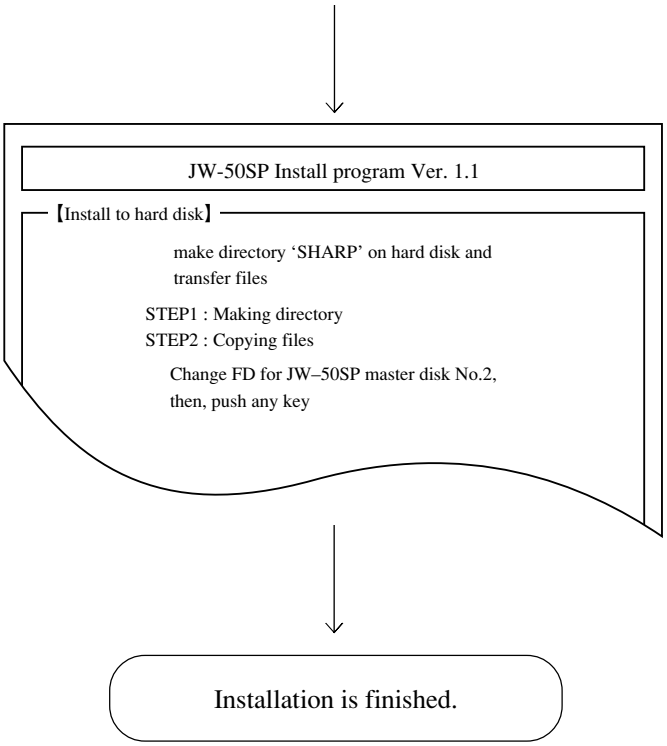
Be prepared for this software (JW-50SP).

To use this software, your hard disk must have an available disk space of approximately 2.5 M bytes and an EMS memory of 256K bytes and conventional memory of 470K bytes.

(2) Key operation

The method of installation from the floppy disk drive B to the hard disk drive D will be explained hereafter. For installation from other drives, read this explanation with necessary modification.





(3) Changing setting for the communication ports

The setting for the communication ports can be changed as desired. Modify the START.BAT file located in the SHARP directory using a commercially available editor.

[How to change the communication port setting]

D:¥SHARP¥G50SP.EXE -D0C ← Find in the START.BAT file the line similar to this.
*1

*1 Determine this 2-digit value (08 to 0F: hexadecimal) according to the ON/OFF settings for bit 0 to 7 as shown below.

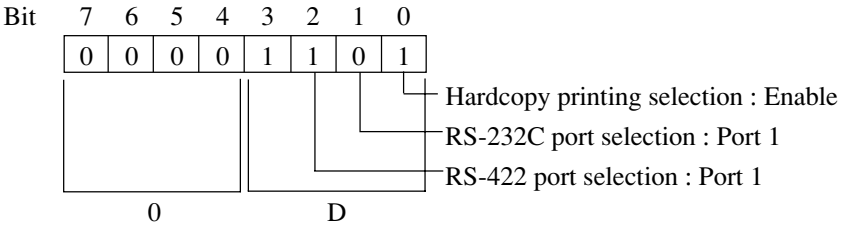
Bit	Function	0 (OFF)	1 (ON)
0	Hardcopy printing selection *2	Disable	Enable
1	RS-232C port selection *3	Port 1	Port 2
2	RS-422 port selection *4	Port 2	Port 1
3	Always set this bit to ON	———	Always ON
4 to 7	Always set these bits to OFF	Always OFF	———

*2 When you enable hardcopy printing selection, be sure to connect a printer.

*3 The RS-232C port selection is a communication port used to connect the personal computer to a PROM programmer, computer link module, etc.

*4 The RS-422 port selection is a communication port used to connect the personal computer to the PC.

• Example (When *1 value above is changed to "0D")



4-2 Key label sticking

(1) Apply delivered key labels to clearly mark instruction word to be input in “this software”.

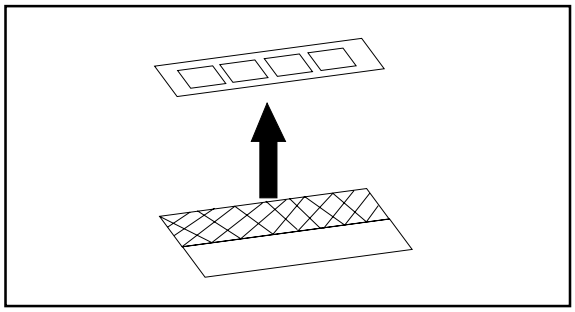
General key	Function of this Software
S ト	STR
D シ	NOT
F ハ	AND
G キ	OR

General key	Function of this Software
X サ	OUT
C ソ	CNT
V ヒ	TMR
B コ	FUN

4

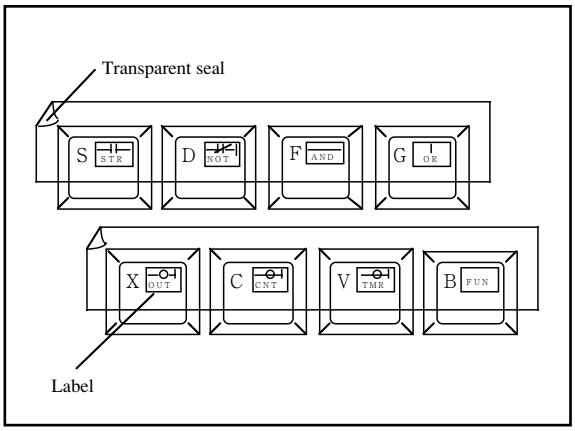
(2) How to apply key labels

① Peel off transparent seal from designated line. Labels are peeled off together.

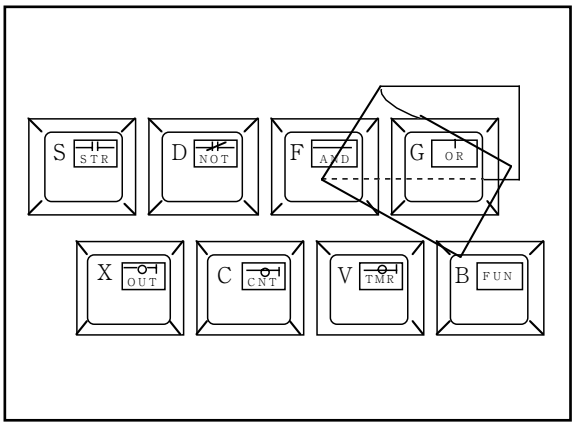


● Prior to applying the label, wipe dirt off keys’ surface with dry cloth.

② Line up both ends of the transparent seal over key position and apply each label. Press each label with your finger tip and fix it on each key.



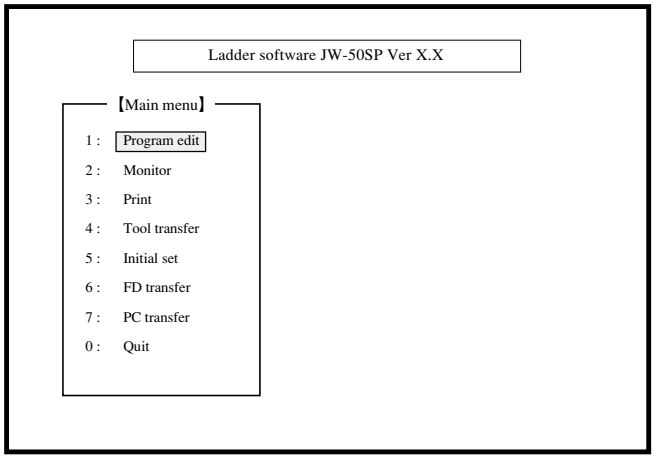
③ Gently remove the transparent seal so that only the labels remain on each key.



4-3 Starting the system

The main menu as shown in the drawing below will be indicated if you input the execution command [**START. BAT**] after installation.

(Main menu screen)



- **When terminating operation of the software**

"Main menu" → Select "Quit" with pressing [0] (End) key or [↑], [↓] key → [↵] (Enter key)

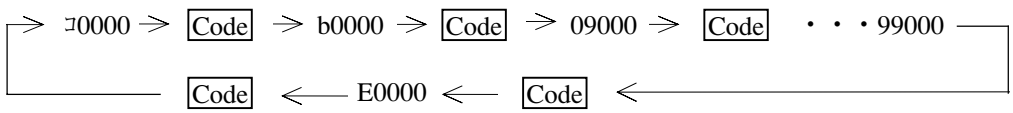
→ Select "Yes" with pressing [0] (Yes) key or [↑], [↓] key → [↵] (Enter key)

- **For screen display configuration and operation procedure of each mode, see Chapter 5 and thereafter.**

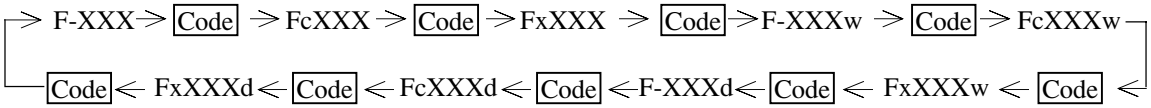
4-4 Items common for each mode

(1) How to use function keys: “code” and “code conversion” keys

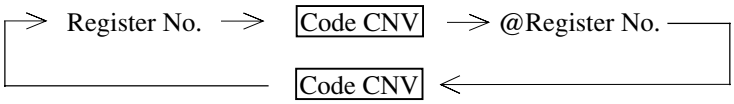
Data memory address



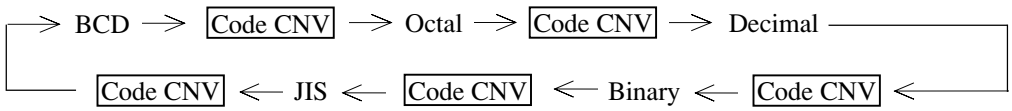
Application instruction



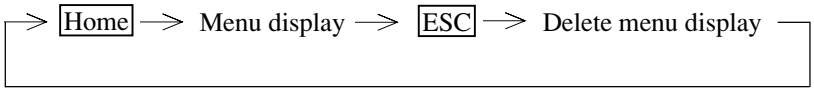
Indirectly register designation



Set value

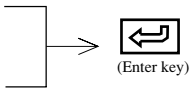


(2) How to display sub-menu screen



(3) Selection of menu

- Press numerical key,
  or
- Press cursor move key.



(4) How to return to previous menu screen display

Press ESC key.

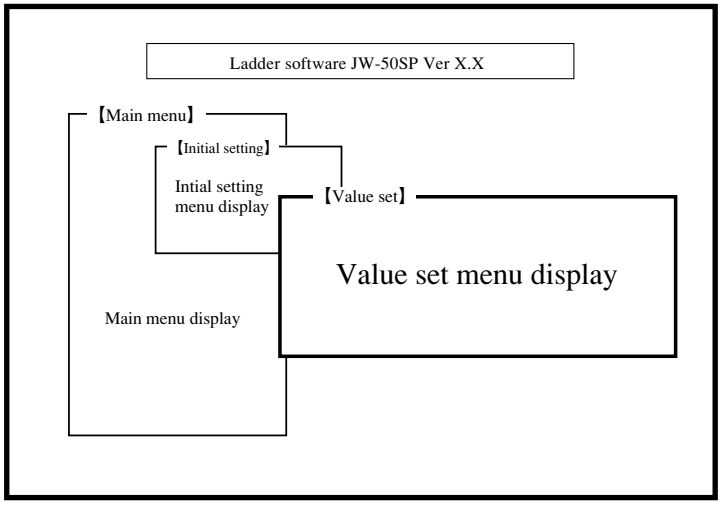
4-5 Special function

Key operation	Function
Simultaneously press Shift and ↓ key	Automatically scroll to address increasing direction with line pitch (To stop scroll, press any key)
Simultaneously press Shift and ↑ key	Automatically scroll to address decreasing direction with line pitch (To stop scroll, press any key)
Simultaneously press Shift and → key	Automatically scroll to address increasing direction with step pitch (To stop scroll, press any key)
Simultaneously press Shift and ← key	Automatically scroll to address decreasing direction with step pitch(To stop scroll, press any key)
After input F2 (clear) key, press ↑ key	Move to non-programmed top address
Press Page UP key	Move to address increasing direction with line pitch
Press Page DOWN key	Move to address decreasing direction with line pitch
Press Rス key	Set data memory address to “09000”
Press ｺ ｶ ｺ key	Set data memory address to “ｺ0000”
Press Uナ key	Change UP/DOWN of timer · counter
Press Iニ key	Change BCD/BIN of timer · counter
Simultaneously press Shift and ↵ key	Same function as F10 (writing)
Simultaneously press Shift and END key	Display the network information in message displey section. (Returns to the indication of model with the same key operation.)

Chapter 5 Screen configuration

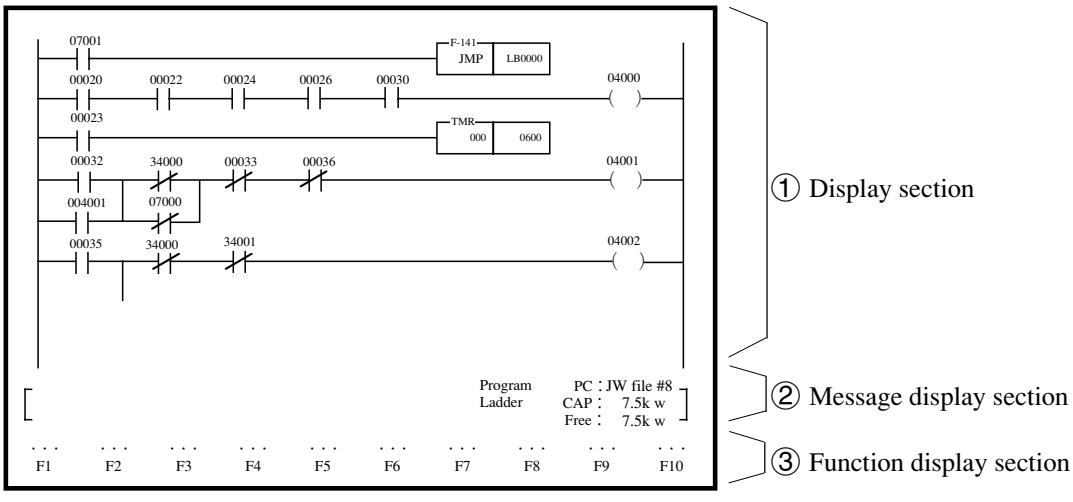
5-1 Menu screen

- The menu screen applies a multi-window display system.
- To select each item, key in "numerical key" of required item number shown to the left of each item or move the cursor with (↑ ↓), and press ⏎ key.
- Pressing ESC key returns to previously displayed screen.
- Menus inside the bold frame are selectable.



- To select any of contents, key in "numerical key" of required item number shown to the left of each item or move the cursor with (→ ←), and press ⏎ key. (Selected contents are reverse displayed.)

5-2 Operation of screen



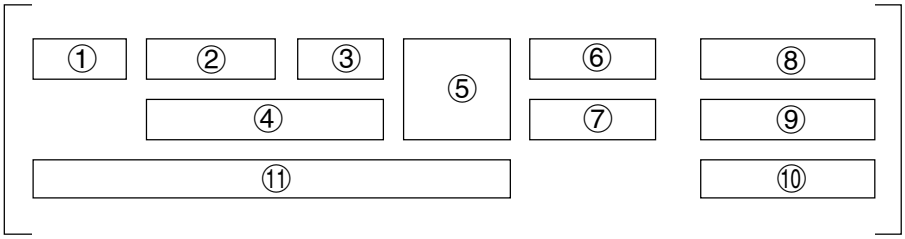
- Contents of display section and function display section may vary with selected item. (Above shows an example of "Ladder programming.")
- Pressing Home key displays "function" window which is not displayed on function display section.
- The function display section shows its odd number display keys as "reverse indication."
- Pressing ESC key returns to previously displayed screen.

① Display section

Item	Contents
Number of displayed line	19 lines
Display ladder diagram	• 11 relay contacts + 1 coil×6 relay lines • When more than 11 relay contacts are input in horizontal direction, the screen shifts to the left (available input and display maximum 252 contacts) • Display address (6 digits) with half size character for each relay contacts and coils. Or display symbol with 3 full size characters (6 characters with half size)
Display instruction word, data memory etc.	• Display titles such as "Address," "Set value," or "Symbol & comment." • Display above contents with 16 lines

5

② Message display section (number of display lines: 3)



No.	Display contents	Contents
①	Program address	• At ladder programming, display "Program address," "Mnemonic," "Symbol" or "Comment"
②	Instruction word	
③	Symbol	
④	Comment	
⑤	Display unit	• Display indication module such as BCD, binary, byte, or word
⑥	Selected mode	• Display selection mode such as "Program" or "Monitor"
⑦	Selected function	• Display selection function such as "Model selection" "Memory clear"
⑧	PC model name	• Display set PC model name
⑨	Memory capacity	• Display memory capacity of set PC
⑩	Remained memory capacity	• Display remaining memory capacity of set PC • When remaining memory capacity is more than 2.5 kw, display capacity with unit of 0.1 kw. When it is less than 2.5 kw, display capacity with unit of word.
⑪	Message	• Display error message, operation contents

③ Function display section (number of display lines: 2)

- Display function key number (F1 to F10) and function name.
- The function key number shows its odd number display keys as reverse indication.

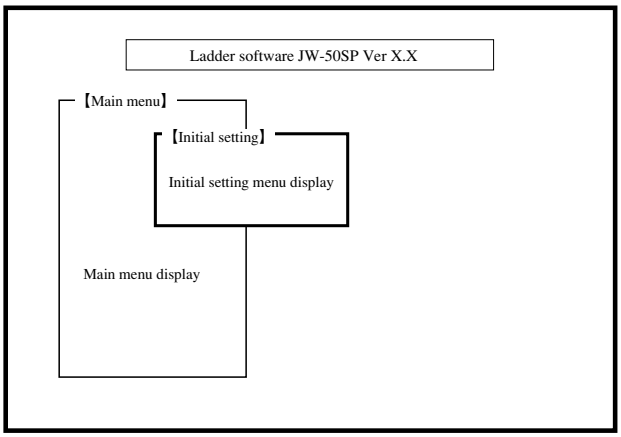
Chapter 6 Initial setting

This mode is used to set communication parameter and to set automatic writing to user diskette.

Key operation

"Main menu" → "Initial set" → ⏎ (Enter key) →

Screen display



Function

Name	Function	Reference page
Value set	Set FD automatic writing etc.	6-2
COM. set	Set communication mode	6-4
FD transfer	Operation of writing to, reading from, and verification of FD	11-1
PC transfer	Operation of writing to, reading from, and verification of PC	12-1

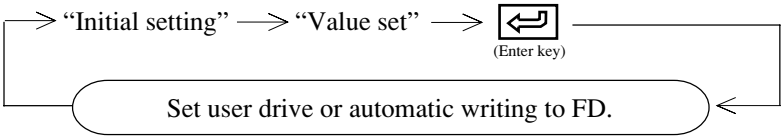
Notes

- Pressing ESC key returns to "Main menu" displayed screen.
- Once initial setting is completed, set contents are stored in a hard disk so that another initial setting for each setup is not required.
- Select each menu by numerical key or cursor move key.

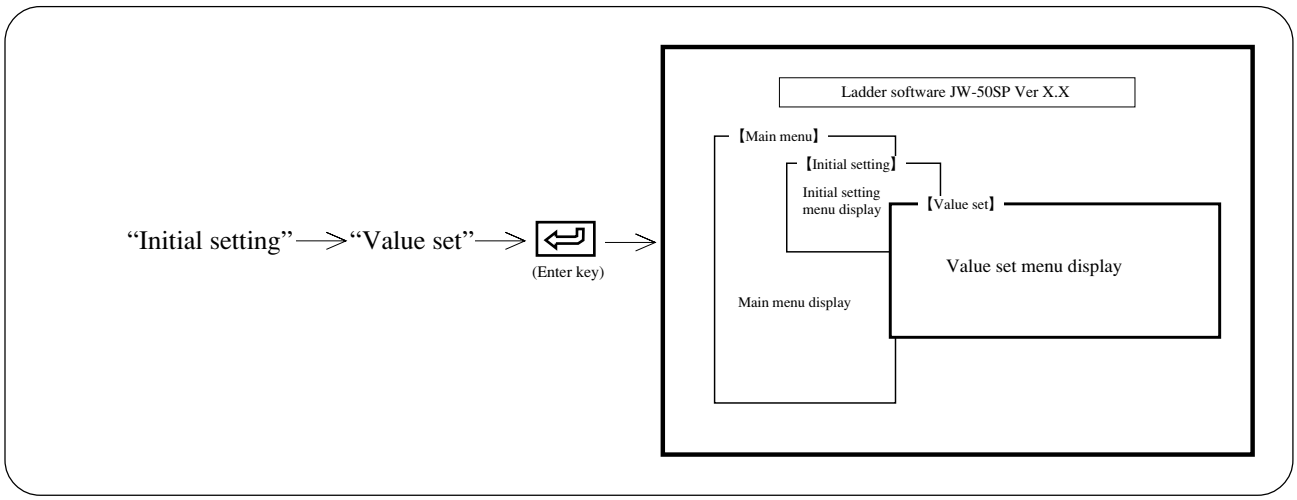
6-1 Value set

This paragraph describes how to set user drive or automatic writing to FD.

Operation outline



Key operation



Operation example

(1) FD automatic writing

- Select by moving the cursor with (← →), whether to automatically write program, parameter memory or others which are created or revised into user's diskette.
  The specification of user drive/directory shall be made in the FD transfer menu.

(2) File number

- When PC model "JW50/70/100, JW50H/70H/100H" is selected, and system memory #0204 is set 204 to 207OCT, select file number to use as program memory.
- Both file numbers 8 (#8), 9 (#9) have memory areas of 64k bytes. When it is used as program memory, memory capacity becomes 31.5 kw.
- When #8 is used, program address becomes "00000" to "76777."
- When #9 is used, program address becomes "100000" to "176777."
- After assigning "File No.," select by moving the cursor with (← →).
- During monitoring, switching of #8, #9 can be made with Shift + F1 keys.

(3) Set memory capacity

- When PC model "JW10, JW22" is selected, select program capacity.
- After assigning "Memory capacity," select by moving the cursor with (← →).

(4) Time-out time

- After assigning “Time out time,” set time with numerical key.
- The time-out time is set for the time of time-out of PC transfer and the time for detecting running out of paper on the printer. The time for detecting running out of paper on the printer is approximately (time-out time + 15 seconds).

(5) Reading symbol & comment

- Assign “Add”/“Ovre W” or “Reading after clear” of symbol & comment when reading comment memory at “FD transfer.” When “Add”/“Ovre W” is assigned, the module reads symbol & comments of user's diskette and adds.
  When “Reading after clear” is assigned, all comment memory in the module is cleared, as well as read symbol and comment of user’s diskette.
- After assigning “Load symbol & comm,” select by moving the cursor key.

(6) Color display

Select by moving the cursor with (←) (→) for color/monochrome display.

(7) Inputting application instructions (available with software version 5.3I or later)

- During programming, select the input or display/printout method for application instructions.
- When “F number” is selected, the F numbers may be used to input application instructions. The printout will look as — | F•000 XFER | 09000 | 09200 | .
- When “Comment” is selected, comments may be used to input application instructions. The printout will be the same as when “F number” is selected.
- When “Comment (without F number display)” is selected, comments may be used to input application instructions. However, the F number will not appear on the screen or printouts.

(— | XFER | 09000 | 09200 |)

- Comments used to input application instructions can be defined as desired. Create a file named FUN.TXT using a commercially available editor. The file must meet the following requirements.

File name) fun.txt
File format)

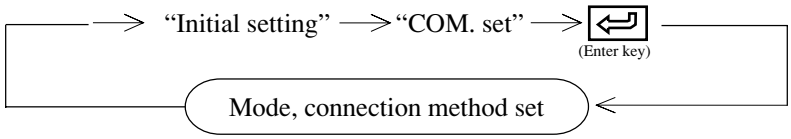
```
F000:XFER,  MOV  ↵
F001:BCD  ,TRAN  ↵
  :          :
F999:YYYY,XXXX   ↵
```

1. The application instruction number must be a 3-digit number prefixed by the letter “F”.
2. The application instruction must be separated from the comments by a colon (:).
3. More than one comment may be specified for each application instruction. On the screen and printouts, however, only the leftmost comment will appear. The comments must be delimited by a comma (,).
4. Press the enter key at the end of each application instruction.
5. Each comment must consist of four alphanumeric characters. If the comment consists of less than four characters, insert space character(s) as many as required to make it to four characters. If the comment consists of five characters or more, only the first four characters will be used.
6. If the same comment is specified with two or more F numbers, one with the smallest F number will be used.

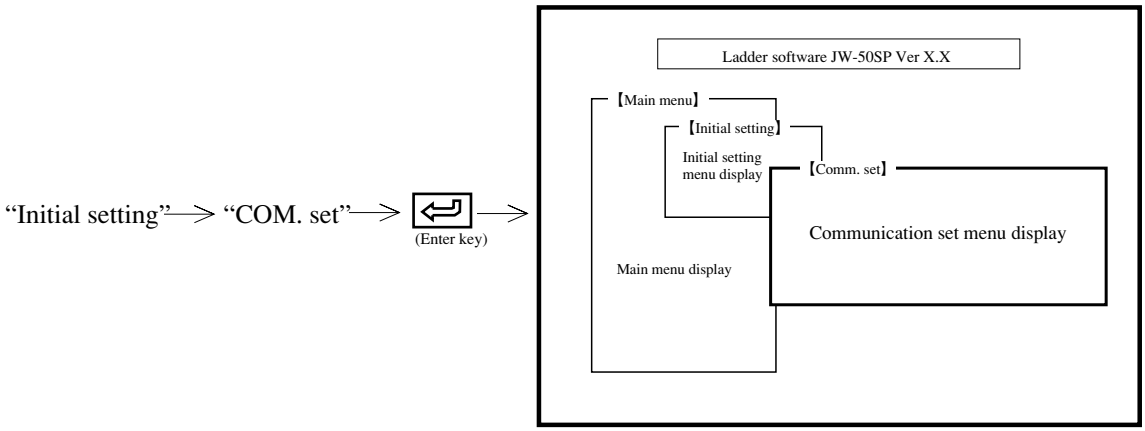
6-2 Communication set

This paragraph describes how to set memory contents change method (mode) and connection method.

Operation outline



Key operation



Name	Function
Mode	Select whether to change only memory contents of the module or to also change memory contents of PC.
Connect to CU	Use directly connected with PC
Network CONCT	Connect network module or ME-NET module and operate other PC
CPU CONCT	Operate PC via computer link
Re. connect	Operate master station with connecting remote I/O slave module
Direct CONCT	Operate PC via network module

Operation example

(1) Set mode

Select by moving the cursor with (←) (→).

50SP	Change only memory contents of the module
50SP + PC	Simultaneously change memory contents of the module and PC

- While monitoring, the module simultaneously change memory contents of the PC regardless of set contents.

  Note : For JW10, using the basic module version 2.1 and over , JW-50SP version 5.3I and over, the memory contents of the PC can be changed simultaneously during monitoring.
  When the memory contents of PC will be changed during monitoring for JW10, scan time will be extended a few hundreds ms for the only one scan. But, PC will not stop.

- If the setting is made for 50SP plus PC, it becomes impossible to execute reading of FD transfer during an operation of the PC.

(2) Connection method

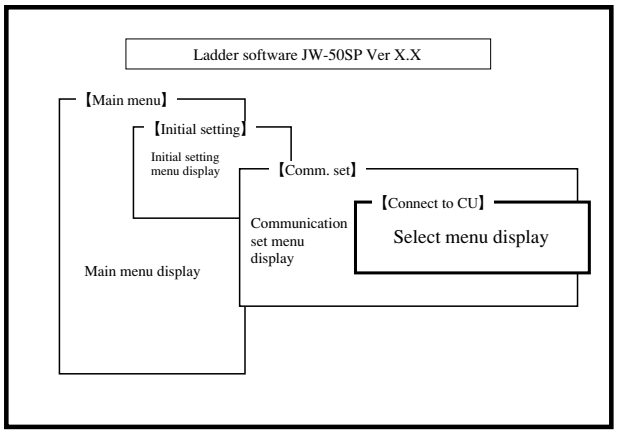
• Select connection method between the module and PC or network.

① Connection with PC

• This is a method to connect the module with the PC control module using communication adapter (accessory) and connection cable and to operate PC. (In case of JW-50PG, communication adapter is unnecessary.)

<Key operation>

"Comm. set" → "Connect to CU" → [Enter key] →



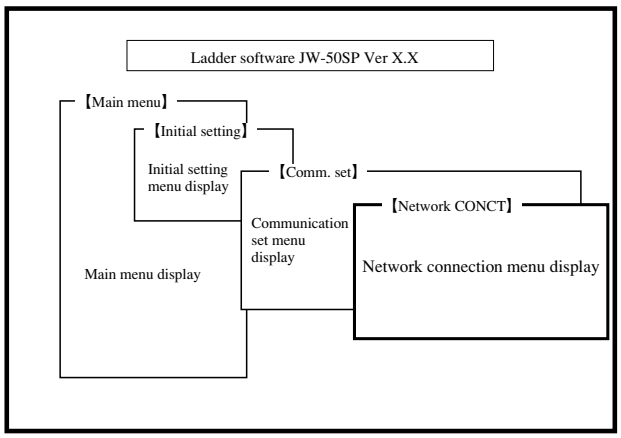
• Assign "Yes" and press [Enter] (enter key), the module enters "Connect to CU" and returns to communication set menu display.

② Connection with network

• This is a method to connect a personal computer with network module or with ME-NET module, and to operate another station PC which is connected with satellite net/ME-NET/SUMINET-3200.

<Key operation>

"Comm. set" → "Network CONCT" → [Enter key] →



• Network configuration

"Std" : Operate a station which is connected with satellite net/ME-NET/SUMINET-3200, or other station PC.

"Exp" : Operate other station PC connected with satellite net/ME-NET/SUMINET-3200 through any relay station which is connected with satellite net/ME-NET/SUMINET-3200.

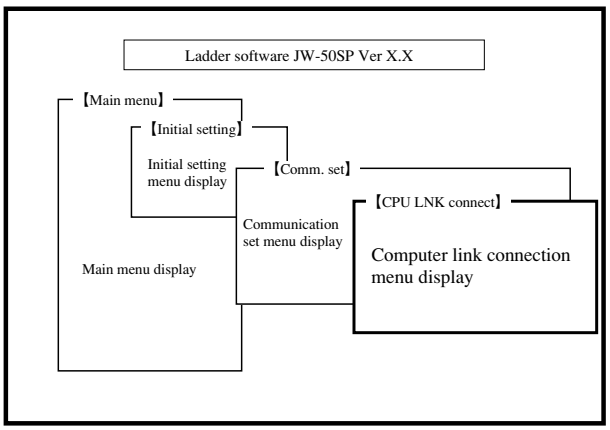
After assigning "Network system," select required item using numerical key or cursor move key ([←] [→]).

③ Connection with computer link

This is a method to operate PC to connect the module through RS-232C/422 converter (Z-101HE) and link module.

<Key operation>

"Comm. set" → "CPU CONCT." → [↵] (Enter key) →



6

• Baud rate

Select transfer rate.

After assigning "Baud rate," press numerical key [1] or select required rate between 300, 600, 1200, 2400, 4800, 9600 bps using cursor move keys ([←] [→]).

• Data bits

Select data length. After assigning "Data bits," press numerical key [2] or select using cursor move keys ([←] [→]).

• Parity

Select parity bit. After assigning "Parity," press the numerical key [3] or select using cursor move keys ([←] [→]).

• Stop bit

Select stop bit. After assigning "Stop bit," press numerical key [4] or select using cursor move key ([←] [→]).

• Response time

Select response time.

After assigning "Response T," press numerical key (%) or press cursor keys ([←] [→]). The set value will change as follows:

→ "10" → "20" → "30" → "40" → "50" → "60" → "70" → "80" →
"0" ← "900" – – – – – ← "300" ← "200" ← "100" ← "90" ←

Select required value from the above.

• Station number

After assigning "Stn. No.," set required station number between 00 to 37_{OCT} using numerical key. After setting above, press [↵] (enter key) and assign "Yes." The module enters "CPU LINK connect." condition, and returns to the initial setting menu.

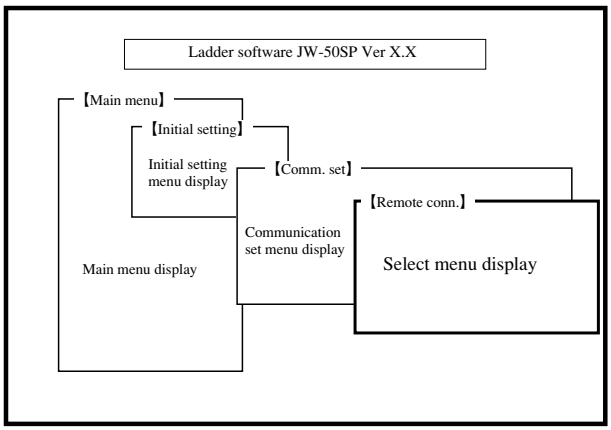
Make a connection cable by referring to the instruction manual of "RS-232C/422 converter."

④ Connection with remote

This is a method to connect the module with remote I/O slave module and to operate a master station PC linked with satellite net system.

<Key operation>

"Comm. set" → "Re. connect" → [Enter key] →



(Enter key)

- After assigning "Yes" press the [Enter] (enter key). The module turns to "Re. connect" and returns to initial setting menu display.

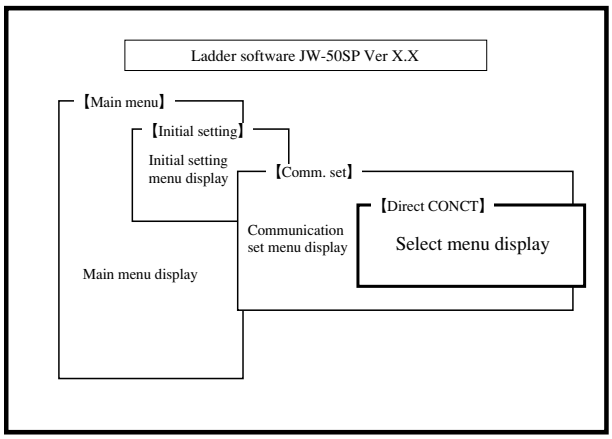
- **At "Re. connect" operation is only available for a master station by a slave station which is linked with satellite net system. Operation of a slave station by a master station, or by a slave station is unavailable.**

⑤ Direct connection with network

This is a method to operate other station PC which is connected with satellite net, using a network module: ZW-20AX.

<Key operation>

"Comm. set" → "Direct CONCT" → [Enter key] →



• Target station number

Set a target station number to operate PC.

Set station number between 00 to 77 (OCT) with numerical key.

After setting a target station number, press [Enter] (enter key) and assign "Yes" to returns to initial setting menu display.

(3) Functions available with each connection method

The functions available vary depending on the connection method of JW-50SP as shown in the table below.

Item	Connect to CU	Connect to network	Computer link	Network direct	Corresponding model
Search (8•5)	○	○	○	○	All model
Setting value/change constants (8•8)	○	○	○	○	All model
Set/reset (8•9)	○	○	○	×	All model
Freeze display (8•10)	○	○	○	○	All model
Change display (8•11)	○	○	○	○	All model
Scan time display (8•12)	○	○	○	○	All model
N scan operation (8•13)	○	×	×	×	JW series
Break monitor (8•14)	○	×	×	×	Model except for W10 and W16/51
Trigger monitor (8•15)	○	○	○	○	All model
Error moitor (8•16)	○	○	○	○	All model
PC operation/stop (8•17)	○	○	○	○	All model
Forced ON/OFF (8•18)	○	×	×	×	JW series
Address assignment break (8•19)	○	×	×	×	JW series
END instruction break (8•19)	○	×	×	×	JW series
Register break (8•19)	○	×	×	×	JW50/70/100, JW50H/70H/100H
Circuit edit [Running] (8•28)	○	×	×	×	All model
Circuit edit [Stopping] (8•28)	○	○	△1	○	All model
Mnemonic monitor (8•32)	○	○	○	○	All model
Monitor system memory (8•27)	○	○	○	○	All model
Monitor any required ladder (8•25)	○	○	○	○	All model
Monitor multiple point (8•23)	○	○	○	○	All model
I/O search (8•30)	○	○	×	○	JW50/70/100, JW50H/70H/100H
ACT search (8•31)	○	○	○	○	JW-21/22CU
Sampling trace (8•35)	○	×	×	×	JW series
EEP (flash) ROM write/read (12•16)	○	○	△2	△2	JW series
CU memory clear (12•17)	○	○	△2	△2	All model
Clock display (12•12)	○	○	×	×	JW50/70/100, JW50H/70H /100H, JW-22CU, JW-32/33CUH
Create or read I/O table (12•17)	○	○	△2	△2	JW-21/22CU, JW-31/32/33CUH
Transfer to PROM programmer from PC (12•17)	○	○	×	×	JW-22CU
Secret function (12•17)	○	○	○	○	JW10, JW-31/32/33CUH

△1 .. The computer link cannot be insterted or deleted.

△2 .. Available with JW-31/32/33CUH only.

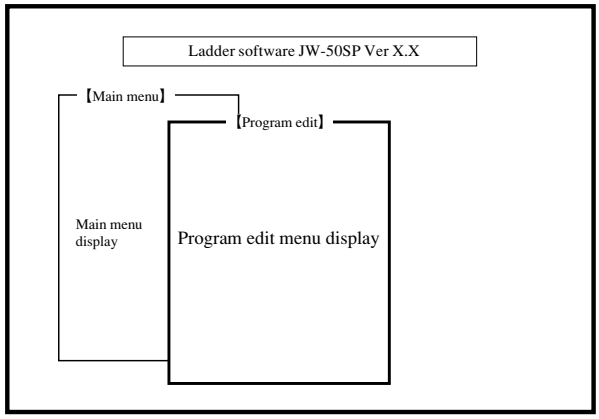
Chapter 7 Program edit

This mode is used to set/change PC model, or programming, clear memory, set data memory or system memory, or to check program.

Key operation

"Main menu" → "Program edit" → ⏎ (Enter key) →

Screen display



Function

Name	Function	Reference page
Model selection	Select model name from among W10/16/51/100/70H/100H, JW-21/22CU, JW50/70/100, JW50H/70H/100H, JW-31/32/33CUH, JW10	7 - 2
Symbol & comment set	Register symbol & comment to relay, timer, counter etc.	7-5
Ladder programming	Create, change, delete program with ladder diagram	7 - 9
Mnemonic programming	Create, change, delete program with instruction word	7 - 46
Memory clear	Clear data memory, program memory etc.	7 - 66
Data memory set	Set, change data memory	7 - 68
System memory set	Set, change system memory	7 - 70
Program check	Check created program	7 - 75
Preparation of library	Create, change, delete ladder diagram with symbol	7 - 77
FD transfer	Operation of FD	11 - 1
PC transfer	Operation of PC	12 - 1
CU parameter set	Set parameters of special module or option module setting the CU	7 - 79

Notes

- To select any of the above items of the menu, press numerical key or move the cursor with (↑ ↓) keys.
- Pressing ESC key returns to "Main menu" displayed screen.
- After creating or modifying program, be sure to enter "Program Check."
- We recommend storing created or modified "Program" into a user diskette with "FD transfer."

7-1 Model selection

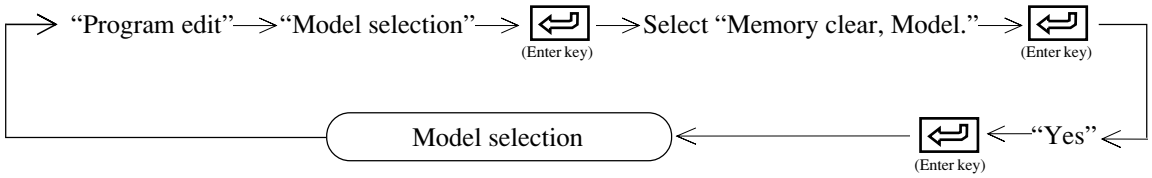
This mode is used to set PC model name prior to creating program or reading program from a personal computer.

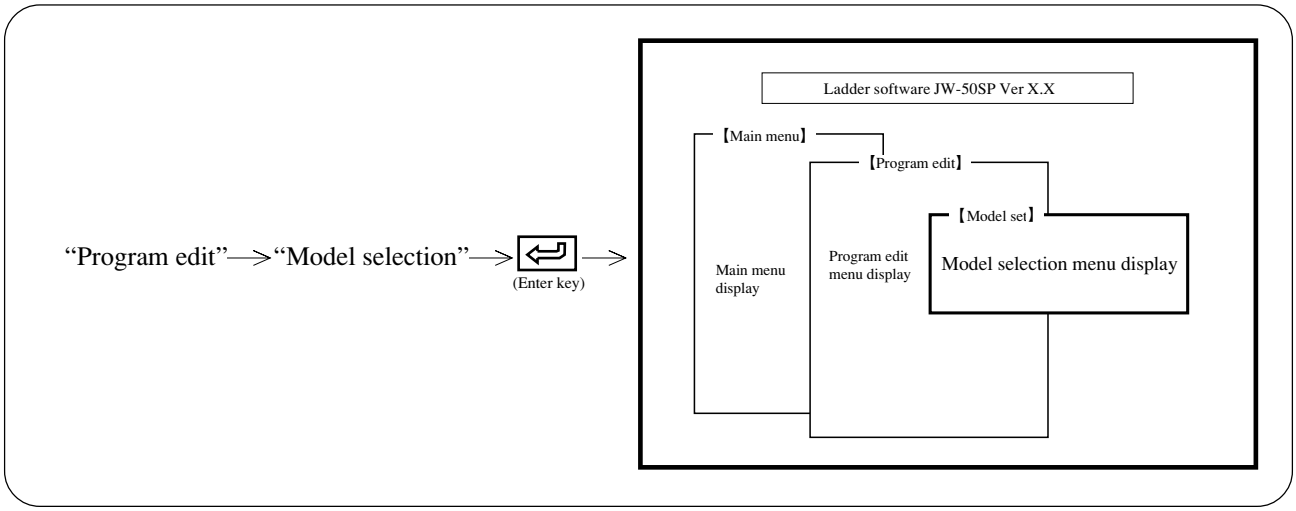
Two methods are available for setting as follows:

① Set model name with clear memory

② Set model name without clear memory

Key operation





Key operation

(1) Memory clear

- After assigning "Memory clear," press numerical key or select using cursor move key (← →).
- Select whether to clear memory contents or not at the same time as changing PC model name.

(2) Model

- After assigning "Model," press numerical key or select using cursor move key (← →).

(3) Model selection

- After setting "Memory clear," or "Model," press ⏎ (enter key.)

• Memory contents when changing model name as well as setting “memory clear”

Memory type	Contents
Program memory	Clear (NOP), write F-40(END) in end address
System memory	Clear (initial value of set PC model)
Data memory	Clear (00)
File memory	Clear (00)
Comment memory	Clear
Parameter memory	Clear (00)

• Memory contents when changing model name though no setting “memory clear”

① Before changing model name : W10

Memory type	W16/51 /100	W70H/100H	JW50/70/100	JW50H/70H /100H	JW-31/32/33 CUH	JW-21/22CU	JW10
Program memory	Holding	Holding	Holding	Holding	Holding	Holding	Holding
System memory	Initial value	Initial value	Initial value	Initial value	Initial value	Initial value	Initial value
Data memory	Holding	Holding	Holding	Holding	Holding	Holding	Holding
File memory	Holding	Holding	Holding	Holding	Holding	—	—
Comment memory	Holding	Holding	Holding	Holding	Holding	Holding	Holding
Parameter memory	—	—	—	—	00 clear	00 clear	—

② Before changing model name : W16/51

Memory type	W10	W100/70H /100H	JW50/70/100	JW50H/70H /100H	JW-31/32/33 CUH	JW-21/22CU	JW10
Program memory	—	Holding	Holding	Holding	Holding	Holding	Holding
System memory	—	Initial value	Initial value	Initial value	Initial value	Initial value	Initial value
Data memory	—	Holding	Holding	Holding	Holding	Holding	Holding
File memory	—	Holding	Holding	Holding	Holding	—	—
Comment memory	—	Holding	Holding	Holding	Holding	Holding	Holding
Parameter memory	—	—	—	—	00 clear	00 clear	—

③ Before changing model name : W100

Memory type	W10/16 /51	W70H/100H	JW50/70/100	JW50H/70H /100H	JW-31/32/33 CUH	JW-21/22CU	JW10
Program memory	—	Holding	Holding	Holding	Holding	Holding	Holding
System memory	—	Initial value	Initial value	Initial value	Initial value	Initial value	Initial value
Data memory	—	Holding	Holding	Holding	Holding	Holding	Holding
File memory	—	Holding	Holding	Holding	Holding	—	—
Comment memory	—	Holding	Holding	Holding	Holding	Holding	Holding
Parameter memory	—	—	—	—	00 clear	00 clear	—

④ Before changing model name : W70H/100H

Memory type	W10/16 /51	W100	JW50/70/100	JW50H/70H /100H	JW-31/32/33 CUH	JW-21/22CU	JW10
Program memory	—	Holding	Holding	Holding	Holding	Holding	Holding
System memory	—	Initial value	Initial value	Initial value	Initial value	Initial value	Initial value
Data memory	—	Holding	Holding	Holding	Holding	Holding	Holding
File memory	—	Holding	Holding	Holding	Holding	—	—
Comment memory	—	Holding	Holding	Holding	Holding	Holding	Holding
Parameter memory	—	—	—	—	00 clear	00 clear	—

⑤ Before changing model name : JW50/70/100 (or JW50H/70H/100H)

Memory type	W10/16/51 /100/70H /100H	JW50H/70H /100H (or JW50/70/100)	JW-21/22CU	JW-31/32/33 CUH	JW10
Program memory	—	Holding	Holding	Holding	Holding
System memory	—	Initial value	Initial value	Initial value	Initial value
Data memory	—	Holding	Holding	Holding	Holding
File memory	—	Holding	—	Holding	—
Comment memory	—	Holding	Holding	Holding	Holding
Parameter memory	—	—	00 clear	00 clear	—

⑥ Before changing model name : JW-21CU (or JW-22CU)

Memory type	W10/16/51 /100/70H /100H	JW50/70/100	JW50H/70H /100H	JW-22CU (or 21CU)	JW-31/32/33 CUH	JW10
Program memory	—	Holding	Holding	Holding	Holding	Holding
System memory	—	Initial value	Initial value	Initial value	Initial value	Initial value
Data memory	—	Holding	Holding	Holding	Holding	Holding
File memory	—	00 clear	00 clear	—	00 clear	—
Comment memory	—	Holding	Holding	Holding	Holding	Holding
Parameter memory	—	—	—	Holding	Holding	—

⑦ Before changing model name : JW-31CUH (or JW-32/33CUH)

Memory type	W10/16/51 /100/70H /100H	JW50/70/100	JW50H/70H /100H	JW-21/22CU	JW-32(or 31/33CUH)	JW10
Program memory	—	Holding	Holding	Holding	Holding	Holding
System memory	—	Initial value	Initial value	Initial value	Initial value	Initial value
Data memory	—	Holding	Holding	Holding	Holding	Holding
File memory	—	Holding	Holding	—	Holding	—
Comment memory	—	Holding	Holding	Holding	Holding	Holding
Parameter memory	—	—	—	Holding	Holding	—

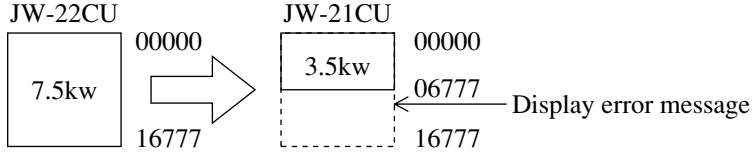
⑧ Before changing model name : JW10

Memory type	W10/16/51 /100/70H /100H	JW50/70/100	JW50H/70H /100H	JW-21/22CU	JW-31 /32/33CUH
Program memory	—	Holding	Holding	Holding	Holding
System memory	—	Initial value	Initial value	Initial value	Initial value
Data memory	—	Holding	Holding	Holding	Holding
File memory	—	00 clear	00 clear	—	00 clear
Comment memory	—	Holding	Holding	Holding	Holding
Parameter memory	—	—	—	00 clear	00 clear

Notes

- In case the capacity of program before a change is larger than the capacity after the change, capacity of changing are converted from the front parts respectively with a display of an “error message”.

(Example)



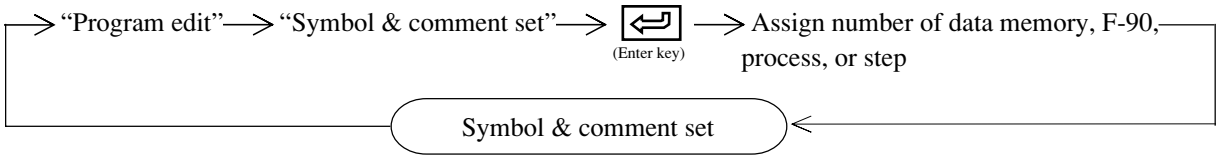
- In case there exist some instructions which cannot be changed, a list of such instructions will be displayed.

7-2 Symbol & comment set

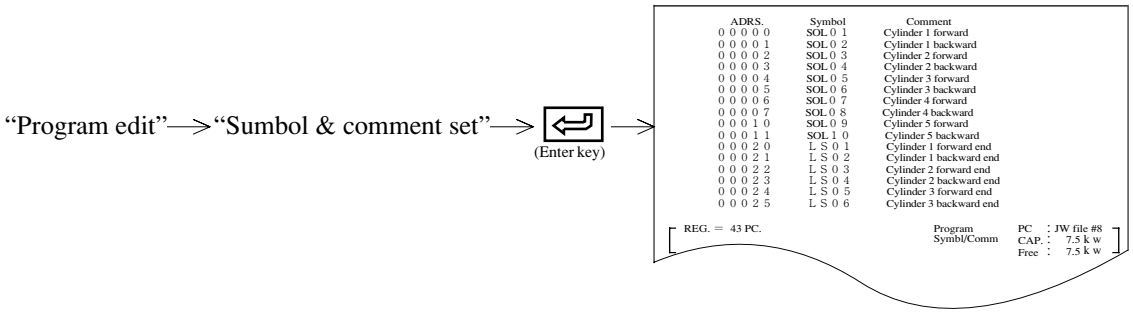
Register symbol & comment on processes, steps of relay, data memory, F-90, or JW-21/22CU.

- Symbol is registerable up to 8 characters with full size letters (16 characters with half size letters). Comment is registerable up to 14 characters with full size letters (28 characters with half size letters).
- Mixed input of full size letters and half size letters is available for both symbols and comments.
- Display when creating, modifying program with ladder diagram or instruction word. (Input (modification) of symbol & comment is also available.)
- When setting as “with symbol” or “with comment” for printing, the module prints program with symbols or comments.

Operation outline



Key operation



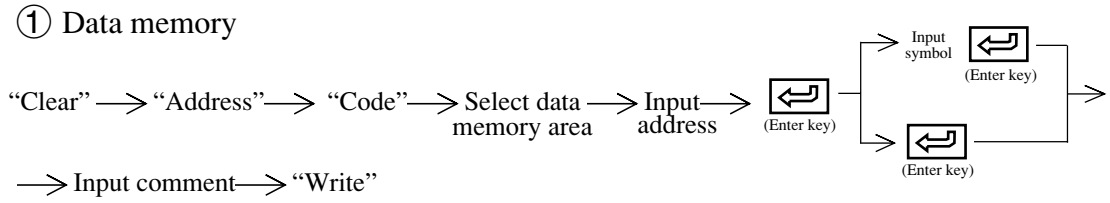
- Display registered 16 data memory addresses from the top.
- Number of registration is total amount of data memory, F-90, processes, and steps.

Name	Function
CHG. FUN	Change function display of F1 to F10
Clear	Clear symbol & comment of cursor position
Address	Set data memory address
Code	Change data memory area
Copy	Copy symbol & comment of the previous line from cursor position
Delete	Delete address, symbol, comment of cursor position
Quite	End symbol & comment setting
Write	Write symbol & comment in the module's memory
F-90	Set number of F90 application instruction (000000 to 003777OCT)
PROC	Set SF instruction PROC (process) number (00 to 03)
STEP	Set SF instruction STEP (step) number (00 to 77OCT)
Area CP.	Block copy of symbol & comment
Area move	Block move of symbol & comment
Area delete	Block delete of symbol & comment

Key operation

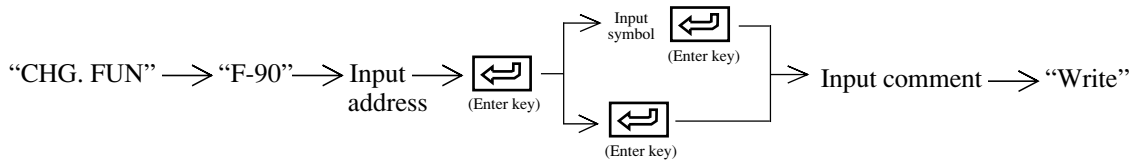
(1) How to register symbol & comment

① Data memory

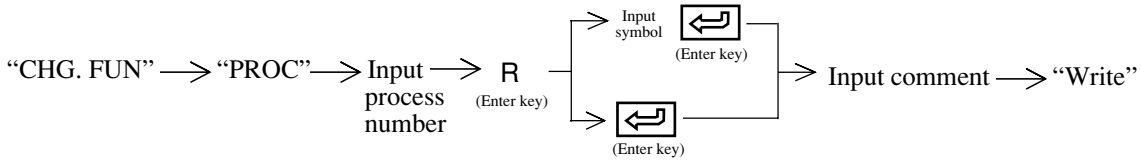


• Press "Code" key repeatedly to select data memory area

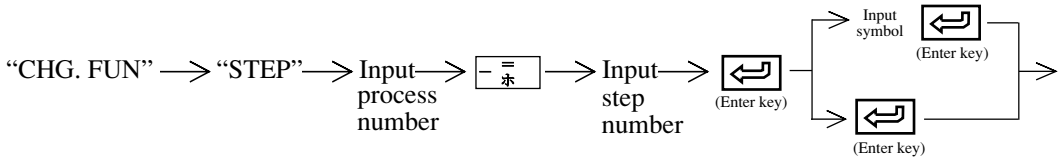
② F-90



③ Process



④ Step



Notes

- "Writing" is also available with SHIFT + (Enter key).
- To write "Symbol" only, press "Write" key after inputting symbol.
- To write "Comment" only, move the cursor to "Comment" column with (Enter key) key. Then input comment.
- To modify input "Symbol" or "Comment," press (Enter key) key before pressing "Write" key and move the cursor to modifying column. Then move the cursor to a position to modify with ← → keys and input new character.

(2) How to copy symbol & comment

(Example)

Address	Symbol	Comment
04000	Station number 1	Sending data
09100	Station number 1	Sending data (upper position)

(Write)

"Clear" → "Address" → [4] [0] [0] [0] [↵] (Set address 04000) (Enter key) → Station number 1 (Symbol) → [↵] (Enter key) →

→ Sending data (Comment) → "Write" → Write symbol & comment in address 04000 → Move the cursor to address 04001 →

(Copy)

→ "Clear" "Address" "Code" "Code" "Code" "Code" → Address display turns to 09000 →

→ !)) (Set address 09100) → R → "Copy" (Enter key) → Copy symbol & comment of address 04000 to address 09100 →

(Modify)

→ R (Enter key) →] (Move cursor) → (Upper position) → "Write" (comment) → Write symbol & comment in address 09100

(3) How to delete symbol & comment

- **Data memory**

  "Clear" → "Address" → "Code" → Select data memory area → Input address → "Delete"

- **F-90**

  "CHG. FUN" → "F-90" → Input addressss (00000 to 03777OCT) → "Delete"

- **Process**

  "CHG. FUN" → "PROC" → Input procrocess number (00 to 03) → "Delete"

- **Step**

  "CHG. FUN" → "STEP" → Input process number → [− = 未] →

  → Input step number (00 to 77OCT) → "Delete"

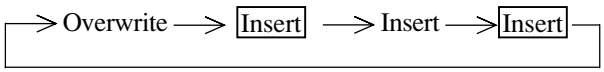
(4) How to delete currently inputting symbol & comment

Delete with "Clear" key

Cursor position	Contents to be cleared (deleted)
Symbol input port	Symbol only
Comment input port	Comment only

(5) How to modify symbol & comment

* Change input mode using [Insert] key. (initial setting is "Ovr W")



(Example 1 : Input character)

"Coment" ⇨ "Comment"

Move the cursor to "e" position ⟶ Press [Insert] key ⟶ Change input mode ⟶ Input "m" ⟶ The word turns to "comment"

(Example 2 : Overwrite of character)

"Commett" ⇨ "Comment"

Move the cursor to "t" position ⟶ Input "n" ⟶ The word turns to "comment"

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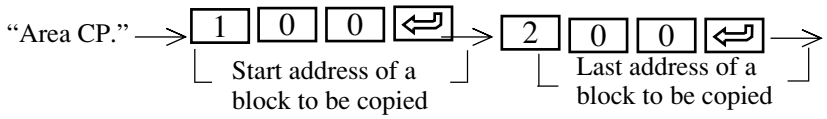
(6) Area copy

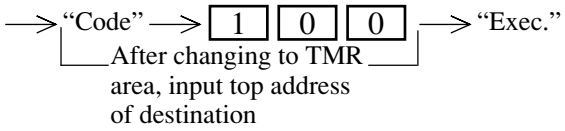
The below operation makes copying symbols & comments by block unit available.

"Area CP." ⟶ Input start address of a block to be copied ⟶ [↵] (Enter key) ⟶ Input last address of a block to be copied ⟶ [↵] (Enter key) ⟶ Input top address of destination position ⟶ "Exec."

*Address can be changed with "Code" key.

(Example) Copy symbol & comment of relay 00100 through 00200 to TMR100 through 200





(7) Area move

The below operation makes moving symbols & comments by block unit available.

"Area Move" ⟶ Input start address of a block to be moved ⟶ [↵] (Enter key) ⟶ Input last address of a block to be moved ⟶ [↵] (Enter key) ⟶ Input top address of destination position ⟶ "Exec."

(8) Area delete

The below operation makes delete symbols & comments by block unit available.

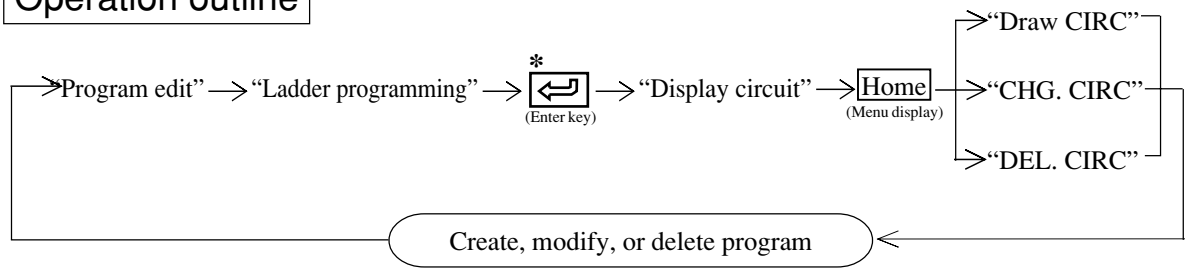
"Area Delete" ⟶ Input start address of a block to be deleted ⟶ [↵] (Enter key) ⟶ Input last address of a block to be deleted ⟶ "Exec."

7-3 Ladder programming

This mode is used to create, modify, delete programs on ladder diagram.

"Ladder programming" mode is classified into display circuit, draw circuit, change circuit, and delete circuit. A plural number of circuits can be prepared simultaneously from V5.0 onward. (See page 7- 29 to 31.)

Operation outline



*When the PC model is set to JW-31/32/33CUH

If you are using the software version 5.0 or later and at the same time the program memory is clear, the following screen appears.

Do you use the structuring programming technique?
0: Use 1: Not use

If you select "0" and then press (Enter key), you will be in the structured programming mode in which you perform programming using the structured programming technique.

If you select "1" and then press (Enter key), you can perform ordinary programming on the circuit display.

See also the "JW-50SP Structural programming manual" for structured programming technique.

Remarks

• Display ladder diagram

Horizontal direction : 11 relay contacts + 1 coil (When more than 11 relay contacts are input, the screen shifts to left. Input available up to 252 relay contacts)

Vertical direction : 6 relay lines

• Move cursor

[→] : Move the cursor by 1 relay contact unit in right direction (When the cursor is at right end, it moves to lower left end)

[←] : Move the cursor by 1 relay contact unit in left direction (When the cursor is at left end, it moves to upper right end)

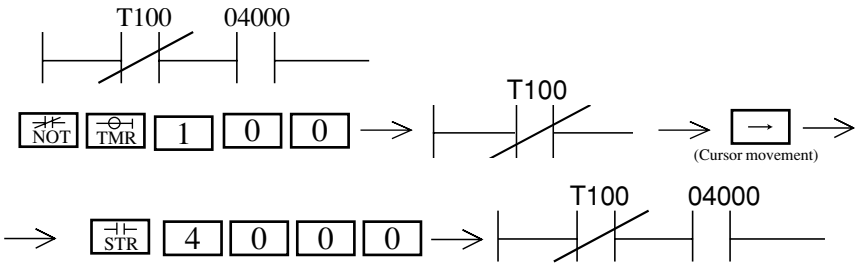
[→] : Move the cursor by 1 relay line unit in upper direction (When the cursor is at the top line of the screen, it shifts up by 1 relay line unit)

[←] : Move the cursor by 1 relay line unit in down direction (When the cursor is at the bottom line of the screen, it shifts down by 1 relay line unit)

• Ladder symbol key

[STR] :	(STR)	[OUT] :	(OUT)
[NOT] :	(NOT)	[CNT] :	(CNT)
[AND] :	(AND)	[TMR] :	(TMR)
[OR] :	(OR)	[FUN] :	(FUN)

• An example of input



7

Key operation 1

"Program edit"

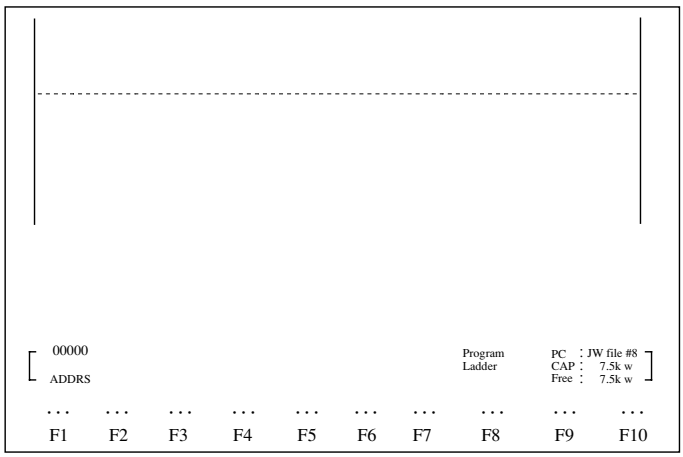
↓

"Ladder programming"

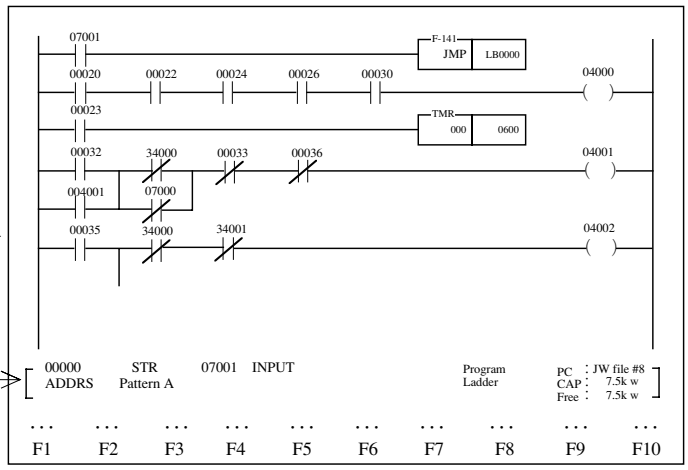
↓

(Enter key)

Display of no written program →



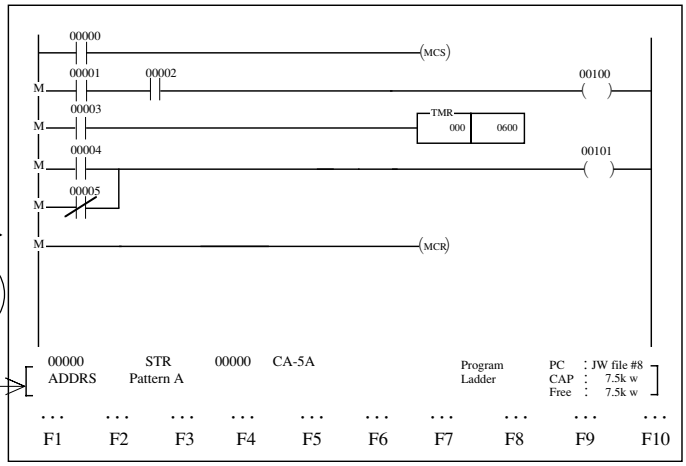
Display with written program →



Display address, instruction words, symbol & comment of current cursor position

Display with written program →

Display example between MCS and MCR



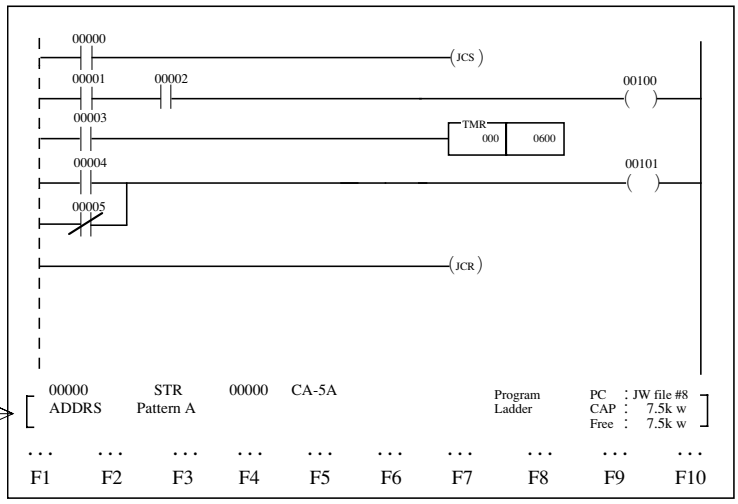
Display address, instruction words, symbol & comment of current cursor position

*

*

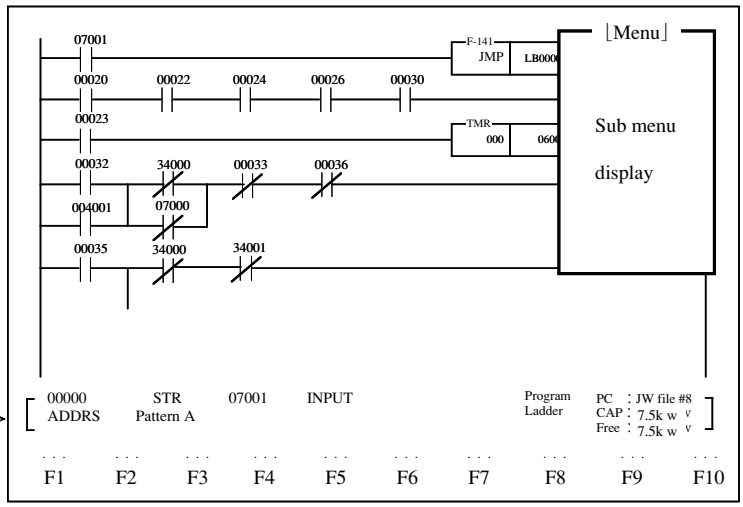
Display with written program

(Display example between JCS and JCR)



Display address, instruction words, symbol & comment of current cursor position

Home

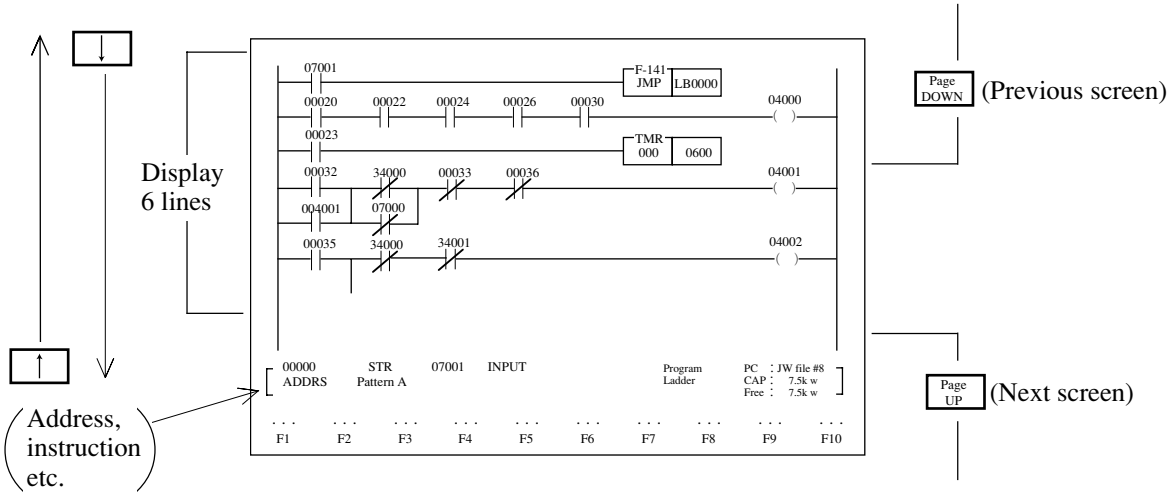


Display "Menu" by pressing Home key

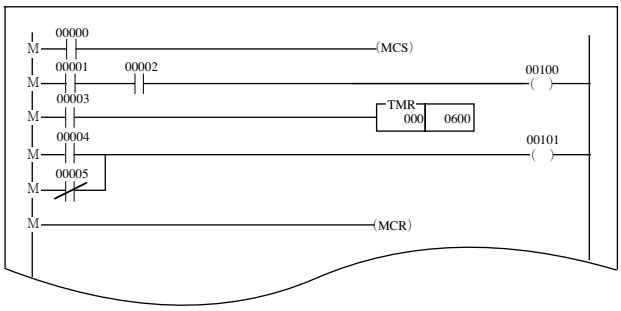
Display address, instruction words, symbol & comment of current cursor position

[1] Circuit display

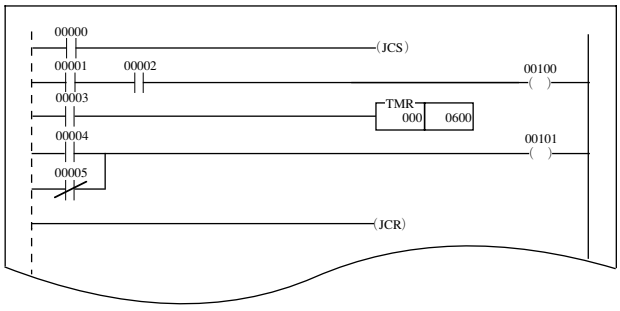
- When "Ladder programming" mode is selected, and the module has a program in its memory, it displays the contents of 6 lines from top of the program.
- In above mode, when no program is written, the module displays dotted line only.
- When the cursor is moved by pressing [↓] key at the ladder diagram display, the screen scrolls down by 1 line pitch. When the cursor is moved by pressing [↑] key, the screen scrolls up by 1 line pitch.
- Pressing [Page UP] key displays next screen (ladder diagram) while taking the currently displayed bottom line as a top line. Pressing [Page DOWN] key displays previous screen (ladder diagram) while taking the currently displayed top line as a bottom line.
- The message display section shows cursor position information (program address, instruction etc.).



- Bus line in master control is shown with "M" as below.



- Bus line in jump control is shown with "dotted line" as below.



[Circuit display function]

Function	Reference page
Display search with key operation	7-14
Display with instruction search	7-14
Display with program address search	7-15
Display with data memory address search	7-16
Change data memory number, set value	7-16
Move, copy, delete with unit of network	7-17
Register, read, delete of library file	7-19
Display data memory used condition	7-25
Change display	7-25
Block change of relay, timer, counter, and register number	7-26
Display step used condition	7-26

(1) Display search with key operation

- Pressing [↑] key moves the cursor in upper direction. When the cursor is at top line of the screen, another press of [↑] key shifts previous ladder diagram by 1 line.
- Pressing [↓] key moves the cursor in downward direction. When the cursor is at bottom line of the screen, another press of [↓] key shifts next ladder diagram by 1 line.
- Pressing [→] key moves the cursor in right direction. When more than 11 contacts are allocated, the screen can shift in right direction. When the cursor is at right end, another press of this key moves the cursor to next line top position.
- Pressing [←] key moves the cursor in left direction. When the cursor is at left end, another press of this key moves the cursor to previous line top position.
- Pressing [Page DOWN] key displays previous ladder diagram while taking the currently displayed top line as a bottom line.
- Pressing [Page UP] key displays next ladder diagram while taking the currently displayed bottom line as a top line.

(2) Display with instruction search

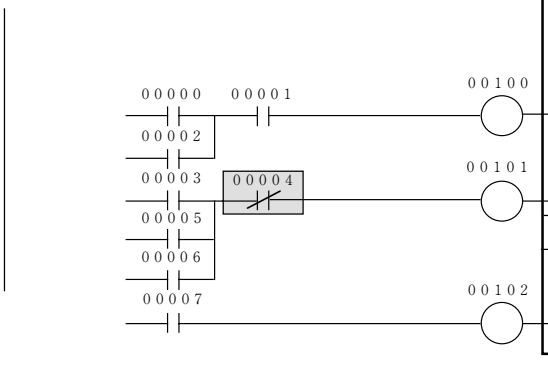
This function designates any of the instruction and displays a circuit (network) having its instruction at top of screen.

<Key operation>

"Clear" ⟶ "Address" ⟶ Input search start program address* ⟶ Instruction word (ladder symbol) + Number ⟶ "Search:+" ⟶ Display a circuit having designated instruction at top of screen

- When searching for an instruction from program address 00000, operations with "*" are not required.
- Continuous press of "Search:+" key allows the module to search to the end address.
- Press of "Search:–" key allows the module to search to a smaller address number.

[Example] Search AND NOT 00004



Address	Instruction	
00100	STR	00000
00101	OR	00002
00102	AND	00001
00103	OUT	00100
00104	STR	00003
00105	OR	00005
00106	OR	00006
00107	**AND NOT**	**00004**
00110	OUT	00101
00111	STR NOT	00007
00112	OUT	00102

"Clear" → "Address" → [1] [0] [0] → [AND] [NOT] [4] →

Set search start address — AND NOT 00004

"Search:+" → Display a circuit having AND NOT 0004 at top of screen

7

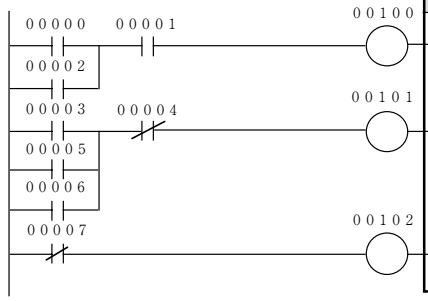
(3) Display with program address search

This function assigns any program address and displays a circuit having its address at top of the screen.

<Key operation>

"Clear" → "Address" → Input program address → [↵] (Enter key) → Display a circuit having designated program address at top of screen

[Example] Search program address 00102



Address	Instruction	
00100	STR	00000
00101	OR	00002
00102	AND	00001
00103	OUT	00100
00104	STR	00003
00105	OR	00005
00106	OR	00006
00107	AND NOT	00004
00110	OUT	00101
00111	STR NOT	00007
00112	OUT	00102

"Clear" → "Address" → [1] [0] [2] → [↵] (Enter key) → Display a circuit having program address 00102 at top of screen

Set search start address

(4) Display with data memory address search

This function assigns required data memory (relay, TMR/CNT etc.) and displays a circuit having its data address at top of the screen.

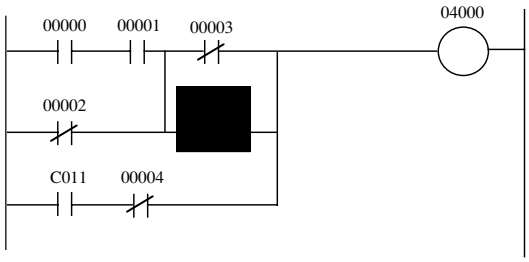
<Key operation>

"Clear" ⟶ "Code" ⟶ Select data memory area ⟶ Input data memory number ⟶ "Search:+"

⟶ Display a circuit having designated data memory at top of screen

- Press "Code" key and select data memory area.
- Continuous press of "Search:+" key allows the module to search to the end address.
- Press of "Search:–" key allows the module to search to a smaller address number.

[Example] Search TMR 010



Address	Instruction	
00000	STR	00000
00001	AND	00001
00002	OR NOT	00002
00003	STR NOT	00003
00004	OR TMR	**010**
00005	AND STR	
00006	STR CNT	0011
00007	AND NOT	00004
00010	OR STR	
00011	OUT	04000

"Clear" ⟶ "Code" ⟶ [1] [0] ⟶ "Search:+" ⟶ Display a circuit having TMR 010 at top of screen

[1] [0]: Search TMR 010

Select area of TMR · CNT in the program

- If you press "Zoom (+)" or "Zoom (–)", only circuits having the specified data memory address as output will be searched (relay, TMR/CNT only).
- A previously searched program address will be displayed with "Previous search".

(5) Change data memory number, set value

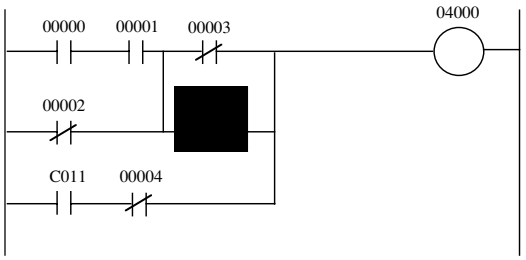
This function changes data memory number or the set value which is used in the program.

<Key operation>

Move the cursor to an instruction word that needs to be changed ⟶ Input data memory number or set value ⟶ "Write"

- Change (from " a" contact to " b" contact), addition and/or delete of instruction is unavailable. (Use "CHG.CIRC" mode for above change)

[Example] Change TMR 010 to TMR 001



Address	Instruction	
00000	STR	00000
00001	AND	00001
00002	OR NOT	00002
00003	STR NOT	00003
00004	OR TMR	**010**
00005	AND STR	
00006	STR CNT	0011
00007	AND NOT	00004
00010	OR STR	
00011	OUT	04000

"Clear" "Cord" [1] [0] "Search:+" → [0] [0] [1] → "Write"

Search TMR 010 — Write new number 001

7

(6) Move, copy, delete with unit of network

This function moves, copies, deletes any area assigned network to required position.

<Key operation>

Move the cursor to the top network to be moved, copied, deleted → [Home] → "Area Assign" → Cursor located network turns into reverse display → Move the cursor to the end network to be moved, copied, deleted

→ [↵] (Enter key) → Confirm networks to be moved, copied, deleted

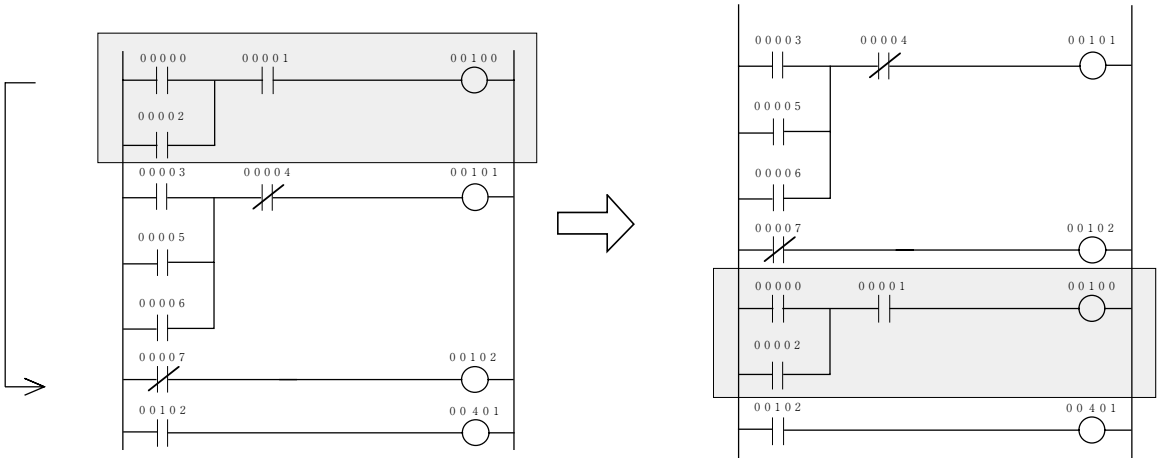
- Move → Move the cursor to top of network of destination → "Move" →
- Copy → Move the cursor to top of network of destination → "Copy" →
- Delete → "Delete" → Delete network of assigning area (reverse display) →

→ The moving network appears in front of the cursor positioned network → Display the network after it has been moved

→ The copied network appears in front of the cursor positioned network → Display the network after it has been copied

→ Close display of next network after deletion

[Example 1] Move



"Clear" "Address" STR "Search:+" → Home (Menu display) → "Area Assign" → (Enter key) → (Enter key) →

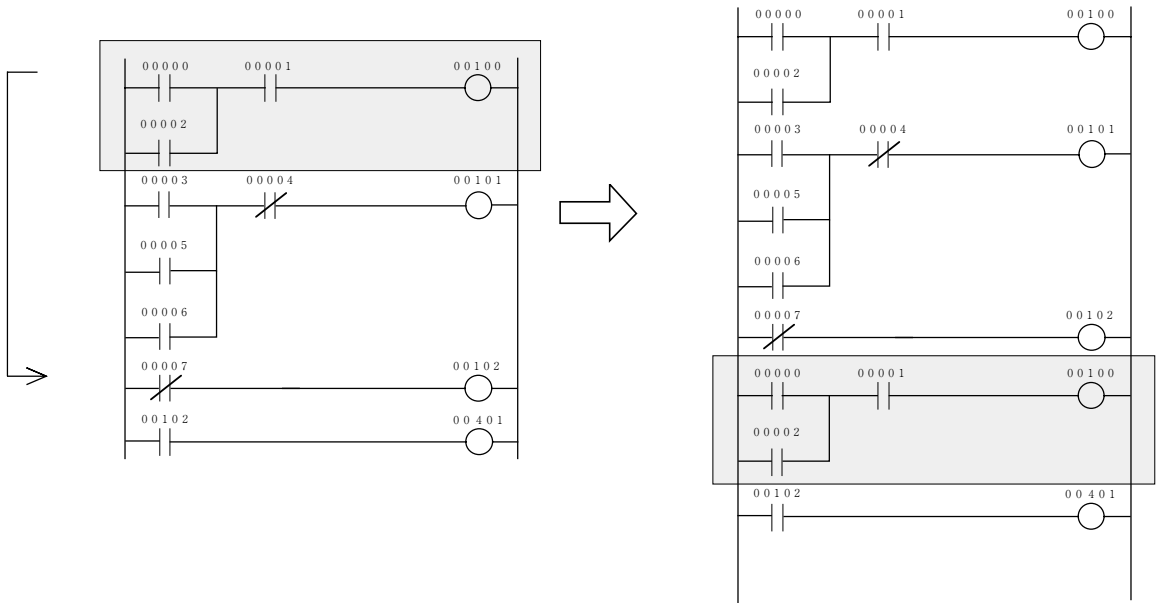
Search STR 00000

Reverse display of STR 00000

→ ↓ → "Move" → Move the STR 00000 network to just in front of STR00102 network

Move the cursor to STR 00102

[Example 2] Copy



"Clear" "Address" STR "Search:+" → Home (Menu display) → "Area Assign" → (Enter key) →

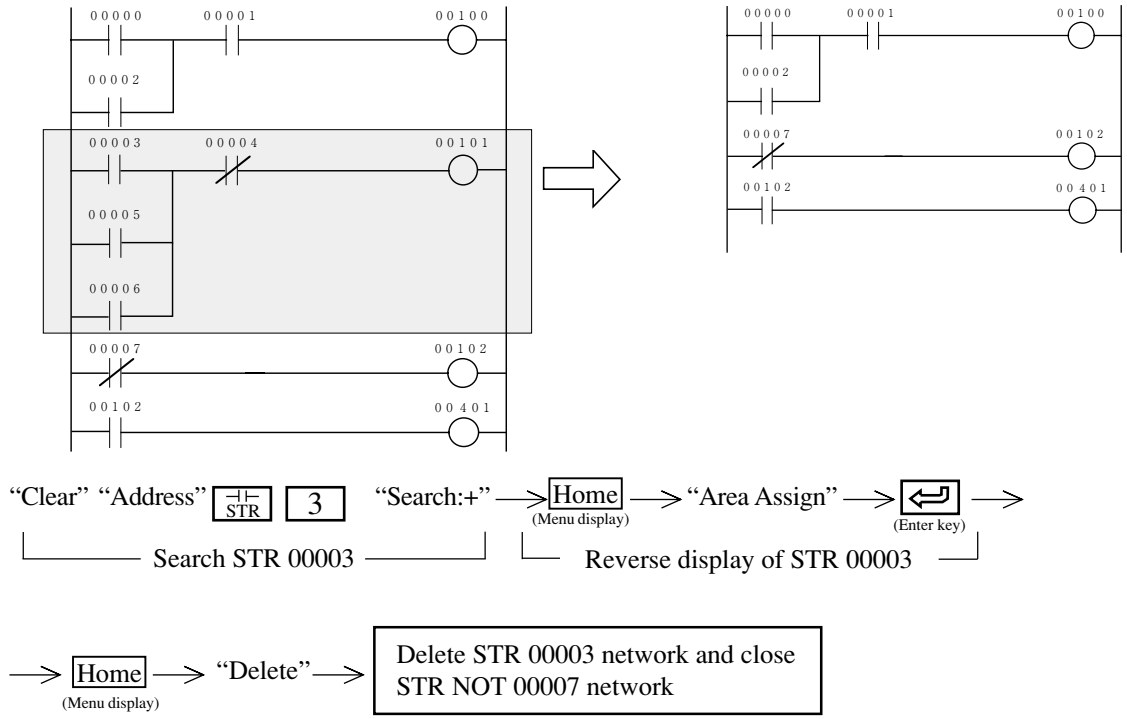
Search STR 00000

Reverse display of STR 00000

→ ↓ → "Copy" → Move the STR 00000 network to just in front of STR00102 network

Move the cursor to STR 00102

[Example 3] Delete



"Clear" "Address" STR 3 "Search:+" → Home (Menu display) → "Area Assign" → (Enter key) →

Search STR 00003

Reverse display of STR 00003

→ Home (Menu display) → "Delete" → Delete STR 00003 network and close STR NOT 00007 network

(7) Register, read, delete of library file

This function registers created program into the library file, or read out, delete files from the library file.

<Key operation>

Home (Menu display) → "Library" → (Enter key) →

- "DIR." → Display registered file name
- "Save" →
- "Load" → Input or select file name → "Exec." → Register, read out, delete a program
- "Delete" →

① Register (writing)

Library
↓
Enter key
↓
Select F2 “Save”.
↓
Move cursor in top of registered program.
↓
Input F2 “Area Assi” key.
↓
Move cursor in end of registered program.
↓
Enter key
↓
Input F8 "Exec." key.
↓
Input file name and comment. (*Select file when overwriting in an existing file.)
↓
Select the type of registration (*).
↓
Enter key
↓
Input “Exec.” key.
↓
Input F/O "Quit" key.

*For the selection of the type of registration, the following window will be displayed:

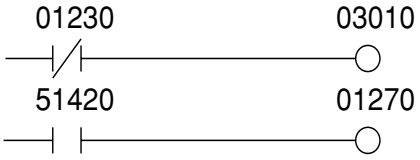
Regst. type

1: Normal lib type	ADRS. only	W/Symbol & COM.
2: Symbol lib type		

Use the cursor moving key to select the respective types of registration.

Normal library type address only ..... Library as usual.
Normal library type with symbol & comment ..... Library as usual + necessary for symbol & comment.
Symbol library type ..... Registration in the symbol library is made with registered symbols. For any address without symbol, its number will be registered as symbol.

[Example]



Symbol	Comment
01230: LS0001	Limit switch 1
01270: SOL01	Cylinder 1 forward
03010: SOL02	Pusher 20 backward
51420: SOL01H	Cylinder 1 auxiliary forward

1. Normal library register

This is a conventional library in which relay/register numbers (with displayed contents) are registered. Usually, the registration is made by this system.

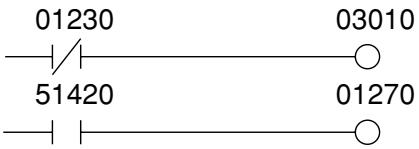
Select an address of normal library type (registration of number) only in the registration type selecting picture.

Regst. type

1: Normal lib type ADRS. only W/Symbol & COM.

2: Symbol lib type

If you register the example, the library will get into the following state:



2. Library register with symbol & comment

The registration is made in the type of a normal library, but the symbol & comment of the relay & register numbers used are also registered at the same time.

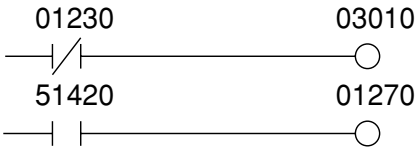
Select an address of normal library type (registration of number) only in the registration type selecting picture.

Regst. type

1: Normal lib type ADRS. only W/Symbol & COM.

2: Symbol lib type

If you register the example, the library will get into the following state:



Symbol	Comment
01230: LS0001	Limit switch 1
01270: SOL01	Cylinder 1 forward
03010: SOL02	Pusher 20 backward
51420: SOL01H	Cylinder 1 auxiliary forward

3. Symbol library register

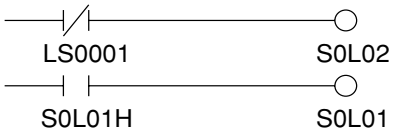
The registration is made by using the symbol registered in the relay/register number. In case no symbol is set, the system will automatically assign a symbol. If the registration is made in this form, it is necessary to assign the relay & register numbers for the respective symbols at the time of reading.

Select an address of normal library type (registration of number) only in the registration type selecting picture.

Regst. type

1: Normal lib type	ADRS. only	W/Symbol & COM.
2: Symbol lib type		

If you register the example, the library will get into the following state:



7

② Reading

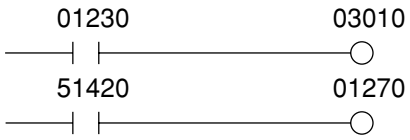
Move the cursor to the position for reading out the library file.
(Insert before the program at the cursor position.)
↓
HOME CLR key (menu display).
↓
Select the “Library”.
↓
“Enter” key.
↓
Select the F3 “Load”.
↓
Select life by ↑ ↓ key. (Selectable in a plural number)
↓
"Exec." key.
↓
“Enter” key.
↓
Select relay/register number exchange function.
↓
Set the reading times.
↓
Exchange macrocosm/symbol library.
(Only at using macrocosm/symbol library type)

Make selection of file with the cursor moving keys and the space key. If you select a plural number of files, the files are read out in the order of selection. The order of selection is indicated with numbers.

1. Relay/register number converting function

Relay/register numbers in the registered library can be changed for reading out. When using this function, select "Yes" in the selection of relay/register number converting function.

[Example] Contents of library



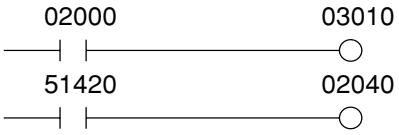
↓

Converted from relay/register (start) number		01230
Converted from relay/register (end) number		01270
Converted to (start) number		02000
Conversion of symbol & comment	Yes	No

The register can also be specified as the number to be changed. The number of the destination of conversion shall be adapted to the kind (relay or register) of the number to be changed. Conversion of symbol & comment is a selection of whether or not change the contents of the symbol & comment registered in the library at the time of conversion. The specification of conversion can be made in a plural number. When a selecting picture is displayed after the end of the current conversion, select "Yes" for making further conversion.

↓

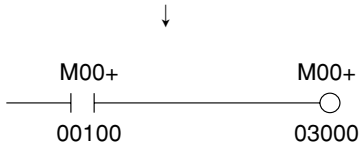
Program after reading



2. Number of times of reading specifying function

One same library file can be read out in a plural number of times continuously.
(The number of times of reading can be specified to 99 times max. at a time.)
To set the number of times of reading, input the number from numerical keys.
If you described the library to be read out a plural number of times in the form of macro library, you can read it out with an increment (decrement) of relay number, etc.

[Example] Contents of library

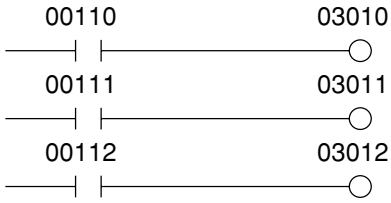


Contents of setting

Number of times of reading — 3 times
M00 = 00010
Increment = +1

F8 "Exec." key.

Program after reading



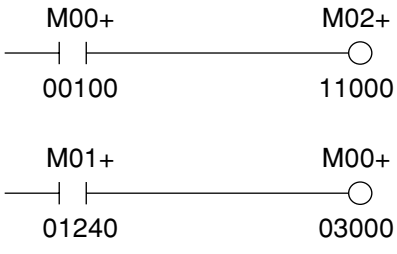
7

3. Conversion of data registered in macro/symbol library

In the case where there exists any form of macro or symbol library in the library to be read out, conversion into relay/register number is necessary.

Set an address for each of them at the time of reading of the library.

[Example] Contents of library

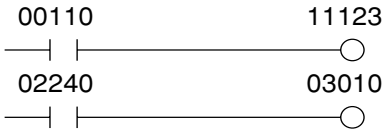


Contents of setting

M00 = 00010
M01 = 01000
M02 = 00123

F8 "Exec." key.

Program after reading



Use the “Code” key for switching the relay/timer/register No.

③ Delete

"Library" [↵] (Enter key) → "Delete" → "Select file" → "Exec."

→ Delecte a program assigned file name from the library.

• Make selection of file with the cursor moving keys [↓] [↑] and the space key.

(8) Display data memory used condition

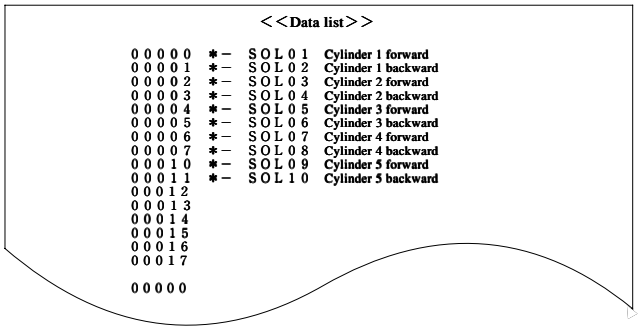
• This function displays data memory occupied condition with registered symbol & comment.

• When it is used as contact, the module display it as "–." When it is used as coil (OUT instruction), the module displays it as " *."

<Key operation>

Home (Menu display) → "Data list" → [↵] (Enter key) → Display 16 lines from relay area.

<An example of display>



Press "Code" key and assign data memory area → Input address → [↵] (Enter key) → Display 16 lines starting from input number of address →

→ Display previous screen/next screen with [Page DOWN] / [Page UP] keys

(9) Change display

Change display contents to contact, coil etc.

<Key operation>

Home (Menu display) → "CHG. DISP" → [↵] (Enter key) → Change display menu display

- "Address" → Data memory number display
- "Symbol" → Symbol display
- "ADRS/Symbol" → Data memory number and symbol display

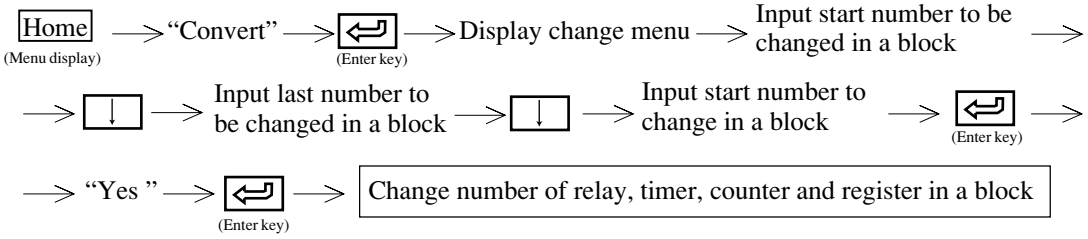
• "Data memory number" appears on upper line of contact, coil etc. (initial setting)

• "Symbol" appears on lower line of contact, coil etc.

(10) Block change of relay, timer, counter, and register number

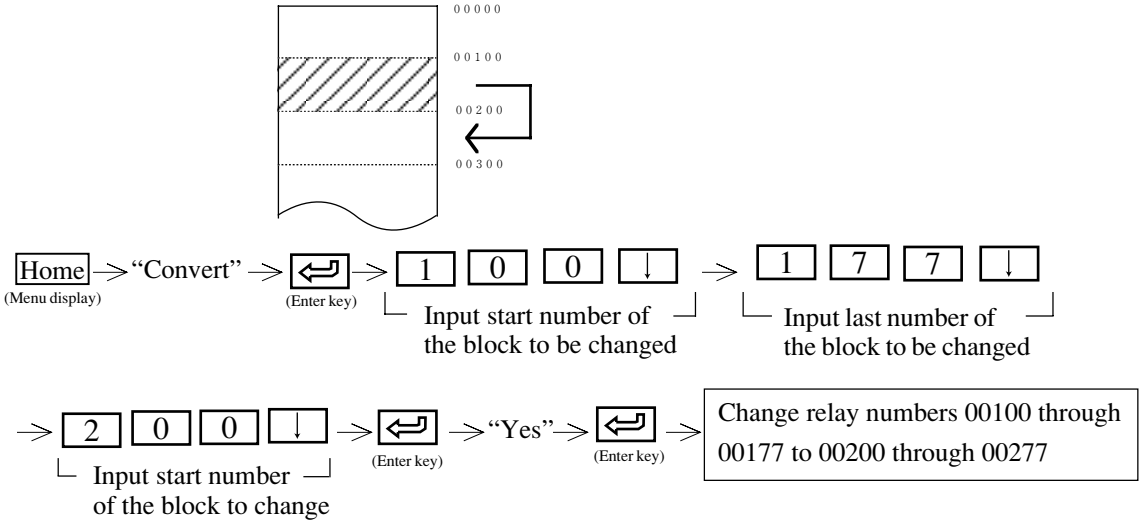
This function changes numbers of relay, timer, counter, register used in the program in a block.

<Key operation>



• "Code" key is usable to change: relay → Timer/counter → Register area.

(Example) Change relay numbers 00100 through 00177 to 00200 through 00277



(11) Display step used condition

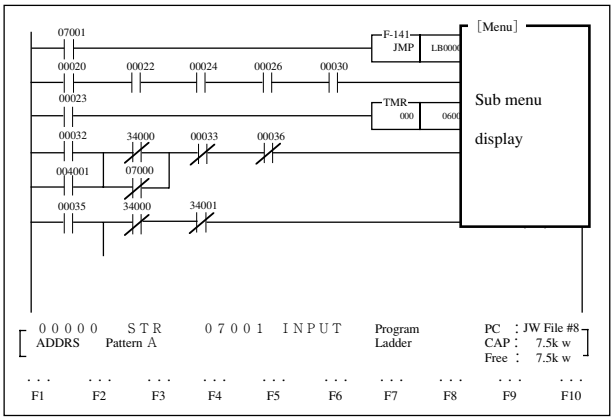
When PC model "JW21" or "JW22" is applied, the module displays step number allocated condition of SF instruction.

<Key operation>

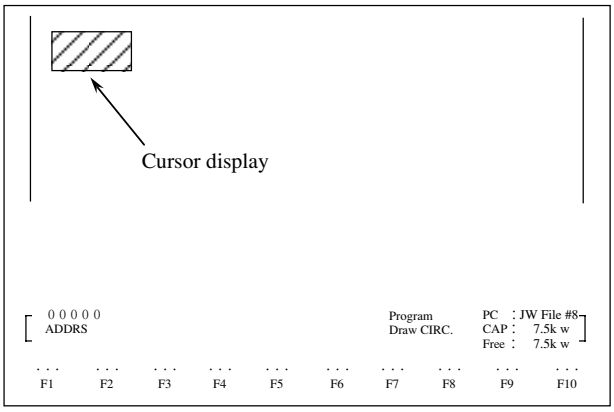
No mark means not used. " * " mark means to be used.

[2] Draw circuit

- **This function writes program in the personal computer's memory with ladder diagram.**
- Pressing H key at "Display circuit" condition causes "Menu" to be displayed on the screen.



- Select "Draw CIRC." appears on the screen as shown below and makes possible program creation with ladder diagram. The created circuit (network) appears just in front of the cursor positioned network of the "Display circuit" screen.



- Input contact number, coil number and press [↵] (enter key), you can register "Symbol & comment."

(Example)

"Mnemonic input" → "Contact/coil number input" → [↵] (Enter key) → [Input symbol] → [↵] (Enter key) →

→ [Input comment] → "Write" → Move cursor → "Mnemonic input" → • • • • •

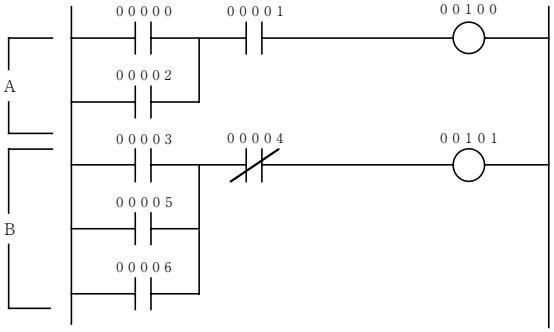
- In case of ladder programming, it is not necessary to input "instruction" in order of program address numbers.
- When writing a program in the memory with the "Write" key, confirm that instruction and data memory addresses are correctly set.
- Press "Write" key connects unconnected contact and coil (output) and writes in the memory. Pressing [Shift] + [↵] produces the same function as "Write."
- When writing is finished with "Program over," delete an intermediate of the program or unnecessary programs around END instruction.

Function

Name	Function
Insert	• Move an element right next to the cursor position by one element and enable input of an element.
Delete	• Delete an element of the cursor position
Insert L	• Shift lower lines down from the cursor position by 1 line
DEL. OR	• Delete OR connect line from the cursor position to upper direction cross point.
Code	• Change data memory area
Code CNV	• Change display of register contents
Connect	• Connect unconnected contact and coil (output)
Line Feed	• Move the cursor to top of next line
Write	• Write created circuit in the memory of the module
Coil list	• Display coil (output) allocated condition
T/C list	• Display timer/counter allocated condition
CHG. DISP.	• Change display contents to contact/coil etc.
Step list	• Display step used condition of SF instruction
Quit	• Return to circuit display mode
U↑ key	• Set timer/counter UP/DOWN
I↓ key	• Change set value of UP/DOWN timer and counter (BCD/BIN)
Sub menu display terminates	• Pressing ESC terminates sub menu display by using Home key.

Operation example 1 **Writing from program address 00000**

(An example of writing the program below)



Address	Instruction	
00000	STR	00000
00001	OR	00002
00002	AND	00100
00003	OUT	00100
00004	STR	00003
00005	OR	00005
00006	OR	00006
00007	AND NOT	00004
00010	OUT	00101

"Display circuit" → "Clear" "Address" [↵] (Enter key) → [Home] (Menu display) → "Draw CIRC." → [↵] (Enter key) →

Move the cursor to address 00000

→ [STR] → [→] (Move cursor) → [STR] [1] → [→] (Move cursor) → [OUT] [1] [0] [0] →

STR 00000 — AND 00001 — OUT 00100

→ "Connect" → "Line Feed" → [STR] [2] [OR] → [↓] (Move cursor) → [STR] [3] → [→] (Move cursor) →

OR 00002 — STR 00003

→ [NOT] [4] → [→] (Move cursor) → [OUT] [1] [0] [1] → "Connect" → "Line Feed" →

AND NOT 00004 — OUT 00101

→ [STR] [5] [OR] → [↓] (Move cursor) → [STR] [6] [OR] → "Write" →

OR 00005 — OR 00006

→ Display created network (check circuit)

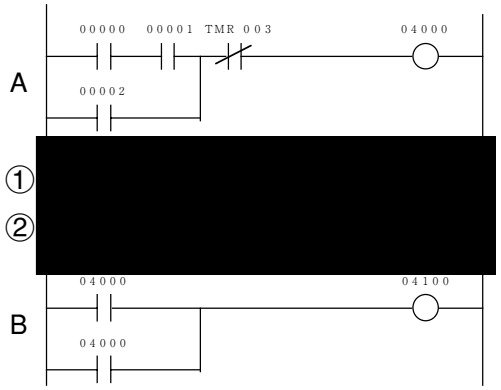
- No need to input "0" figures at upper digit of relay number and timer number etc.
- To move the cursor, use "Line Feed" or [←] [→] [↑] [↓] keys.
- When created network is displayed (confirmed)
  1. Pressing "Quit" key terminates "Draw CIRC." and turns to "Display circuit."
  2. Pressing "Draw CIRC." key can create program continuously by network unit.
  3. Pressing "CHG. CIRC." key can change (modify) created network.
  4. Pressing "DEL. CIRC." key can delete created network.

- Up to 16 circuits can be created simultaneously.

When you are specifying two or more output/application instructions in a single circuit, press the [OR] key at each output/application instruction except the first one.

Operation example 2 **Writing between network (insert)**

(An example of writing the block of the slanted area below)



Instruction	
STR	04000
TMR	100
	0010
STR TMR	100
F-12w	
	⊐0000
	09100

"Display circuit" → "Clear" [OUT] [4] [1] [0] [0] "Search:+" →
Search network "B" of inserted position

→ Display the searched instruction (OUT 04100) including network at top of the screen → [Home] (Menu display) → Draw CIRC." → [↵] (Enter key) →

→ [STR] [4] [0] [0] [0] → [→] (Move cursor) → [TMR] [1] [0] [0] → [→] (Move cursor) →
STR 04000 TMR 100

→ [1] [0] → "Line Feed" → [STR] [TMR] [1] [0] [0] → [→] (Move cursor) →
Set value STR TMR 100

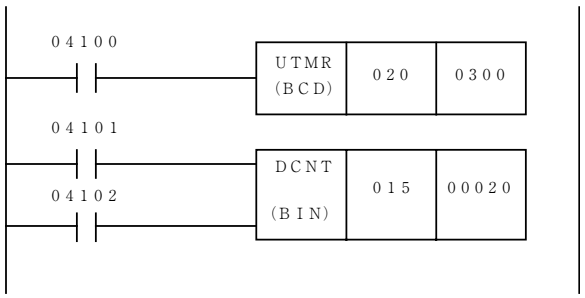
→ [FUN] [1] [2] "Code" "Code" "Write" → [→] (Move cursor) → [→] (Move cursor) → "Code" "Code"
F-12w ⊐0000 09100

[1] [0] [0] → "Write" → Display created network (check circuit)

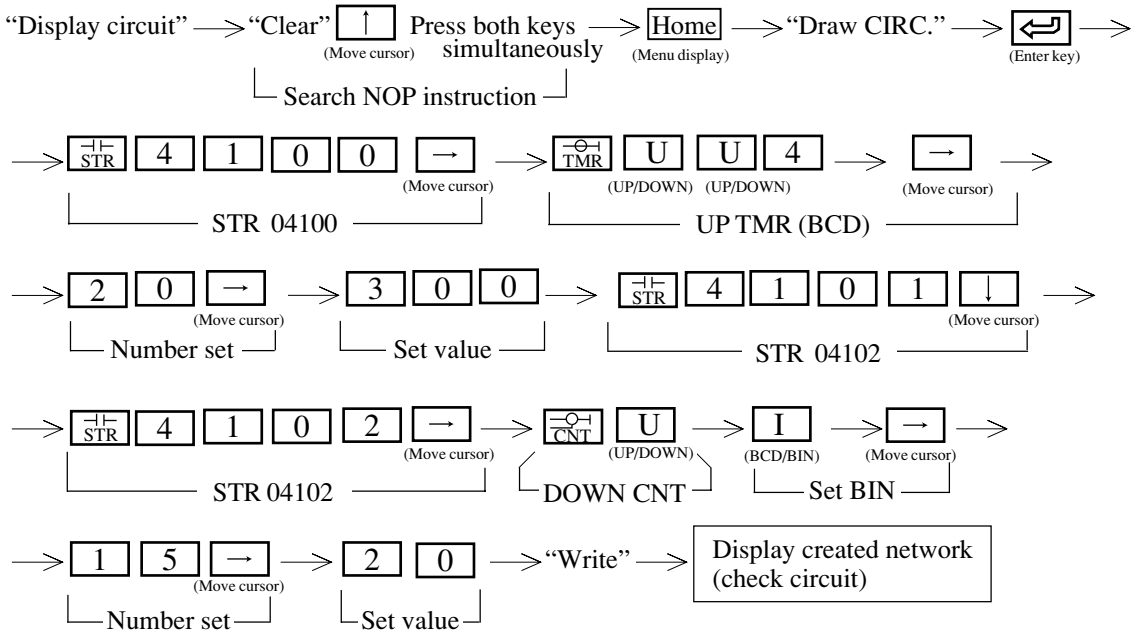
- No need to input "0" figures at upper digit of relay number and timer number etc.
- To move the cursor, use "Line Feed" or [←] [→] [↑] [↓] keys.
- When created network is displayed (confirmed)
  1. Pressing "Quit" key terminates "Draw CIRC." and turns to "Display circuit."
  2. Pressing "Draw CIRC." key can create program continuously by network unit.
  3. Pressing "CHG. CIRC." key can change (modify) created network.
  4. Pressing "DEL. CIRC." key can delete created network.
- Up to 16 circuits can be created simultaneously.
  When you are specifying two or more output/application instructions in a single circuit, press the [OR] key at each output/application instruction except the first one.
- For JW10, the timer/counter value setting can be displayed alternately by pressing the F6 "Code" key. You can specify the registers as well.

Operation example 3 **Writing from no program address**

(An example of writing program below)



Address	Instruction	
01000	STR	04100
01001	UTMR(BCD)	
01002		020
01003		0300
01004	STR	04101
01005	STR	04102
01006	DCNT(BIN)	
01007		015
01010		00020

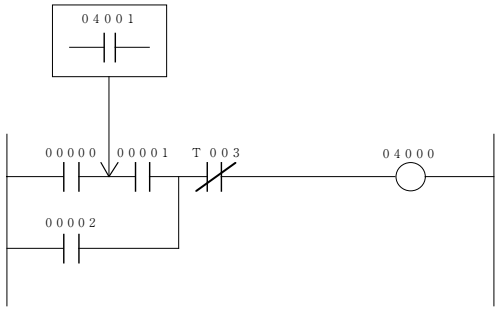


- No need to input "0" figures at upper digit of relay number and timer number etc.
- To move the cursor, use "Line Feed" or ← → ↑ ↓ keys.
- When created network is displayed (confirmed)
  1. Pressing "Quit" key terminates "Draw CIRC." and turns to "Display circuit."
  2. Pressing "Draw CIRC." key can create program continuously by network unit.
  3. Pressing "CHG. CIRC." key can change (modify) created network.
  4. Pressing "DEL. CIRC." key can delete created network.
- Up to 16 circuits can be created simultaneously.

  When you are specifying two or more output/application instructions in a single circuit, press the OR key at each output/application instruction except the first one.

Operation example 4 **Insert instruction word**

(An example of inserting instruction word below)



① When creating circuit

Move the cursor to a position to insert instruction word (AND 00001) → "Insert" → Shift the program right from AND 00001 by one element →

→ STR 4 0 0 1 "Write" → Write created network in the memory → Display created network (check circuit)

Insert AND 04001

② When displaying created network (check circuit)

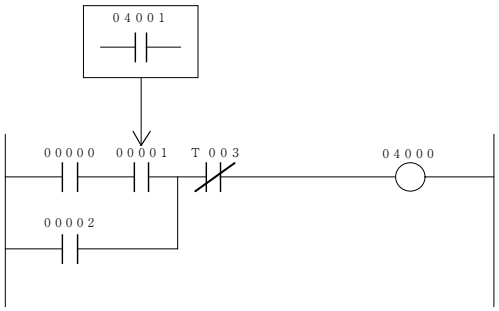
"CHG. CIRC." → Move the cursor to a position to insert instruction word (AND 00001) → "Insert" → Shift the program right from AND 00001 by one element →

→ STR 4 0 0 1 "Write" → Write created network in the memory → Display created network (check circuit)

Insert AND 04001

Operation example 5 **Change instruction word**

(An example of changing instruction word below)



① When creating circuit

Move the cursor to the instruction word (AND 00001) to be changed → NOT 4 0 0 1 "Write" →

Overwrite AND NOT 04001

→ Write the modified network in the memory → Display the modified network (check circuit)

② When displaying created network (check circuit)

"CHG. CIRC." → Move the cursor to the instruction word (AND 00001) to be changed → E $)) ! "Write" →

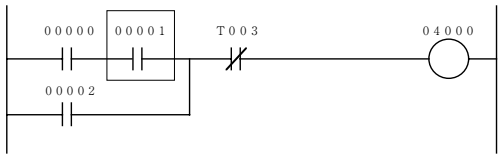
Overwrite AND NOT 04001

→ Write the modified network in the memory → Display the modified network (check circuit)

Operation example 6 **Delete instruction word**

(An example of deleting instruction word below)

Delete



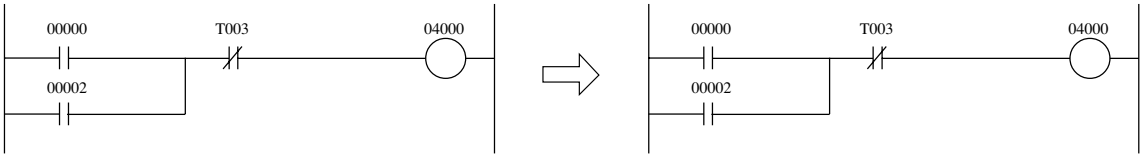
① When creating circuit

Move the cursor to the instruction word (AND 00001) to be deleted → $\overline{\text{AND}}$ "Write" → Write created network in the memory →

Overwrite ▬

→ Display created network (check circuit)

• Press "Write" key, the module automatically modifies the program as follows.



• After deleting an instruction word with the "Delete" key, connect line with $\overline{\text{AND}}$ (▬) key.

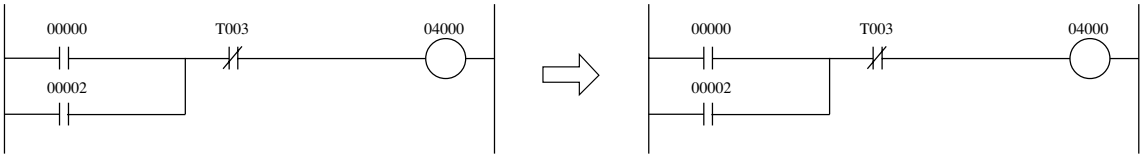
② When displaying created network (check circuit)

"CHG. CIRC." → Move the cursor to the instruction word (AND 00001) to be deleted → $\overline{\text{AND}}$ "Write" →

Overwrite ▬

→ Write the modified network in the memory → Display the modified network (check circuit)

• Press "Write" key, the module automatically modifies the program as follows.

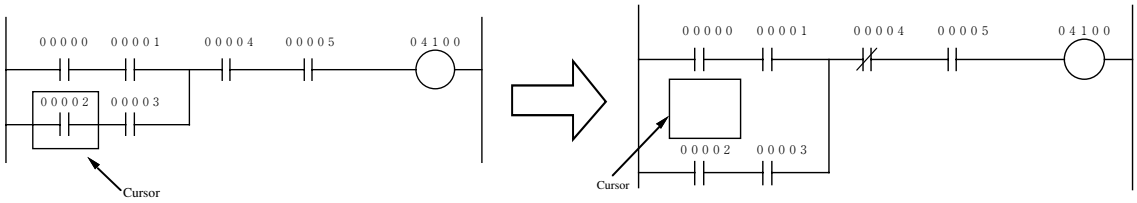


• After deleting an instruction word with the "Delete" key, connect line with $\overline{\text{AND}}$ (▬) key.

Other functions

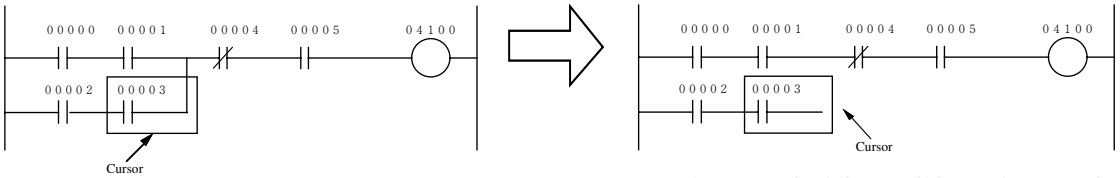
① Insert line

This function drops a network by 1 line below the cursor positioned line. However, this is not usable when at the top line of a network



② Delete OR

This function deletes OR connection line of the current cursor position



- Delete a vertical line until it reaches crossing point with horizontal line above.

③ Coil list

- This function shows relay number allocated as coil (OUT instruction) with "＊" mark.

<<Used coil list>>

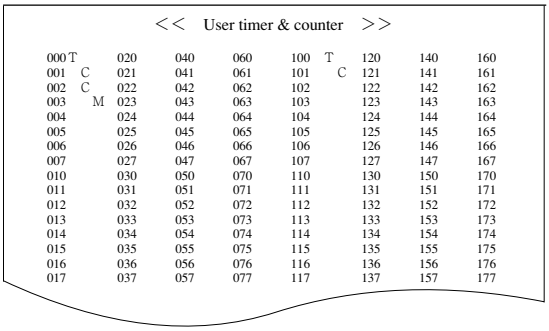
00000＊	00020	00040	00060	00100	00120	00140	00160
00001＊	00021	00041	00061	00101	00121	00141	00161
00002＊	00022	00042	00062	00102	00122	00142	00162
00003＊	00023	00043	00063	00103	00123	00143	00163
00004＊	00024	00044	00064	00104	00124	00144	00164
00005＊	00025	00045	00065	00105	00125	00145	00165
00006＊	00026	00046	00066	00106	00126	00146	00166
00007＊	00027	00047	00067	00107	00127	00147	00167
00010＊	00030	00050	00070＊	00110	00130	00150	00170
00011＊	00031	00051	00071＊	00111	00131	00151	00171
00012	00032	00052	00072	00112	00132	00152	00172
00013	00033	00053	00073	00113	00133	00153	00173
00014	00034	00054	00074	00114	00134	00154	00174
00015	00035	00055	00075	00115	00135	00155	00175
00016	00036	00056	00076	00116	00136	00156	00176
00017	00037	00057	00077	00117	00137	00157	00177

Allocated as coil	Indicate "＊" mark
Double allocated as coil	Indicate "＊" mark with reverse display
Not allocated as coil	No indication

- The screen displays 128 points on 1 screen.
- Pressing [Page DOWN] key displays forward 128 points of information, and [Page UP] key displays later 128 points of information.

④ T/C list

This list displays allocated numbers as timer/counter/MD instruction in the program with each sign.



Allocated as timer	Indicates “T”
Allocated as 10 ms timer	Indicates “T” with reverse display
Allocated as counter	Indicates“C”
Allocated as MD	Indicates “M”
Double allocated as TMR/CNT/MD	Indicates “T/C/M” with reverse display
Not allocated as TMR/CNT/MD	No indication

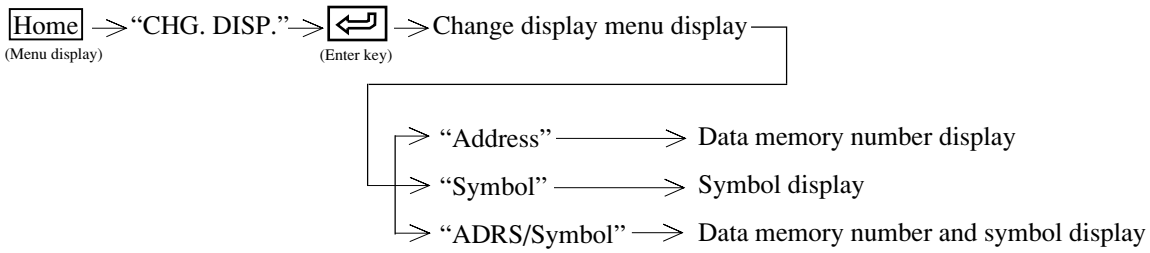
- The screen displays 128 points on 1 screen.
- Pressing [Page DOWN] key displays forward 128 points of information, and [Page UP] key displays later 128 points of information.

⑤ Step list

When PC model “JW21” or “JW22” is applied, the module displays step number allocated condition of SF instructions. No mark means “not used.” “ * ” mark means to be used.

⑥ Change display

Change display contents to contact, coil etc.

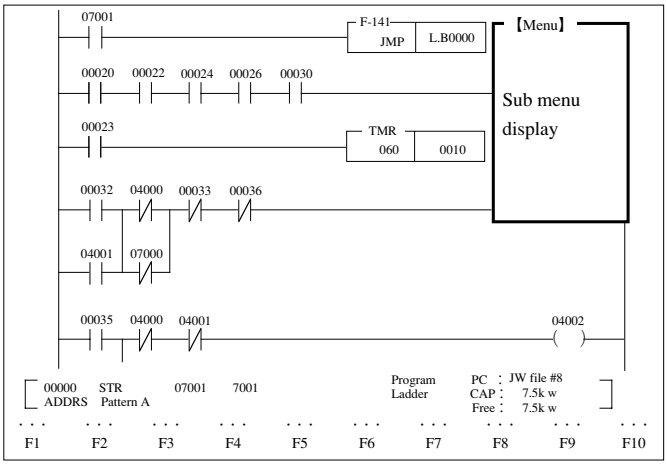


- “Data memory number” appears on upper line of contact, coil etc. (initial setting)
- “Symbol” appears on lower line of contact, coil etc.
- For “symbol”, 16 characters in half size can be set, but only the portion of the first 6 half-size characters will be displayed.

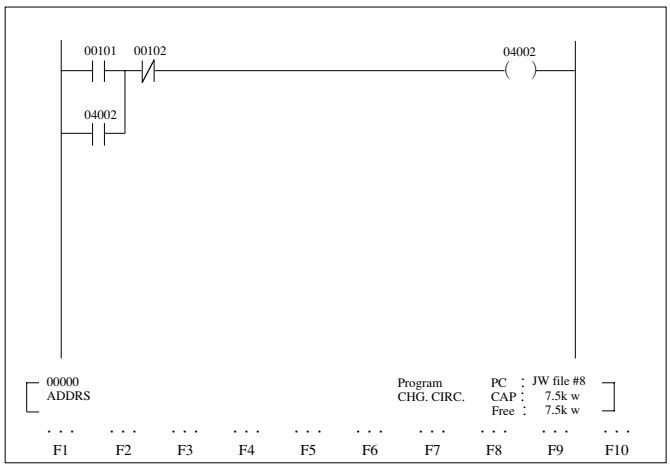
* Initial setting is “Address.”

[3] Change circuit

- **This function modifies or changes a program which is written in the memory of the personal computer.**
- Pressing Home key at "Display circuit" condition causes to appears "Menu" display.



- Move the cursor to a network in which a circuit is to be changed using the search function or like, and select "CHG.CIRC," the screen appears as below, and modify or change becomes possible.



- Display only the network of the cursor position.

- Input contact number, coil number and press ⏎ (enter key), you can register "Symbol & comment"
  (Example)

"Mnemonic input" → "Contact/coil number input" → ⏎ (Enter key) → Input symbol → ⏎ (Enter key) →
→ Input comment → "Write" → Move cursor → "Mnemonic input" → • • • • •

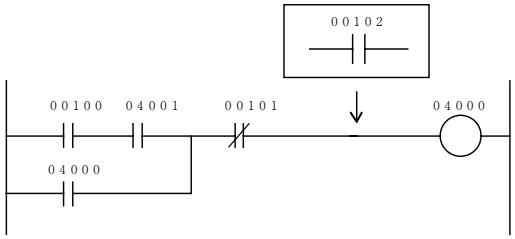
- In case of ladder programming, it is not necessary to input instruction in order of program address numbers.
- When writing a program in the memory with the "Write" key, confirm that instruction and data memory addresses are correctly set.
- Press "Write" key connects unconnected contact and coil (output) and writes in the memory. Pressing Shift + ⏎ produces the same function as "Write."
- When writing is finished with "Program over," delete an intermediate of the program or unnecessary programs around END instruction.

Function

Name	Function
Insert	• Move an element right next to the cursor position by one element and enable input of one element.
Delete	• Delete an element of the cursor position
Insert L	• Shift lower lines down from the cursor position by 1 line
DEL. OR	• Delete OR connect line from the cursor position to upper direction cross point.
Code	• Change data memory area
Code CNV	• Change display of register contents
Connect	• Connect unconnected contact and coil (output)
Line Feed	• Move the cursor to top of next line
Write	• Write created circuit in the memory of the module
Coil list	• Display coil (output) allocated condition
T/C list	• Display timer/counter allocated condition
CHG. DISP.	• Change display contents to contact/coil etc.
Step list	• Display step used condition of SF instruction
Quit	• Return to circuit display mode
Uナ key	• Set timer/counter UP/DOWN
Iニ key	• Change set value of UP/DOWN timer and counter (BCD/BIN)
Sub menu terminates	• Pressing ESC terminates sub menu by using Home key.

Operation example 1 **Insert instruction**

(An example of inserting instruction word below)



Address	Instruction	
00100	STR	00100
00101	AND	04001
00102	OR	04000
00103	AND NOT	00101
00104	OUT	04000

→

Address	Instruction	
00100	STR	00100
00101	AND	04001
00102	OR	04000
00103	AND NOT	00101
00104	AND	00102
00105	OUT	04000

"Display circuit" → "Clear" [OUT] [4] [0] [0] [0] "Search:+" → Display searched network on top of the screen →

Search a network to insert instruction word

→ [Home] "CHG.CIRC." → Display only the searched network

(Menu display)

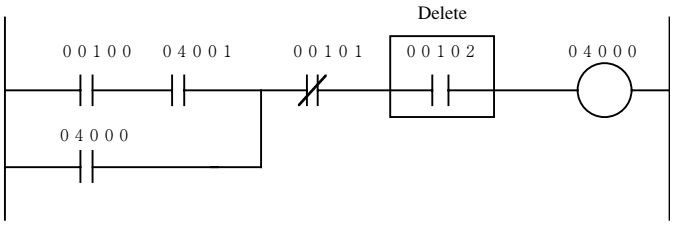
→ [STR] [1] [0] [2] "Write" → Write modified network in the memory → Display modified network (check circuit)

Inserte AND 00102

- In order to insert an instruction word between contact points, move the cursor to the insert position and secure insert space by pressing "Insert" key. Then input the required instruction word.
- In order to insert an instruction word between lines, move the cursor to the insert position and secure insert line space by pressing "Insert L" key. Then input the required instruction word.
- No need to input "0" figures at upper digit of relay number and timer number etc.
- To move the cursor, use "Line Feed" or [←] [→] [↑] [↓] keys.

Operation example 2 **Delete instruction**

(An example of deleting instruction word below)



Address	Instruction	
00100	STR	00100
00101	AND	04001
00102	OR	04000
00103	AND NOT	00101
00104	AND	00102
00105	OUT	04000

→

Address	Instruction	
00100	STR	00100
00101	AND	04001
00102	OR	04000
00103	AND NOT	00101
00104	OUT	04000

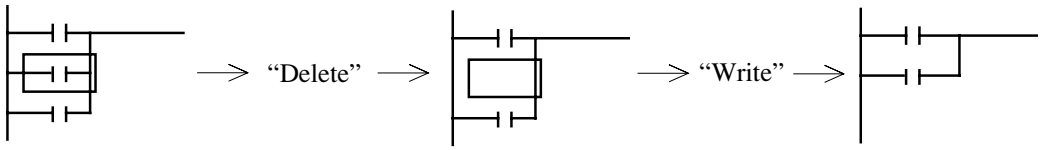
"Display circuit" → "Clear" [OUT] [4] [0] [0] [0] "Search:+" → Display searched network on top of the screen →

(Search a network to delete instruction word)

→ [Home] (Menu display) → "CHG.CIRC." → [↵] (Enter key) → Display only the searched network → Move the cursor to the delete position with [→] key

→ "Delete" "Write" → Write modified network in the memory → Display modified network (check circuit)

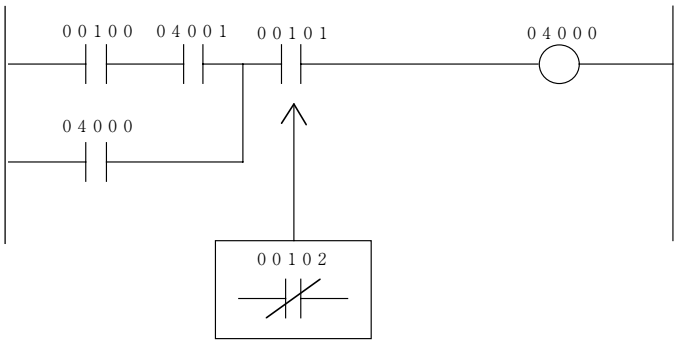
- To delete instruction, overwrite using [AND] (▬) key is also available.
- An example of deleting an instruction between lines



- No need to input "0" figures at upper digit of relay number and timer number etc.
- To move the cursor, use "Line Feed" or [←] [→] [↑] [↓] keys.

Operatin example 3 **Change instruction**

(An example of changing instruction word below)



Address	Instruction	
00110	STR	00100
00111	AND	04001
00112	OR	04000
00113	**AND**	**00101**
00114	OUT	04000

→

Address	Instruction	
00110	STR	00100
00111	AND	04001
00112	OR	04000
00113	**AND NOT**	**00102**
00114	OUT	04000

"Display circuit" → "Clear" [OUT] [4] [0] [0] [0] "Search:+" → Display searched network on top of the screen →

Search a network to change instruction word

→ [Home] (Menu display) "CHG.CIRC." → Display only the searched network → Move the cursor to the change position with [→] key →

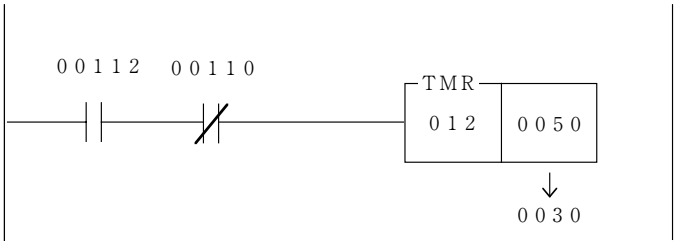
→ [NOT] [1] [0] [2] "Write" → Write modified network in the memory → Display modified network (check circuit)

Overwrite AND NOT 00102

- No need to input "0" figures at upper digit of relay number and timer number etc.
- To move the cursor, use "Line Feed" or [←] [→] [↑] [↓] keys.

Operation example 4 **Change data memory, set value**

(An example of changing set value below)



Address	Instruction	
00130	STR	00112
00131	AND NOT	00110
00132	TMR	012
00133		0050

→

Address	Instruction	
00130	STR	00112
00131	AND NOT	00110
00132	TMR	012
00133		0030

7

"Display circuit" → "Clear" F ! @ "Search:+" → Display searched network on top of the screen →

(Search a network to change set value)

→ Move the cursor to the change position with] key (Move cursor) → Change set value to 0000 with pressing) key → #) "Write" →

(Input set value)

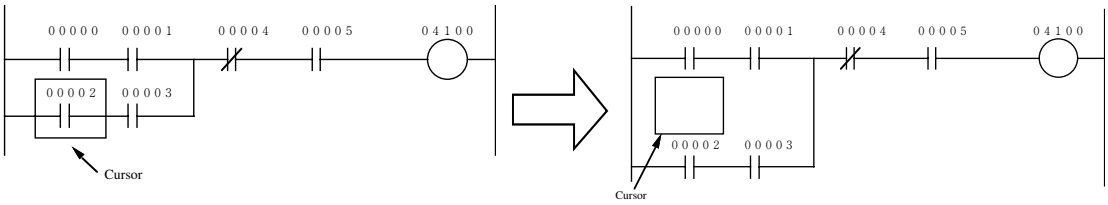
→ Write modified network in the memory

- No need to input "0" figures at upper digit of relay number and timer number etc.
- To move the cursor, use "Line Feed" or []=' keys.

Other functions

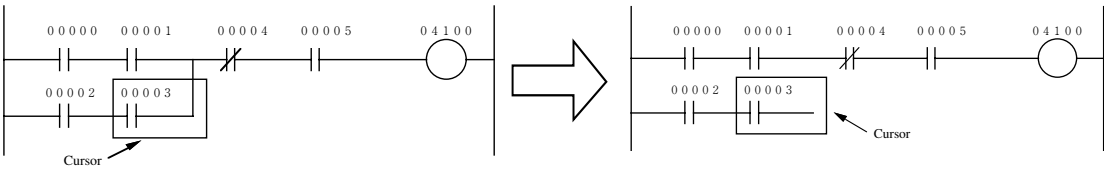
① Insert line

This function drops a network by 1 line below the cursor positioned line. However, this is not usable when at the top line of a network



② Delete OR

This function deletes OR connection line of the current cursor position



• Delete a vertical line until it reaches crossing point with horizontal line above.

③ Coil list

• This function shows relay number allocated as coil (OUT instruction) with "＊" mark.

<<Used coil list>>

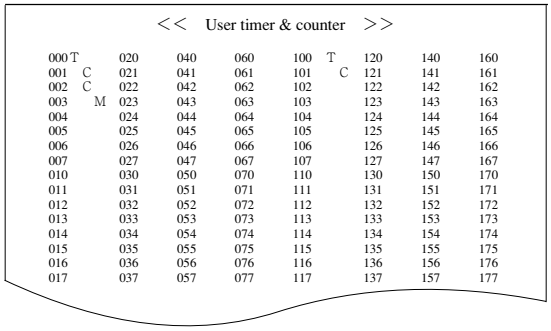
00000＊	00020	00040	00060	00100	00120	00140	00160
00001＊	00021	00041	00061	00101	00121	00141	00161
00002＊	00022	00042	00062	00102	00122	00142	00162
00003＊	00023	00043	00063	00103	00123	00143	00163
00004＊	00024	00044	00064	00104	00124	00144	00164
00005＊	00025	00045	00065	00105	00125	00145	00165
00006＊	00026	00046	00066	00106	00126	00146	00166
00007＊	00027	00047	00067	00107	00127	00147	00167
00010＊	00030	00050	00070＊	00110	00130	00150	00170
00011＊	00031	00051	00071＊	00111	00131	00151	00171
00012	00032	00052	00072	00112	00132	00152	00172
00013	00033	00053	00073	00113	00133	00153	00173
00014	00034	00054	00074	00114	00134	00154	00174
00015	00035	00055	00075	00115	00135	00155	00175
00016	00036	00056	00076	00116	00136	00156	00176
00017	00037	00057	00077	00117	00137	00157	00177

Allocated as coil	Indicate "＊" mark
Double allocated as coil	Indicate "＊" mark with reverse display
Not allocated as coil	No indication

• The screen displays 128 points on 1 screen.
• Pressing [Page DOWN] key displays forward 128 points of information, and [Page UP] key displays later 128 points of information.

④ T/C list

This list displays allocated numbers as timer/counter/MD instruction in the program with each sign.



Allocated as timer	Indicates “T”
Allocated as 10 ms timer	Indicates “T” with reverse display
Allocated as counter	Indicates “C”
Allocated as MD	Indicates “M”
Double allocated as TMR/CNT/MD	Indicates“T/C/M” with reverse display
Not allocated as TMR/CNT/MD	No indication

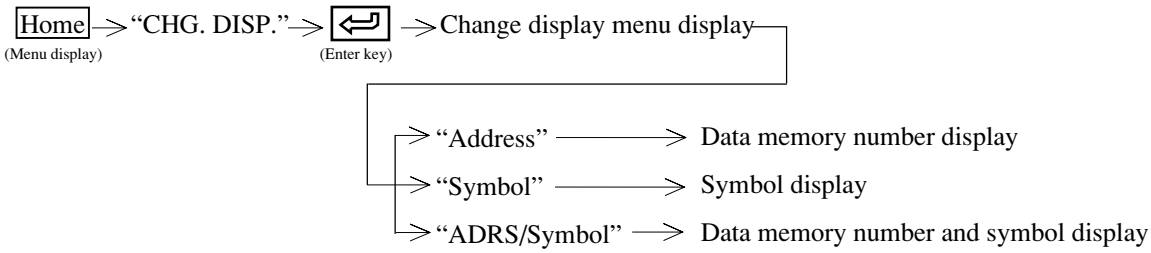
- The screen displays 128 points on 1 screen.
- Pressing [Page DOWN] key displays forward 128 points of information, and [Page UP] key displays later 128 points of information.

⑤ Step list

When PC model “JW21” or “JW22” is applied, the module displays step number allocated condition of SF instructions. No mark means “not used.” “ * ” mark means to be used.

⑥ Change display

Change display contents to contact, coil etc.

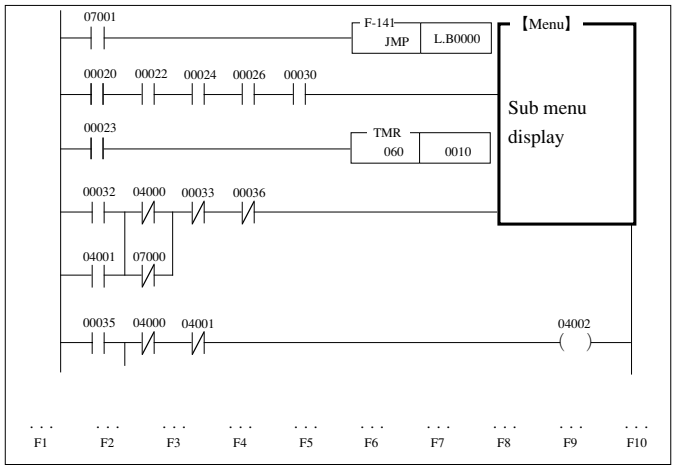


- “Data memory number” appears on upper line of contact, coil etc. (initial setting)
- “Symbol” appears on lower line of contact, coil etc.
- For “symbol”, 16 characters in half size can be set, but only the portion of the first 6 half-size characters will be displayed.

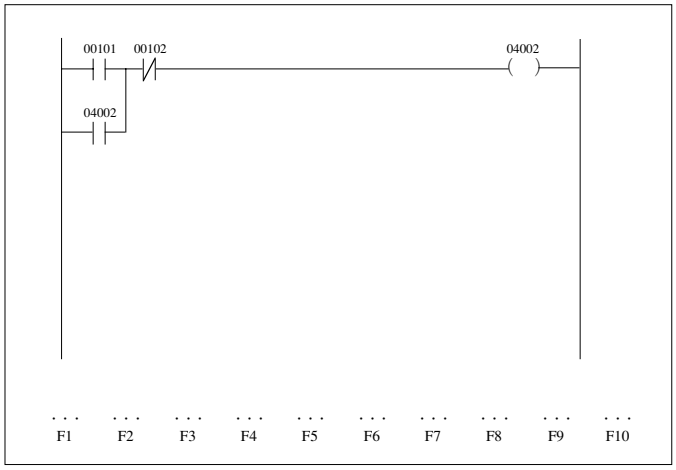
* Initial setting is “Address.”

[4] Delete circuit

- **This function deletes any network of program written in the memory of the personal computer.**
- Pressing H key at "Display circuit" condition causes to appears "Menu" display.



- Move the cursor to a network in which a circuit is to be deleted using the search function or like, and select "DEL.CIRC.," the screen appears as below, and deletion by network unit becomes possible.



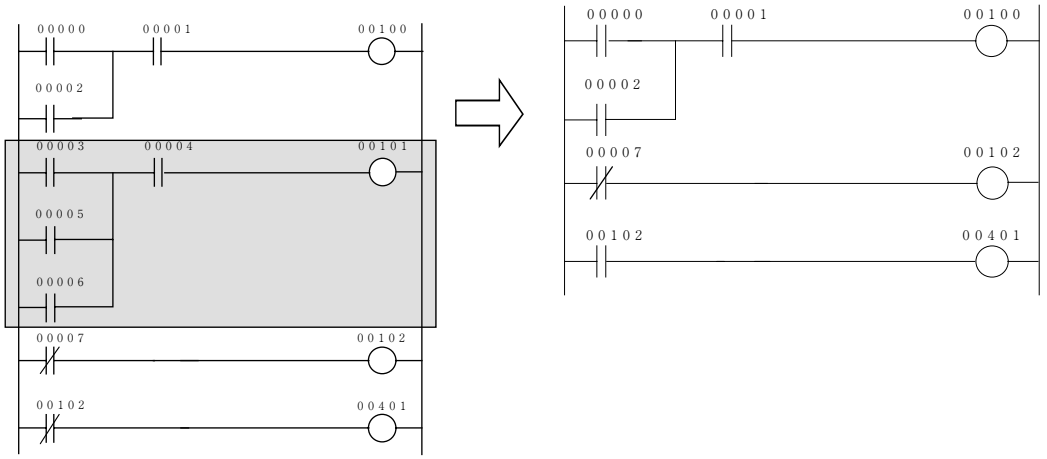
- Display only the network of the cursor position.

Function

Name	Function
Delete	Delete a network currently displayed
Quit	Return to the circuit display mode

Operation example

(An example of deleting the network of the slanted area below)



"Display circuit" → "Clear" OUT 1 0 1 "Search:+" → Display searched network on top of the screen →

Search a network to delete

→ Home "DEL. CIRC." ⏎ → "Delete" → Delete the assigned network and close displays of later networks

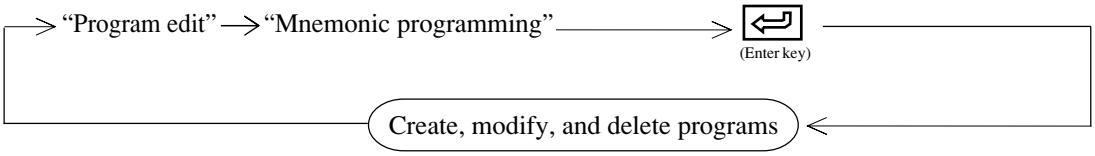
(Menu display) (Enter key)

7

7-4 Mnemonic programming

This mode is used to create, modify, and delete programs with instruction words

Operation outline



***When the PC model is set to JW-31/32/33CUH**

If you are using the software version 5.0 or later and at the same time the program memory is clear, the following screen appears.

Do you use structuring programming technique?
0: Use 1: Not use

If you select "0" and then press (Enter key), you will be in the structured programming mode in which you perform programming using the structured programming technique.

If you select "1" and then press (Enter key), you can perform ordinary programming on the circuit display.

See also the "JW-50SP Structural programming manual" for structured programming technique.

Remarks

• Display instruction word

Vertical direction : 16 steps/screen (scroll display by step unit)

Horizontal direction : Display program address, instruction word, relay number, timer number, symbol, and comment.

• Cursor move

↑ : Move the cursor in step decrement direction

↓ : Move the cursor in step increment direction

→ : Move the cursor to right within the symbol/comment column

← : Move the cursor to left within the symbol/comment column

• Instruction word keys

STR : STR

NOT : NOT

AND : AND

OR : OR

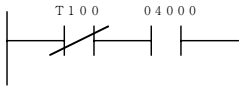
OUT : OUT

CNT : CNT

TMR : TMR

FUN : FUN

• An example of input (1) Screen display



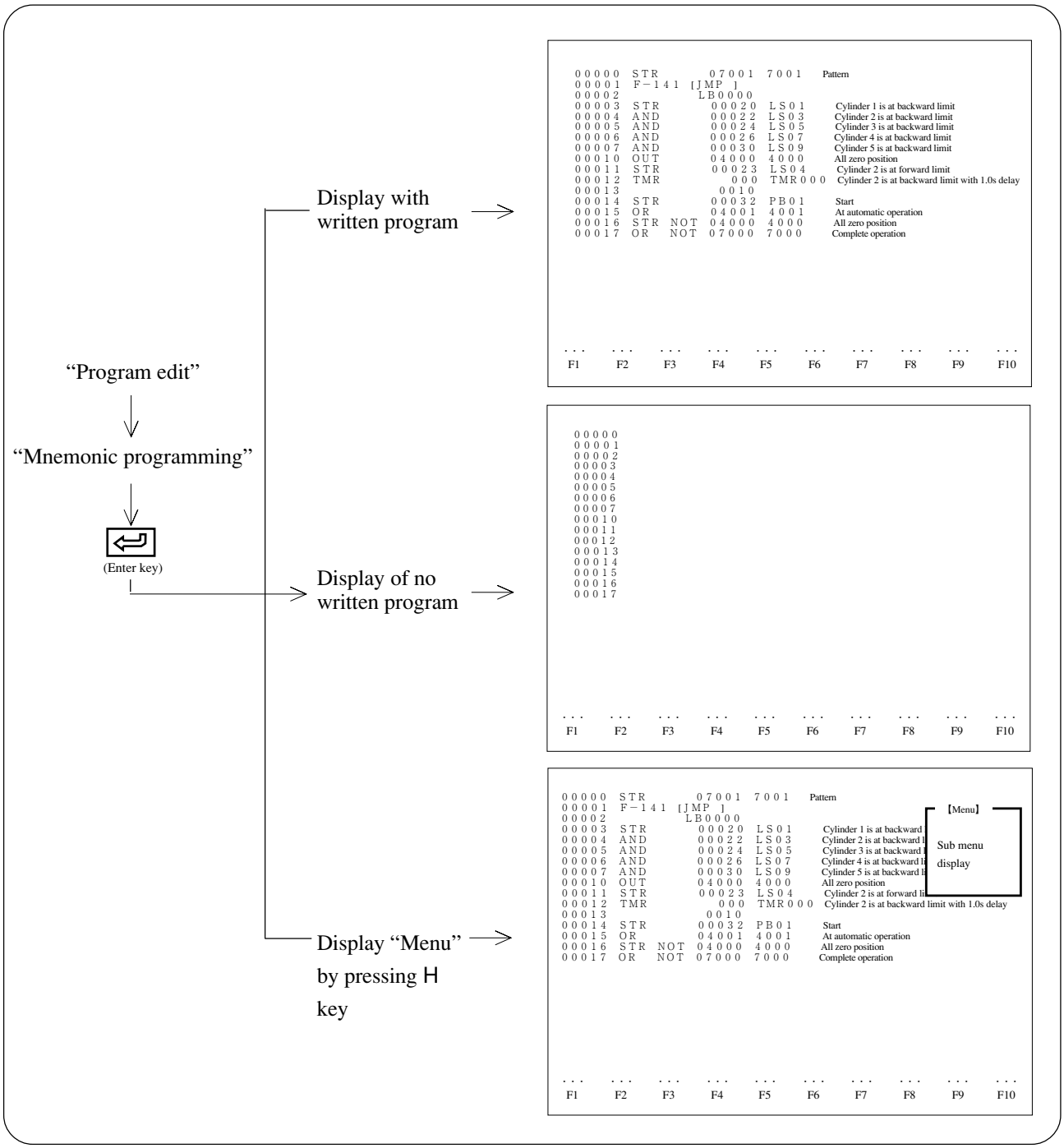
Address	Instruction	
00000	STR NOT TMR	100
00001	AND	04000

→ STR NOT TMR 1 0 0 "Write"

→ AND 4 0 0 0 "Write"

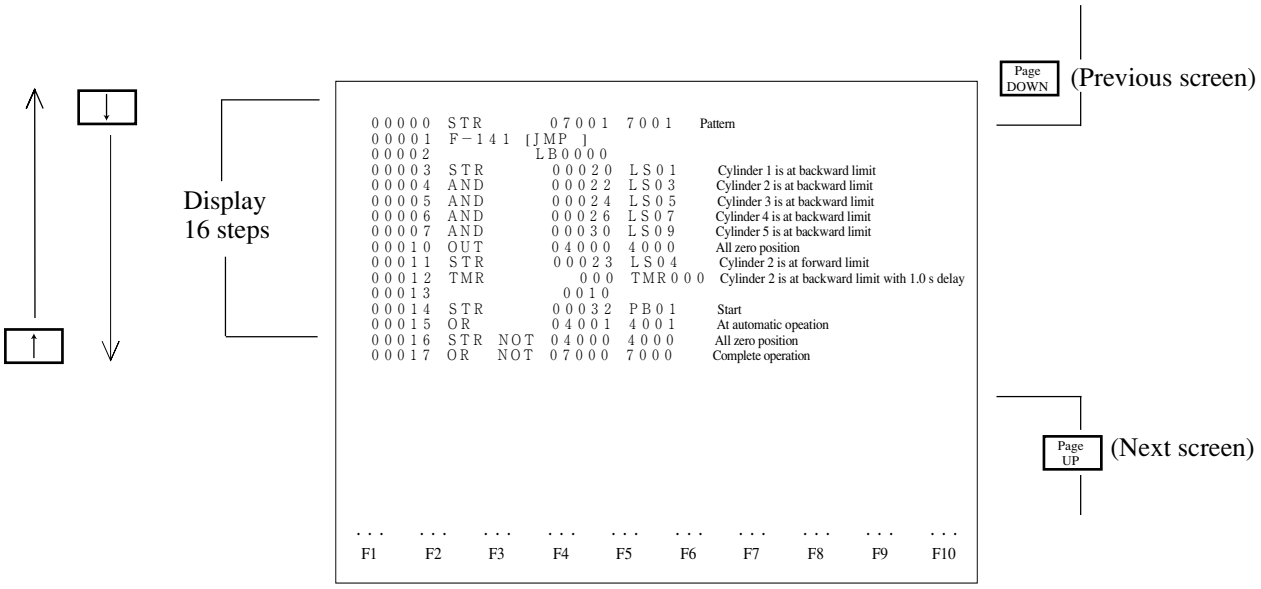
7

Key operation 1



[1] Screen display

- When "Mnemonic programming" mode is selected, and the module has a program in its memory, it displays the contents of 16 steps from top of the program.
- In the above mode, when no program is written, the module displays addresses only.
- Pressing [↓] key moves the cursor in address number increment direction. When the cursor is at the bottom line, and this key is pressed, the screen scrolls to next address.
- Pressing [↑] key moves the cursor in address number decrement direction. When the cursor is at the top line and this key is pressed, the screen scrolls to previous address.
- Pressing [Page UP] key displays next screen while taking the currently displayed bottom line as a top line of new screen. Pressing [Page DOWN] key displays previous screen while taking the currently displayed top line as a bottom line of new screen.



7

[Screen display functions]

Function	Reference page
Display search with key operation	7 - 49
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(1) Display search with key operation

- Pressing ↓ key moves the cursor in address number increment direction. When the cursor is at the bottom line, and this key is pressed, the screen scrolls to next address.
- Pressing ↑ key moves the cursor in address number decrement direction. When the cursor is at the top line and this key is pressed, the screen scrolls to previous address.
- Pressing Page UP key displays next screen while taking the currently displayed bottom line as a top line of new screen. Pressing Page DOWN key displays previous screen while taking the currently displayed top line as a bottom line of new screen.

(2) Display with instruction search

This function designates any of instruction words and displays a program address having its instruction as the cursor position.

<Key operation>

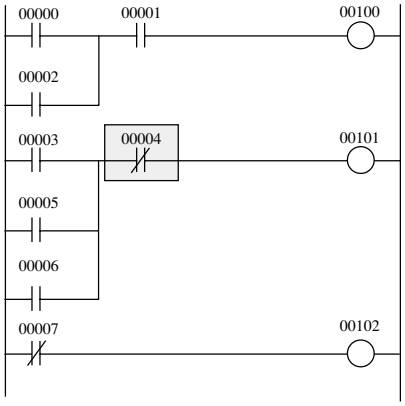
"Clear" → "Address" → * Input search start program address → Instruction words + Number →

→ "Search" → Display assigned instruciton contained circuit at top of the screen

• When searching for an instruction from program address 00000, operations with " * " are not required.
• Continuous press of "Search:+" key allows the module to search to the end address.
• Continuous press of "Search:–" key allows the module to search to smaller address number.

[Example] Search of AND NOT 00004

Address	Instruction	
00000	STR	00000
00101	OR	00002
00102	AND	00001
00103	OUT	00100
00104	STR	00003
00105	OR	00005
00106	OR	00006
00107	**AND NOT**	**00004**
00110	OUT	00101
00111	STR NOT	00007
00112	OUT	00102



"Clear" → "Address" → [1] [0] [0] → [AND] [NOT] [4] → "Search:+" →

Set search start address

AND NOT 00004

→ Display the cursor position as address 00107.

(3) Display with program address search

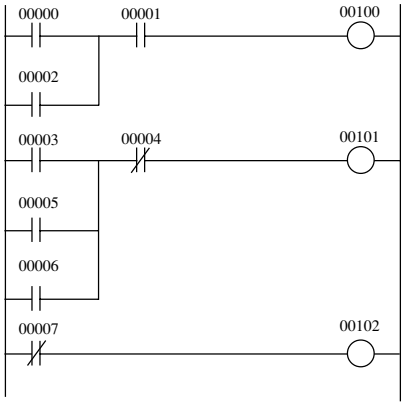
This function assigns any program address, and displays a position having its address as the cursor position.

<Key operation>

"Clear" → "Address" → Input program address → [Enter key] → Display assigned address as the cursor position

[Example] Search of program address 00102

Address	Instruction	
00000	STR	00000
00101	OR	00002
00102	AND	00001
00103	OUT	00100
00104	STR	00003
00105	OR	00005
00106	OR	00006
00107	AND NOT	00004
00110	OUT	00101
00111	STR NOT	00007
00112	OUT	00102



"Clear" → "Address" → [1] [0] [2] → [Enter key] → Display the cursor position as address 00102

Set search address

(4) Display with data memory address search

This function assigns required data memory (relay, TMR/CNT etc.) and displays a circuit having its data address as cursor position.

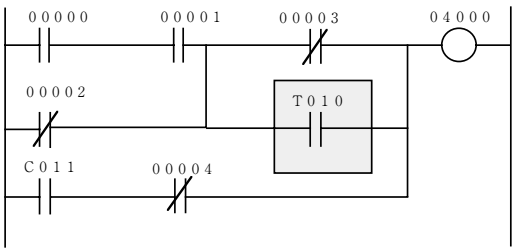
<Key operation>

"Clear" → "Code" → Select data memory area → Input data memory number → "Search:+"

→ Display a circuit assigned data memory contained address as cursor position

[Example] Search of TMR 010

Address	Instruction	
00000	STR	00000
00001	AND	00001
00002	OR NOT	00002
00003	STR NOT	00003
00004	OR TMR	**010**
00005	AND STR	
00006	STR CNT	0011
00007	AND NOT	00004
00010	OR STR	
00011	OUT	04000



"Clear" → "Code" → [1] [0] → "Search:+" → Display TMR 010 (OR TMR 010) address as cursor position

(1) Select TMR, CNT area

(2) Search TMR 010

- Select data memory area by pressing "Code" key.
- Continuous press of "Search:+" key allows the module to search to the end address.
- Press of "Search:–" key allows the module to search to a smaller address number.

(5) Change data memory number, set value

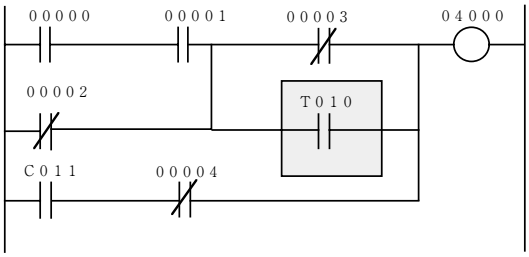
This function changes data memory number or set value used in the program.

<Key operation>

Move the cursor to the address that needs to be changed → Input data memory number or set value → "Write"

[Example] Change TMR 010 to TMR 001

Address	Instruction	
00000	STR	00000
00001	AND	00001
00002	OR NOT	00002
00003	STR NOT	00003
00004	OR TMR	**010**
00005	AND STR	
00006	STR CNT	0011
00007	AND NOT	00004
00010	OR STR	
00011	OUT	04000



"Clear" "Address" [1] [0] "Search:+" → [0] [0] [1] → "Write"

Search TMR 010 — Write new number 001

(6) Move, copy, or delete with unit of instruction word

This function moves, copies, deletes any area assigned instruction word to required position.

<Key operation>

Move the cursor to the top address to be moved, copied, deleted → [Home] (Menu display) → "Area Assign" [↵] (Enter key) → Cursor located line becomes reverse display → Move the cursor to the end address to be moved, copied, deleted

→ [↵] (Enter key) → Confirm the area to be moved, copied, or deleted →

- Move → Move the cursor to address of destination → "Move" [↵] (Enter key) →
- Copy → Move the cursor to address of destination → "Copy" [↵] (Enter key) →
- Delete → "Delete" [↵] (Enter key) → Delete instruction word of assigning area (reverse display) →

→ The moving instruction appears in front of the cursor positioned address → Display the instruction word after it has been moved

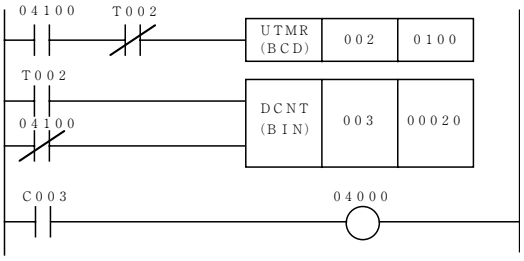
→ The copied instruction appears in front of the cursor positioned address → Display the instruction word after it has been copied

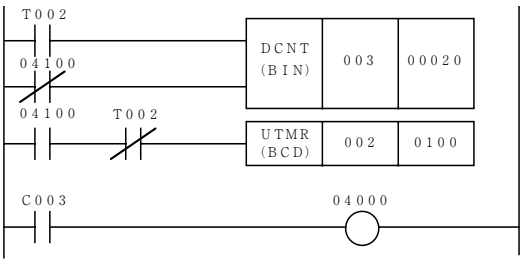
→ Close display of next instruction word after deletion

[Example 1] Move

Address	Instruction	
00300	STR	04100
00301	AND NOT TMR	002
00302	UTMR (BCD)	
00303		002
00304		0100
00305	STR TMR	002
00306	STR NOT	04100
00307	DCNT (BIN)	
00310		003
00311		0020
00312	STR CNT	003
00313	OUT	04000

Address	Instruction	
00300	STR TMR	002
00301	STR NOT	04100
00302	DCNT (BIN)	
00303		003
00304		00020
00305	STR	04110
00306	AND NOT TMR	002
00307	UTMR (BCD)	
00310		002
00311		0100
00312	STR CNT	003
00313	OUT	04000





"Clear""Address" STR 4 1 0 0 "Search:+" →

Search STR 04100

→ Home "Area Assign" (Enter key) → ↓ (Move the cursor to address 00304) → (Enter key) →

(Menu display)

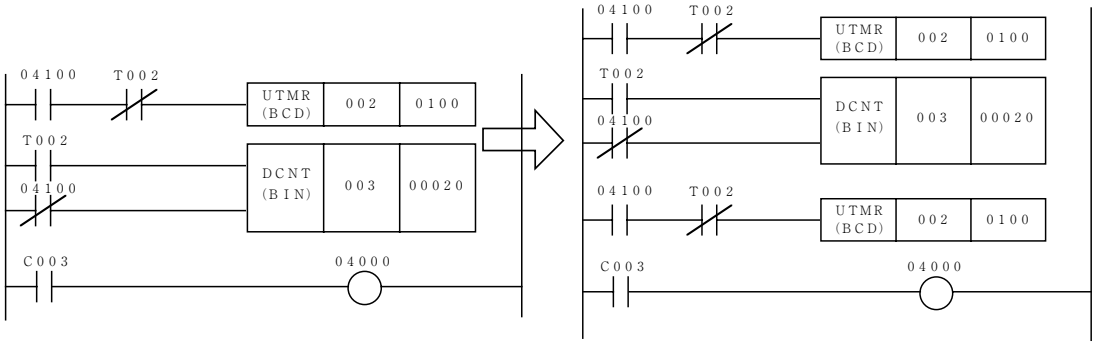
Reverse display between address 00300 to 00304

→ ↓ (Move the cursor to address 00312) → "Move" (Enter key) → Move the instruction words of 00300 through 00304 to just in front of address 00312

[Example 2] Copy

Address	Instruction	
00300	STR	04100
00301	AND NOT TMR	002
00302	UTMR (BCD)	
00303		002
00304		0100
00305	STR TMR	002
00306	STR NOT	04100
00307	DCNT (BIN)	
00310		003
00311		0020
00312	STR CNT	003
00313	OUT	04000

Address	Instruction	
00300	STR	04100
00301	AND NOT TMR	002
00302	UTMR (BCD)	
00303		002
00304		0100
00305	STR TMR	002
00306	STR NOT	04100
00307	DCNT (BIN)	
00310		003
00311		0020
00312	STR	04100
00313	AND NOT TMR	002
00314	UTMR (BCD)	
00315		002
00316		0100
00317	STR CNT	003
00320	OUT	04000



"Clear""Address" STR 4 1 0 0 "Search:+" →

Search STR 04100

→ Home "Area Assign" ↵ → ↵ (Move the cursor to address 00304) → ↵ →

(Menu display) (Enter key) (Enter key)

Reverse display between address 00300 to 00304

→ ↓ (Move the cursor to address 00312) → "Copy" ↵ → Move the instruction words of 00300 through 00304 to just in front of address 00312

(Enter key)

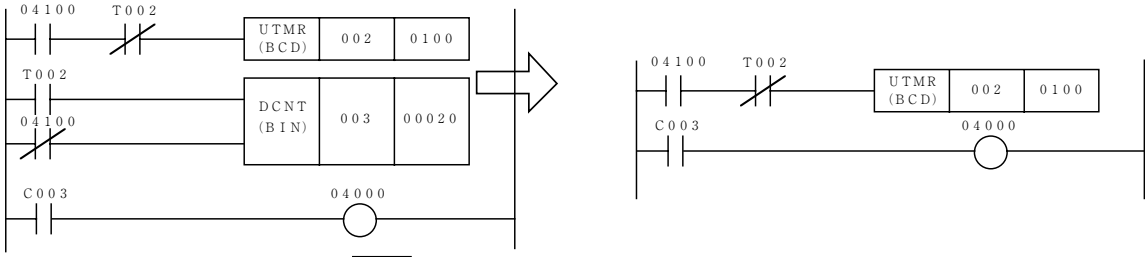
7

[Example 3] Delete

Address	Instruction	
00300	STR	04100
00301	AND NOT TMR	002
00302	UTMR (BCD)	
00303		002
00304		0100
00305	STR TMR	002
00306	STR NOT	04100
00307	DCNT (BIN)	
00310		003
00311		0020
00312	STR CNT	003
00313	OUT	04000

Delete

Address	Instruction	
00300	STR	04100
00301	AND NOT TMR	002
00302	UTMR (BCD)	
00303		002
00304		0100
00305	STR CNT	003
00306	OUT	04000



"Clear""Address" STR TMR 2 →

Search STR TMR 002

→ Home "Area Assign" ↵ → ' (Move the cursor to address 00311) →

(Menu display) (Enter key)

Reverse display between address 00305 to 00311

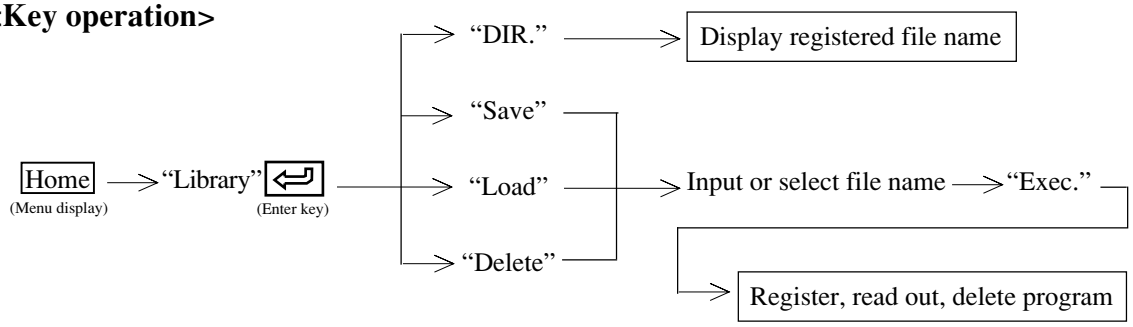
→ ↵ → "Delete" ↵ → Delete instruction words between address 00305 to 00311 and close the latter instruction words

(Enter key) (Enter key)

(7) Register, read, delete of library file

This function registers created program into the library file, or read out, delete files from the library file.

<Key operation>



① Register (Write)

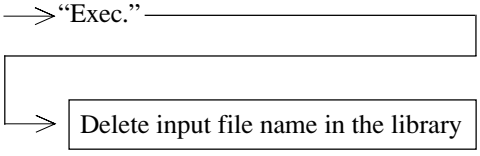
Same as page 7 · 17 to 19.

② Reading

Same as page 7 · 19 to 21.

③ Delete

Registered file names are displayed when "DIR." is pressed.



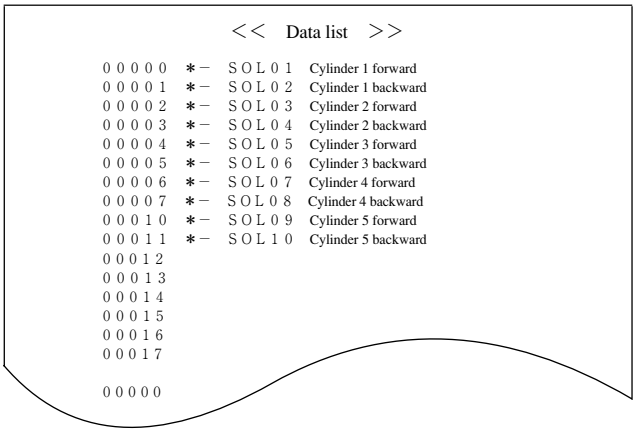
(8) Display data memory used condition

- This function displays data memory occupied condition with registered symbol & comment.
- When it is used as contact, the module display it as "–." When it is used as coil (OUT instruction), the module displays it as "＊".

<Key operation>

Home (Menu display) → "Data list" → (Enter key) → Display 16 lines from relay area.

<An example of display>



Press "Code" key and assign data memory area → Input address → (Enter key) → Display 16 lines starting from input number of address

→ Display previous screen/next screen with Page DOWN / Page UP keys

(9) Block change of relay, timer, counter, and register number

This function changes numbers of relay, timer, counter, and register used in the program in a block.

<Key operation>

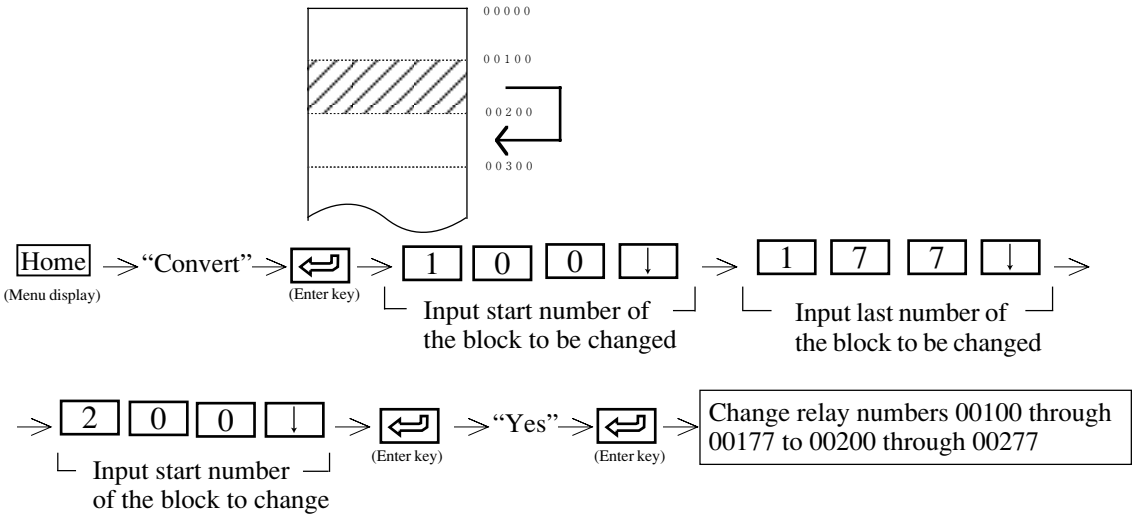
Home (Menu display) → "Convert" (Enter key) → Display change menu → Input start number to be changed in a block → ↓ →

→ Input last number to be changed in a block → ↓ → Input start number to change in a block → (Enter key) → "Yes" →

→ (Enter key) → Change number of relay, timer, counter, and register in a block

- "Code" key is usable to change: relay → Timer/counter → Register area.

[Example] Change relay numbers 00100 through 00177 to 00200 through 00277



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(10) Display step used condition

When PC model "JW21" or "JW22" is applied, the module displays step number allocated condition of SF instruction.

<Key operation>

No mark means not used. "＊" mark means to be used.

[2] Draw program

- **This function writes a program in the personal computer memory with instruction words.**
- Three writing methods are available as follows:
  1. Write from address 00000
  2. Write from the assigned address
  3. Write from address without written program
- While writing program, register and change of symbol & comment are available.

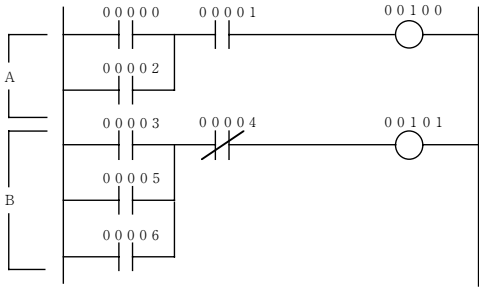
- No need to input "0" figures at upper digit of relay number and timer number etc.
- Pressing Shift + ⏎ produces the same function as "Write."
- To change data memory area, press "Code" key.
- To change registered contents, press "Code CNV" key.
- When writing is finished with "Program over," delete an intermediate of the program or unnecessary programs around END instruction.

7

Operation example 1 **Writing program from program address 00000**

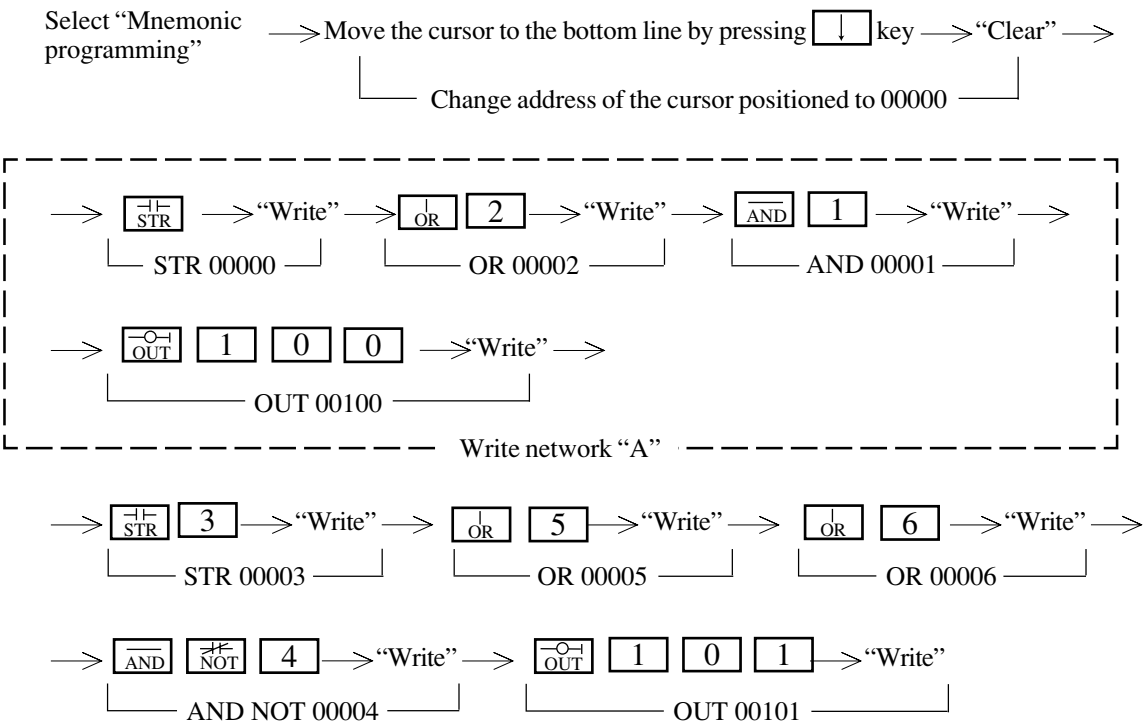
(An example of writing the program below)

Address	Instruction	
00000	STR	00000
00001	OR	00002
00002	AND	00001
00003	OUT	00100
00004	STR	00003
00005	OR	00005
00006	OR	00006
00007	AND NOT	00004
00010	OUT	00101



- To program instruction words, write by pressing "Write" key after inputting instruction by address unit.
- Pressing ⏎ (enter key) can register/change symbol & comment of input relay, timer/counter numbers. In this case, write by pressing "Write" key after inputting symbol & comment.
- Pressing "Write" key moves the registered address upward by 1 line. The cursor address is incremented by one. The cursor display position does not change in this case.
- **To create program while confirming programmed contents, move the cursor to the bottom line by pressing ↓ key and then press ⏎ key. The screen displays just programmed 15 steps.**

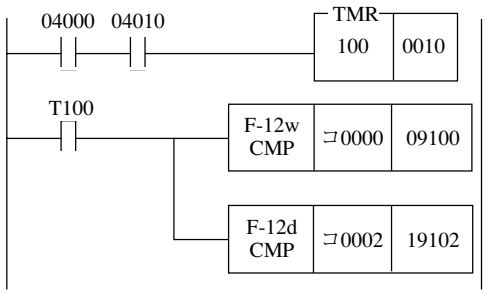
<Key operation>



Operation example 2 **Writing from specified address**

(An example of writing the program below)

Address	Instruction	
00600	STR	04000
00601	AND	04010
00602	TMR	100
00603		0010
00604	STR TMR	100
00605	F-12w	
00606		⊐0000
00607		09100
00610	F-12d	
00611		⊐0002
00612		19102



7

- To program instruction words, write by pressing "Write" key after inputting instruction by address unit.
- Pressing [↵] (enter key) can register/change symbol & comment of input relay, timer/counter numbers. In this case, write by pressing "Write" key after inputting symbol & comment.
- Pressing "Write" key moves the registered address upward by 1 line. The cursor address is incremented by one. The cursor display position does not change in this case.
- **To create program while confirming programmed contents, move the cursor to the bottom line by pressing [↓] key and then press [↵] key. The screen displays just programmed 15 steps.**

<Key operation>

Select "Mnemonic programming" → Move the cursor to the bottom line by pressing [↓] key → "Clear" "Address" [6] [0] →

Change address of the cursor positioned to 00600

→ [0] → [STR] [4] [0] [0] [0] → "Write" → [AND] [4] [0] [1] [0] →

STR 04000 — AND 04010

→ "Write" → [TMR] → [1] [0] [0] → "Write" → [1] [0] → "Write" →

TMR 100 — Setting value 0010

→ [STR] [TMR] [1] [0] [0] → "Write" → [FUN] → [1] [2] "Code" "Code" →

STR TMR 100 — F-12w

→ "Write" → "Write" → "Code" "Code" [1] [0] [0] → "Write" → [FUN] [1] [2]

⊐0000 — 09100

"Code" "Code" "Code" "Code" → "Write" → [2] → "Write" → "Code" "Code" →

F-12d — ⊐0002

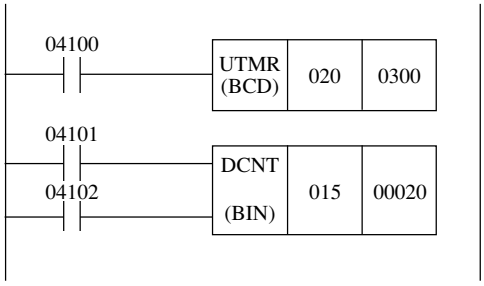
→ [1] [0] [2] → "Write"

19102

Operation example 3 **Writing from no program address**

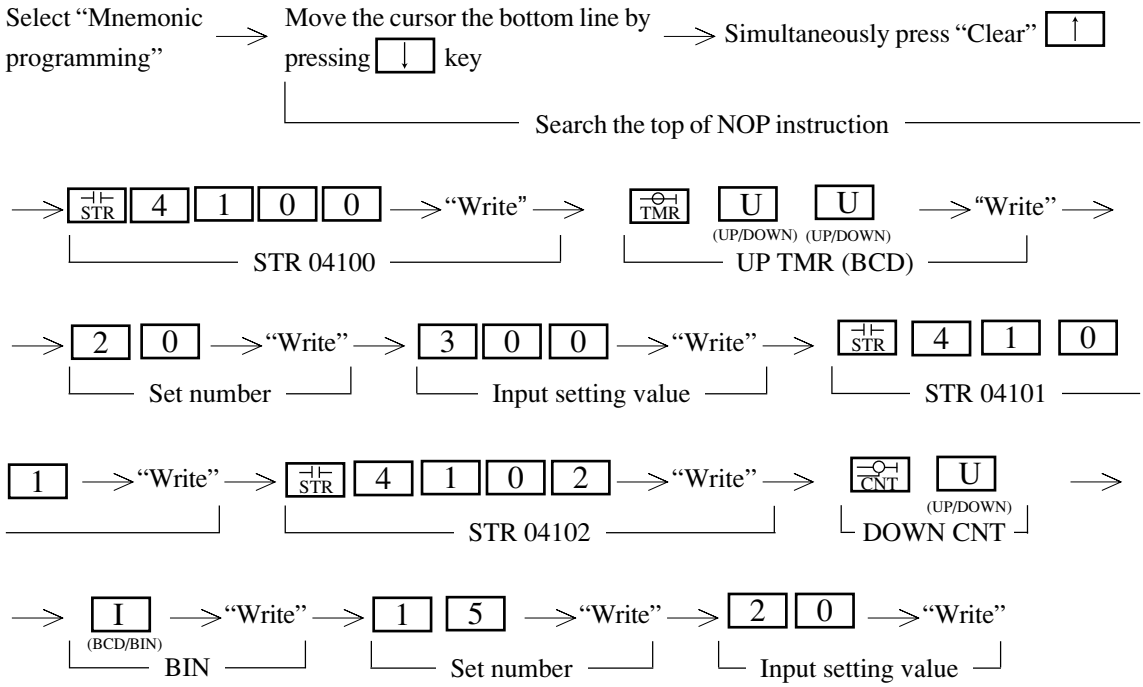
(An example of writing the program below)

Address	Instruction	
01000	STR	04100
01001	UTMR (BCD)	
01002		020
01003		0300
01004	STR	04101
01005	STR	04102
01006	DCNT (BIN)	
01007		015
01010		00020



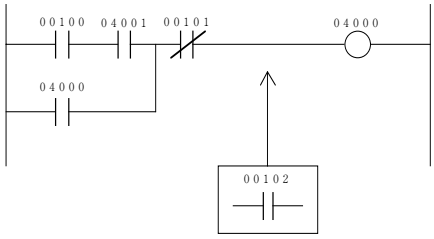
- To program instruction words, write by pressing "Write" key after inputting instruction by address unit.
- Pressing [↵] (enter key) can register/change symbol & comment of input relay, timer/counter numbers. In this case, write by pressing "Write" key after inputting symbol & comment.
- Pressing "Write" key moves the registered address upward by 1 line. The cursor address is incremented by one. The cursor display position does not change in this case.
- **To create program while confirming programmed contents, move the cursor to the bottom line by pressing [↓] key and then press [↵] key. The screen displays just programmed 15 steps.**

<Key operation>



Operation example 4 **Insert instruction word**

(An example of inserting instruction word below)



Address	Instruction	
00110	STR	00100
00111	AND	04001
00112	OR	04000
00113	AND NOT	00101
00114	OUT	04000

⇨

Address	Instruction	
00110	STR	00100
00111	AND	04001
00112	OR	04000
00113	AND NOT	00101
00114	AND	00102
00115	OUT	04000

7

- To program instruction words, write by pressing “Write” key after inputting instruction by address unit.
- Pressing [↵] (enter key) can register/change symbol & comment of input relay, timer/counter numbers. In this case, write by pressing “Write” key after inputting symbol & comment.
- Pressing “Write” key moves the registered address upward by 1 line. The cursor address is incremented by one. The cursor display position does not change in this case.
- **To create program while confirming programmed contents, move the cursor to the bottom line by pressing [↓] key and then press [↵] key. The screen displays just programmed 15 steps.**

<Key operation>

Select “Mnemonic programming” ⟶ Move the cursor to the bottom line by pressing ' key ⟶

“Clear” “Address” [1] [1] [4] ⟶ [↵] (Enter key) ⟶ [AND] [1] [0] [2] ⟶ “Insert” “Write”

Search the insert address — Insert AND 00102

<Screen display>

```
00112  OR        04000
00113  AND NOT   00101
[00114] OUT      04000
        ↑ Cursor
```

⇨

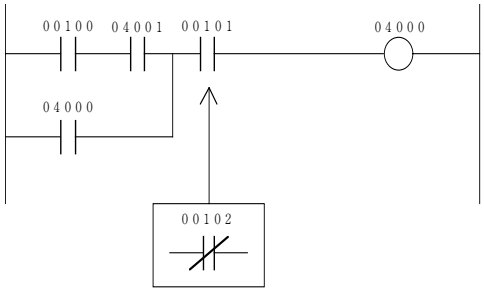
```
00112  OR        04000
00113  AND NOT   00101
[00114] AND      00102
        ↑ Cursor
```

⇨

```
00113  AND NOT   00101
00114  AND       00102
[00115] OUT      04000
        ↑ Cursor
```

Operation example 5 **Change instruction word**

(An example of changing instruction word below)



Address	Instruction	
00110	STR	00100
00111	AND	04001
00112	OR	04000
00113	AND	00101
00114	OUT	04000

⇒

Address	Instruction	
00110	STR	00100
00111	AND	04001
00112	OR	04000
00113	AND NOT	00102
00114	OUT	04000

- To program instruction words, write by pressing "Write" key after inputting instruction by address unit.
- Pressing [⏎] (enter key) can register/change symbol & comment of input relay, timer/counter numbers. In this case, write by pressing "Write" key after inputting symbol & comment.
- Pressing "Write" key moves the registered address upward by 1 line. The cursor address is incremented by one. The cursor display position does not change in this case.
- **To create program while confirming programmed contents, move the cursor to the bottom line by pressing [↓] key and then press [⏎] key. The screen displays just programmed 15 steps.**

<Key operation>

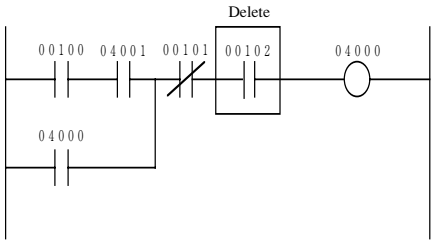
Select "Mnemonic programming" ⟶ Move the cursor to the bottom line by pressing [↓] key ⟶

"Clear" [AND] [1] [0] [2] ⟶ "Search;+" ⟶ [AND] [NOT] [1] [0] [2] ⟶ "Write"

└ Search the changing instruction word ┘ └ The address after changing instruction word ┘

Operation example 6 **Delete instruction word**

(An example of deleting instruction word below)



Address	Instruction	
00110	STR	00100
00111	AND	04001
00112	OR	04000
00113	AND NOT	00101
00114	AND	00102
00115	OUT	04000

⇒

Address	Instruction	
00110	STR	00100
00111	AND	04001
00112	OR	04000
00113	AND NOT	00101
00114	OUT	04000

7

- To program instruction words, write by pressing "Write" key after inputting instruction by address unit.
- Pressing [↵] (enter key) can register/change symbol & comment of input relay, timer/counter numbers. In this case, write by pressing "Write" key after inputting symbol & comment.
- Pressing "Write" key moves the registered address upward by 1 line. The cursor address is incremented by one. The cursor display position does not change in this case.
- **To create program while confirming programmed contents, move the cursor to the bottom line by pressing [↓] key and then press [↵] key. The screen displays just programmed 15 steps.**

<Key operation>

Select "Mnemonic programming" ⟶ Move the cursor to the bottom line by pressing [↓] key ⟶

⟶ "Clear" [AND] [1] [0] [2] ⟶ "Search;+" ⟶ "Delete"

└ Search the deleting instruction word ┘

<Screen display>

00112	OR	04000	00112	OR	04000
00113	AND NOT	00101	00113	AND NOT	00101
[00114]	AND	00102	[00114]	OUT	04000
Cursor			Cursor		

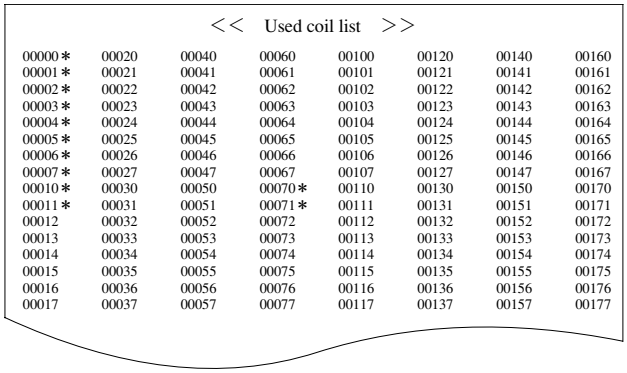
Other functions

① Coil list

• This function shows relay number allocated as coil (OUT instruction) with "＊" mark.

<Key operation>

Select "Mnemonic programming" → Home (Menu display) → "Coil list" → ↵ (Enter key)



Allocated as coil	Indicate "＊" mark
Double allocated as coil	Indicate "＊" mark with reverse display
Not allocated as coil	No indication

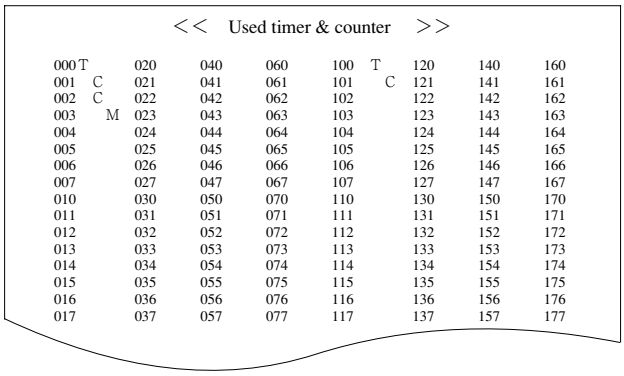
• The screen displays 128 points on 1 screen.
• Pressing Page DOWN key displays forward 128 points of information, and Page UP key displays later 128 points of information.

② T/C list

• This list displays allocated numbers as timer/counter/MD instruction in the program with each sign.

<Key operation>

Select "Mnemonic programming" → Home (Menu display) → "T/C list" → ↵ (Enter key)



Allocated as timer	Indicates "T"
Allocated as 10 ms timer	Indicates "T" with reverse display
Allocated as counter	Indicates "C"
Allocated as MD	Indicates "M"
Double allocated as TMR/CNT/MD	Indicates "T/C/M" with reverse display
Not allocated as TMR/CNT/MD	No indication

• The screen displays 128 points on 1 screen.
• Pressing Page DOWN key displays forward 128 points of information, and Page UP key displays later 128 points of information.

③ Step list

• When PC model "JW21" or "JW22" is applied, the module displays step number allocated condition of SF instructions with "＊" mark.

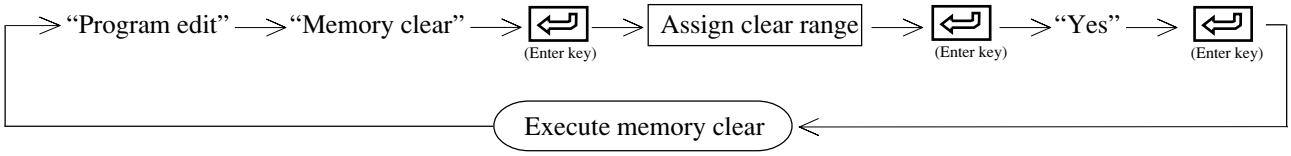
Select "Mnemonic programming" → Home (Menu display) → "Step list" → ↵ (Enter key)

No mark means "not used." "＊" mark means to be used.

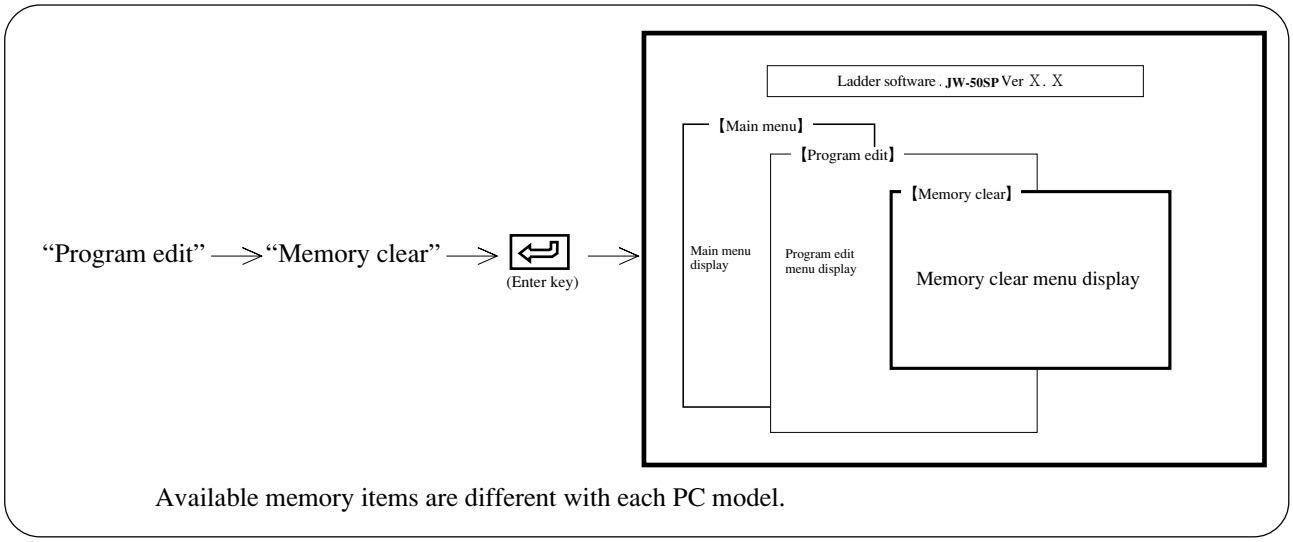
7-5 Memory clear

• This mode is used to clear memory with the aim of creating new program, or erasing the memory contents of the module to make a new program.

Operation outline



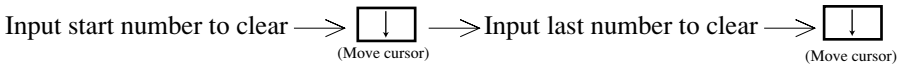
Key operation 1



Available memory items are different with each PC model.

Operation example

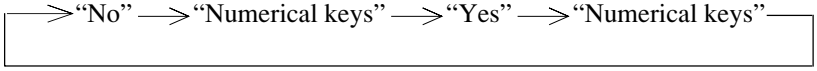
(1) How to assign clear range of program memory



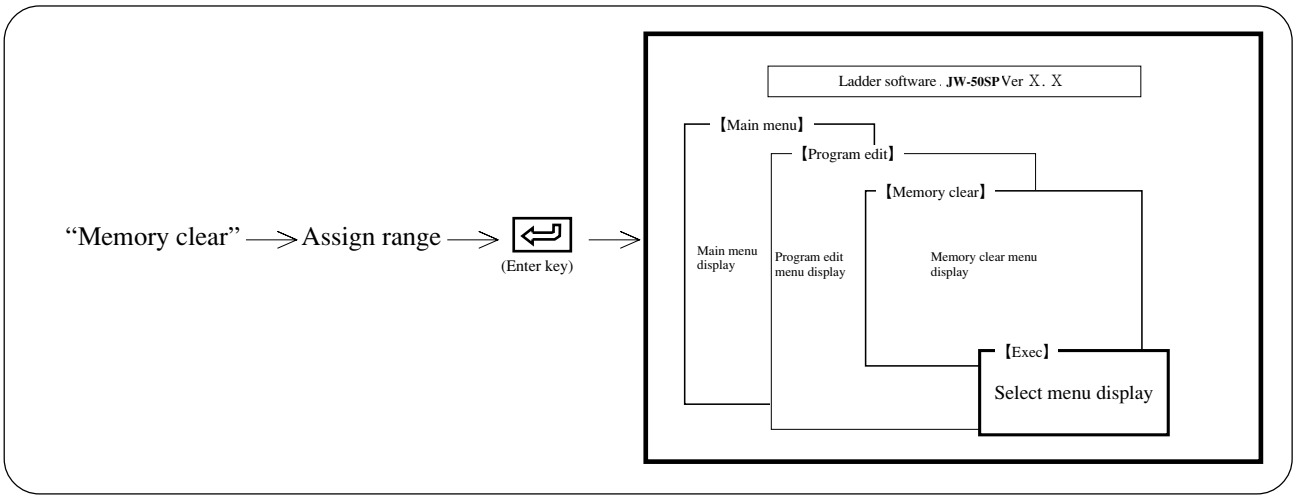
(2) How to set data memory, file memory etc.

(Example. Setting data memory)

Assign any of both memory types by moving the cursor using numerical keys or cursor move keys (← →). The assigned memory will go into reverse display.



Key operation 2



Operation example

(1) When executing memory clear

"Yes" → (Enter key) → Initiates memory clear.

(2) When stopping memory clear

"No" → (Enter key)
or
ESC
→ Return to "Memory clear" menu.

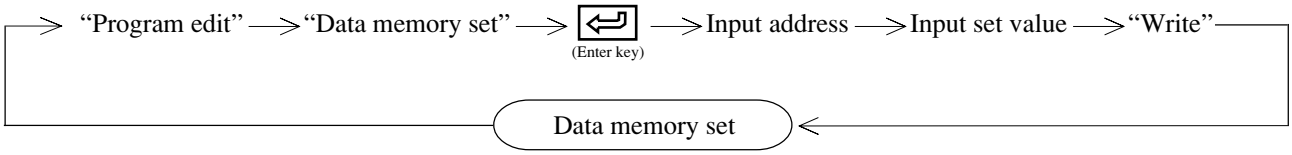
(3) Each of the memory contents after executing memory clear

Item	Contents
Program memory	NOP instruction However, END (F40) instruction is written in end address
Data memory	00
File memory	00
Parameter memory	00
System memory	Initial condition
Symbol & comment memory	Clear

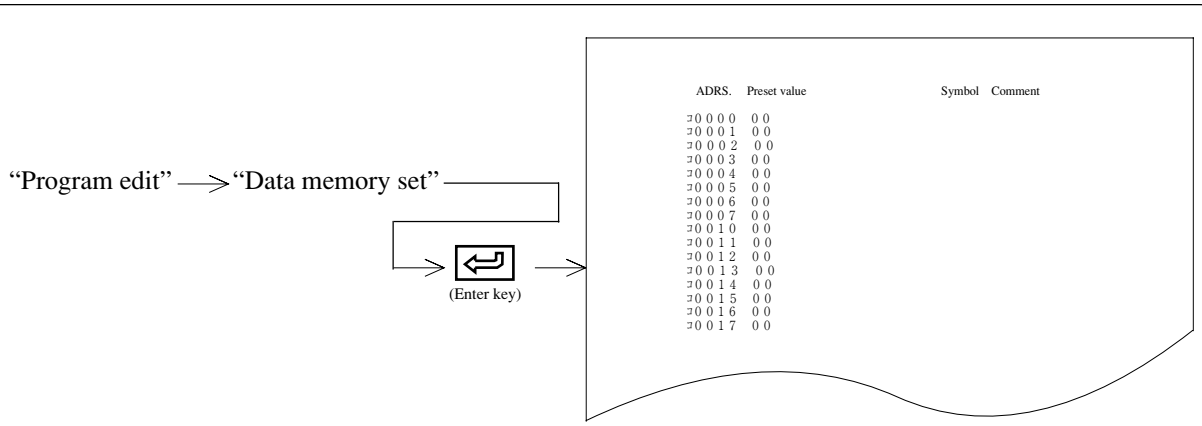
7-6 Data memory set

• This mode can set and monitor data memory contents with any of the HEX, octal, decimal, binary, or JIS codes.

Operation outline



Key operation

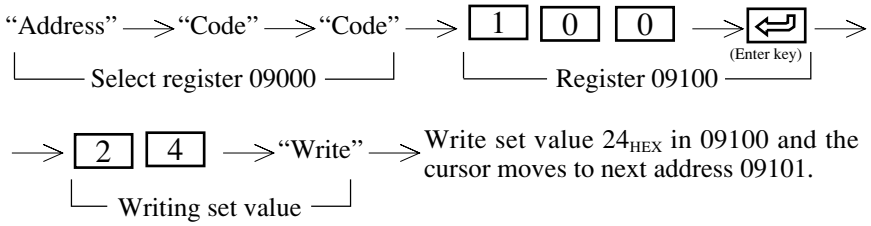


Displays each of the 16 addresses, set values, symbols, comments from "∃" area.

Name	Function
Address	• Set data memory address
Code	• Set data memory area
Code CNV	• Change display codes of set value (HEX, octal, decimal, binary, or JIS code)
Word	• Change display contents between byte unit and word unit
Quit	• Return to "Program edit" menu
Write	• Write set value

Operation example

• When writing "24" with HEX in data memory 09100



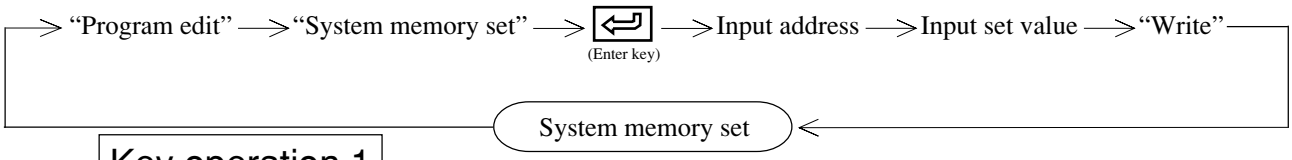
Notes

- The module displays only symbol/comment contents registered on "Symbol & comment set" mode and input or modification is not possible in this mode.
- Input set value by word unit is also possible.
- "Write" is also possible with Shift + ↵ key.

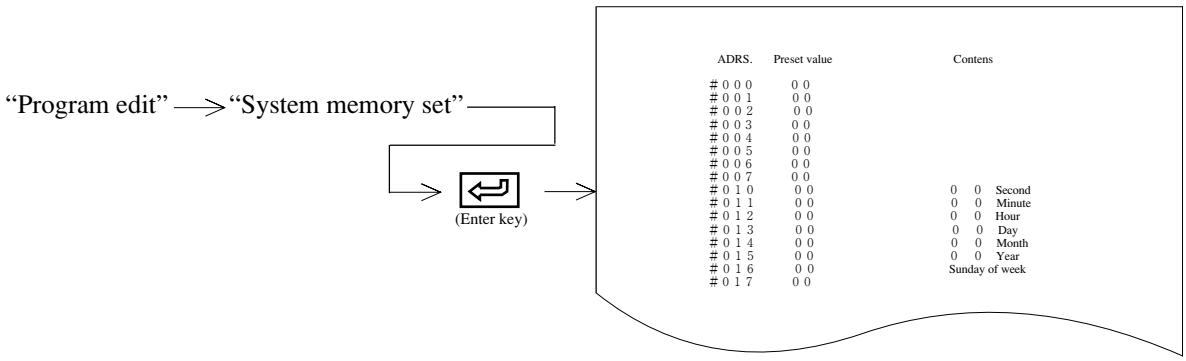
7-7 System memory set

- This mode can set and monitor system memory contents with any of the HEX, octal, decimal, binary, or JIS codes.
- For the contents of system memory, see “Instruction Manual” attached to each PC or system memory description item of “Programming manual.”

Operation outline



Key operation 1

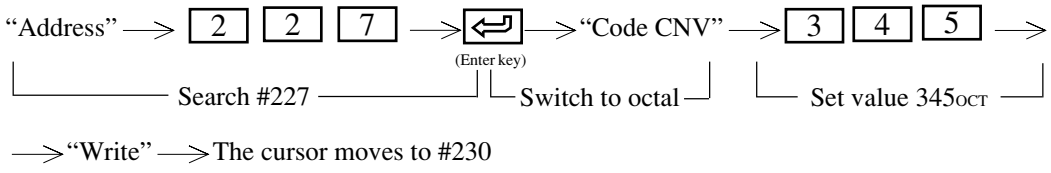


Name	Function
I/O set	• Set number of I/O points of each rack when PC model is JW50/70/100 or JW50H/70H/100H.
Address	• Set system memory address
Code CNV	• Change display codes of set value (HEX, octal, decimal, binary, or JIS code)
Word	• Change display contents between byte unit and word unit
Quit	• Return to “Program edit” menu
Write	• Write set value

Operation example

(1) An example of writing set value below

Address	Initial value	Set value	Remarks
#227	000OCT	345OCT	Set timer 700 through 777 to 10 ms timer



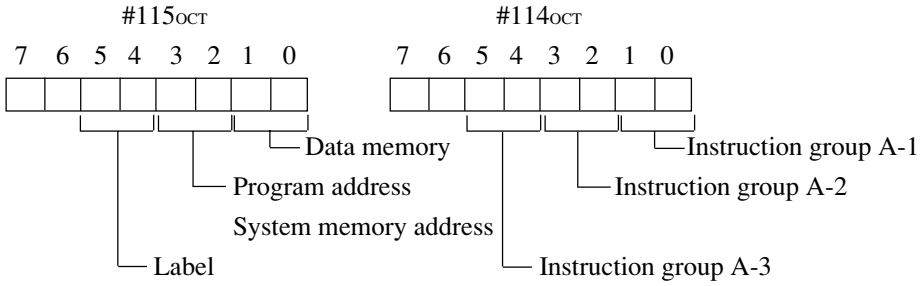
① Correction of address mis-input
- Before pressing R key ····· Reinput correct figures with numerical keys
- After pressing R key ····· Press "Address" key and reinput correct figures with numerical keys

② Correction of set value mis-input
- Before pressing "Save" key ····· Reinput correct figures with numerical keys
- After pressing "Save" key ····· Move the cursor to the address to correct and reinput set value.

(2) Selection of octal, decimal, and hexadecimal notation of constants of address, label number, and application instructions. (JW10, JW-31/32/33CUH)

Specify the number notation (octal, decimal or hexadecimal) used to display data memory addresses (relay/timer & counter/register number), program addresses, system memory addresses, label numbers and application instructions constants in system memory #114OCT to #115OCT.

- This function is available with the software version 5.0 or later for JW-31/32/33CUH and with the software version 5.3I or later for JW10.



	System memory address
Instruction group A-1	Bits D0 to D1 of #114OCT
Instruction group A-2	Bits D2 to D3 of #114OCT
Instruction group A-3	Bits D4 to D5 of #114OCT
Data memory	Bits D0 to D1 of #115OCT
Program address • system memory address	Bits D2 to D3 of #115OCT
Label	Bits D4 to D5 of #115OCT

Set value of 2 bits each	Content
00	Initial value *
01	Octal display
10	Decimal display
11	Hexadecimal display

* The instruction word is set in the notation of the initial value of each instruction word (for detail see the instruction word section in the manual of JW10, JW30H).
The data memory, program address, system memory address, and label are set in octal notation.

[Classification of instruction groups]

Group A-1	Transfer/compare instruction with constant F-01, F-01w, F-07, F-07w, F-08, F-08w, Fc12, Fc12w, Fx12, Fx12w, F-71, F-71w, F-91 Fc180, Fc180w, Fc181, Fc181w, Fc182, Fc182w, Fc183, Fc183w, Fc184, Fc184w, Fc185, Fc185w
Group A-2	Instruction with constant in bit pattern specification Fc13, Fc13w, Fx13, Fx13w, Fc14, Fc14w, Fx14, Fx14w, Fc17, Fc17w, Fx17, Fx17w, Fc18, Fc18w, Fx18, Fx18w
Group A-3	Instruction with constant in byte number specification F-67, F-68, F-70, F-70w, F-72, F-72w, F-73, F-73w, F-74, F-74w, F-79, F-79w, F-144, F-174, F-175, F-252, F-253

The underlined instructions are available with JW10.

[Compatibility of system memory #114OCT, #115OCT (selection of OCT/DCML/HEX)]

OCT	DCML	HEX
#114	#076	#04C
#115	#077	#04D

(3) I/O set (JW50/70/100, JW50H/70H/100H)

When I/O module for JW series is used, input type of module to install on each rack or slot number of I/O points.

Key operation 2

"System memory set" → "I/O set" →

Rack No.	Top ADRS	Slot 0	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5
0	]0000	PWR. MD	CPU MD.	No I/O	No I/O	No I/O	No I/O
1	]0000	No I/O	No I/O	No I/O	No I/O	No I/O	No I/O
2	]0000	No I/O	No I/O	No I/O	No I/O	No I/O	No I/O
3	]0000	No I/O	No I/O	No I/O	No I/O	No I/O	No I/O
4	]0000	No I/O	No I/O	No I/O	No I/O	No I/O	No I/O
5	]0000	No I/O	No I/O	No I/O	No I/O	No I/O	No I/O
6	]0000	No I/O	No I/O	No I/O	No I/O	No I/O	No I/O
7	]0000	No I/O	No I/O	No I/O	No I/O	No I/O	No I/O

. . . F1 . . . F2 . . . F3 . . . F4 . . . F5 . . . F6 . . . F7 . . . F8 . . . F9 . . . F10

Operation example

- 16 slots are provided from "0" to "F." However, "5" and above can appear by scrolling the screen.
- "Top address" in rack number 0 and "Power supply module" and "CPU module" in rack number 0/slot number 0 and 1 cannot be changed to another slot.
- Pressing "Exec." key allows the module to write set contents in the memory and returns to "SYS.MEM.set."
- **When the module returns to "SYS.MEM.set" by pressing "Quit" key or [ESC] key, it does not write the set contents in the memory.**

① Set I/O of input module, output module, dummy module, or vacant slot

(Example. Install "16 points input module" on rack number 0, slot number 2)

Move the cursor to rack number 0, slot number 2 → Press "Input MD" key → [1] [6] → [↵] (Enter key) → The cursor move to slot number 3

Write number of points

Pressing "Vacant" key assigns as "Vacant slot" and the module treats as 0 the number of I/O points. Therefore, slot address is closed forward.

② Set I/O of special I/O module

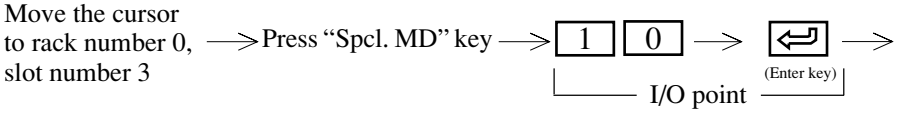
Special I/O module occupies 2 bytes of I/O relay area for control output (data exchange) and 64 bytes of register for data storage.

Set "Number of I/O point," "I/O kind," "Top address of data storage register" referring to the below.

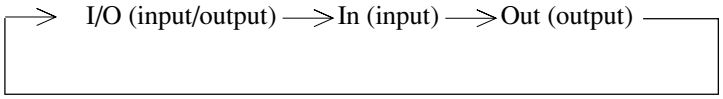
Module name	Model name	Number of I/O points	I/O kind
Analog input module	JW-8AD	16	Output
Analog output module	JW-2DA	16	Output
I/O link master module	JW-31LM	16	Output
High-speed counter module	JW-2HC	16	Input/output

Top address can be set to any position with 64 bytes within the range of ㅋ0000 to 99600.

(Example. Install "I/O link master module" on rack number 0, slot number 3)



I/O kind can be switched as follows with "Spcl.MD" key.



(4) I/O registration (JW-21/22CU)

When the model is set for either "JW21" or "JW22", perform "I/O registration" in the treatment of "PC operation" in the "PC transfer" menu.

If not registered I/O, JW-21CU or JW-22CU do not function.

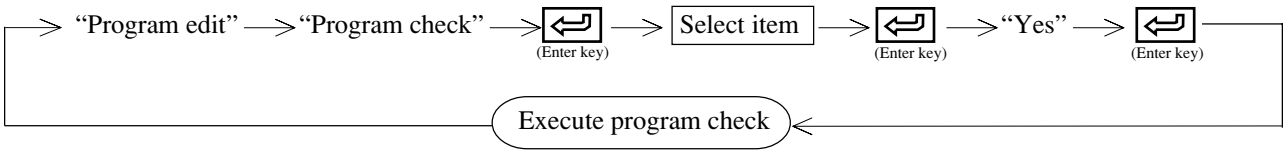
Notes

- System memory #000 to #177 is OS area. Do not write any value here.
- Input set value by word unit is also possible.
- "Write" is also possible with Shift + ⏎ key.
- The module displays that messages between system memory #260 and 377 uses DL9.

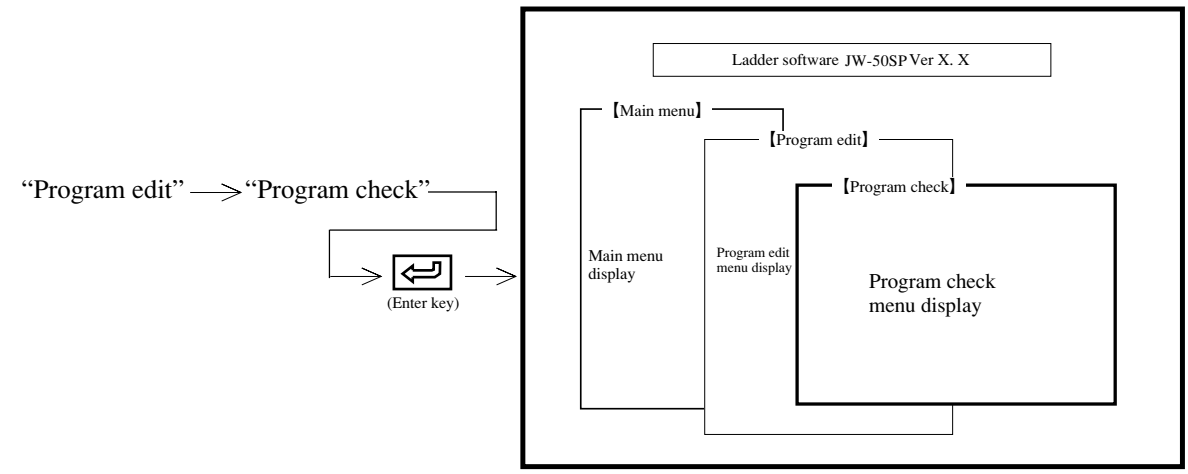
7-8 Program check

- This mode is used to execute parity check and program check (grammatical check) of the created program.
- Be sure to check before PC operation.

Operation outline



Key operation 1



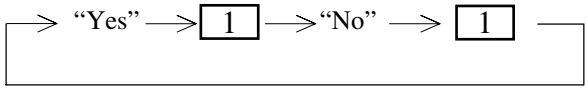
Check items are different with each PC model.

Operation example

Check only assigned items for created program

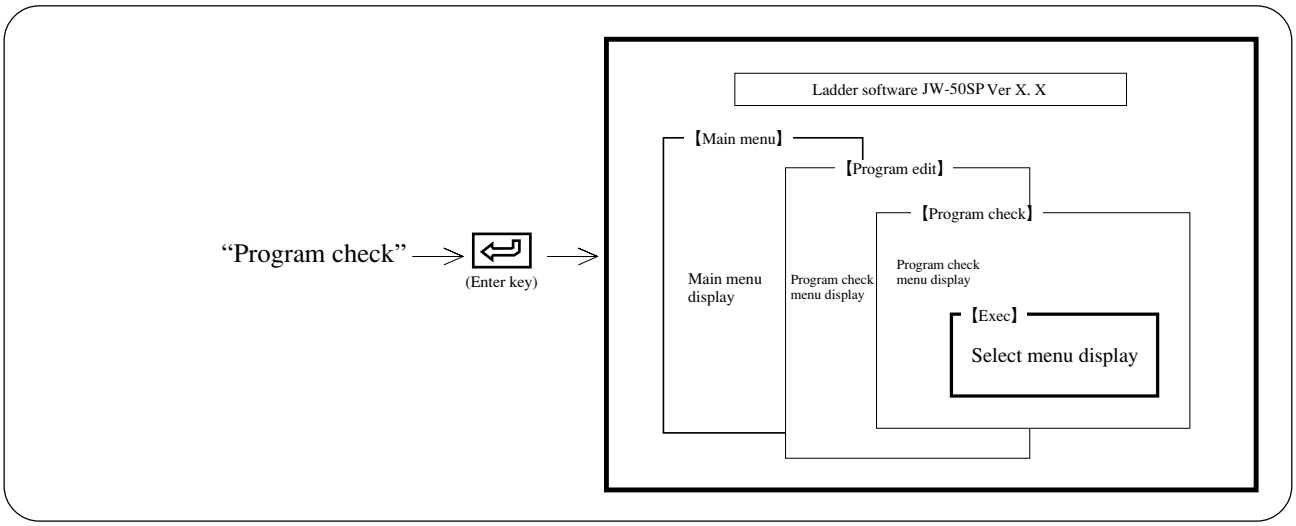
① For selecting whether to execute check or not, by cursor key or numeral key.

[Example] Stack check



② After selecting items to check, press R key.

Key operation 2



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Operation example

(1) When executing program check

"Yes" → (Enter key) → Initiates program check.

(2) When stopping program check

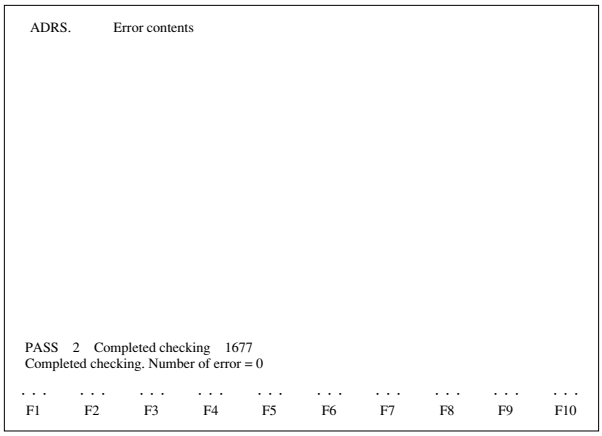
"No" → (Enter key)

ESC

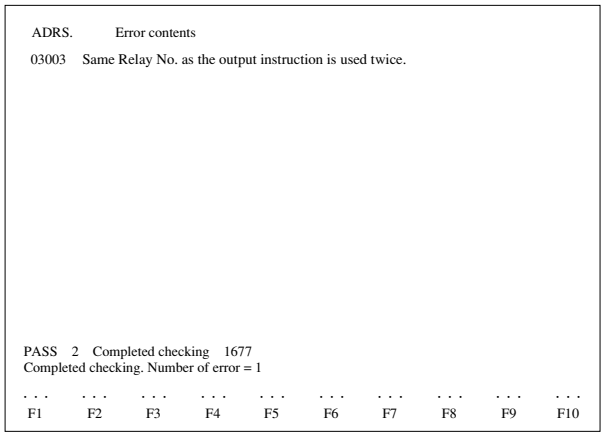
→ Return to "Program check menu" menu.

Check result

(When no error is detected)



(When an error is detected)



• Display error occurred address and its contents.

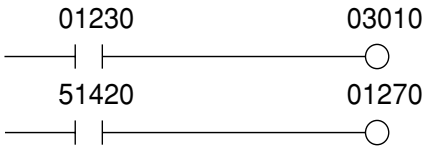
7-9 Preparation of library

- Common circuits can be prepared as libraries.
- A library can also be prepared from a program currently in use.
- There are 3 different types of program which can be described in the library i.e. normal number input type, symbol input type and macro input type. A mixture of different types is possible. Combine them as required in the preparation of a library.

(1) Preparation of normal number input type program

The method of preparation of program is about the same as that of ladder programming. However, while no relay number, etc. are displayed at the time of input of ladder symbols (Q, etc.), they will be displayed if you input numeral keys with the same operation as that of ladder programming, after inputting the ladder symbol.

[Example]



(2) Preparation of symbol library type program

This is a method for preparing a program by using symbols instead of an ordinary number input. After inputting the ladder symbol, press the “Enter” key and then write by setting symbols. The set symbols will be assigned to the respective numbers for use at the time of reading of the library.

[Example]

(3) Preparation of macro library type program

This is a method for preparing a program by using variables and constants of M00 to M77 instead of an ordinary number input. The set variables are set at the time of reading of the library and their numbers are used as values of set variable + constant.

Especially, if you describe clear correlations as shown below in a macro library, it will be helpful for the reduction of development man-hours, etc. of the program:

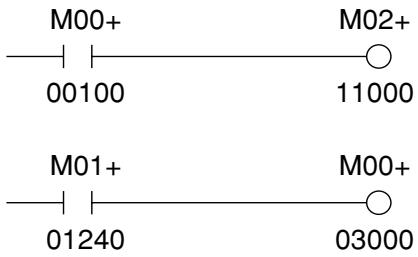
(1) Relation of number between input and output.

(2) Relation of number between auxiliary relay and actual output.

(3) Relation of respective relay/register numbers.

For the preparation of a library, input the “M” key at the time of input of relay/register numbers. After setting the number of M (00 to 77), input the "+", "–" keys and then set a constant.

[Example]



Printing of library program

<Outline of operations>

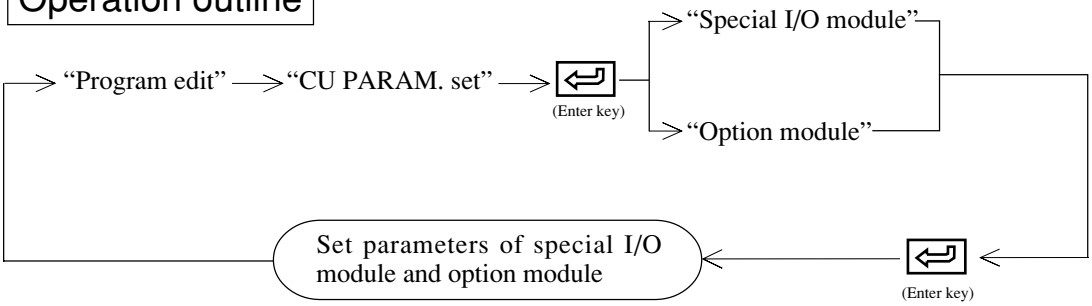
"Preparation of library" ⟶ Home ⟶ "Printing" ⟶ "Exec"
(Menu display)

The displayed contents are printed as they are. Use "Set printer" in the print mode for the setting of printer model/paper.

7-10 CU parameter set

• This function sets parameters of CU special I/O module and option module.

Operation outline



Remarks

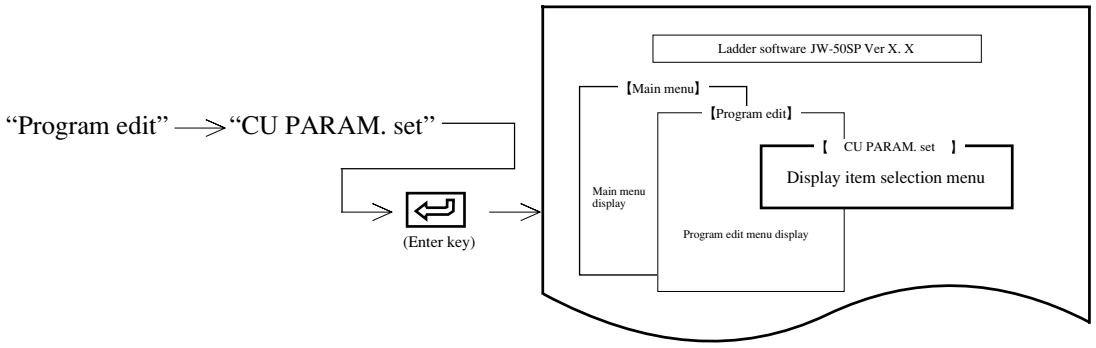
Special I/O module

Model name	Model
High-speed counter module	JW-21HC
Serial interface module	JW-21SU
Analog output module	JW-22DA
Analog input module	JW-24AD

Option module

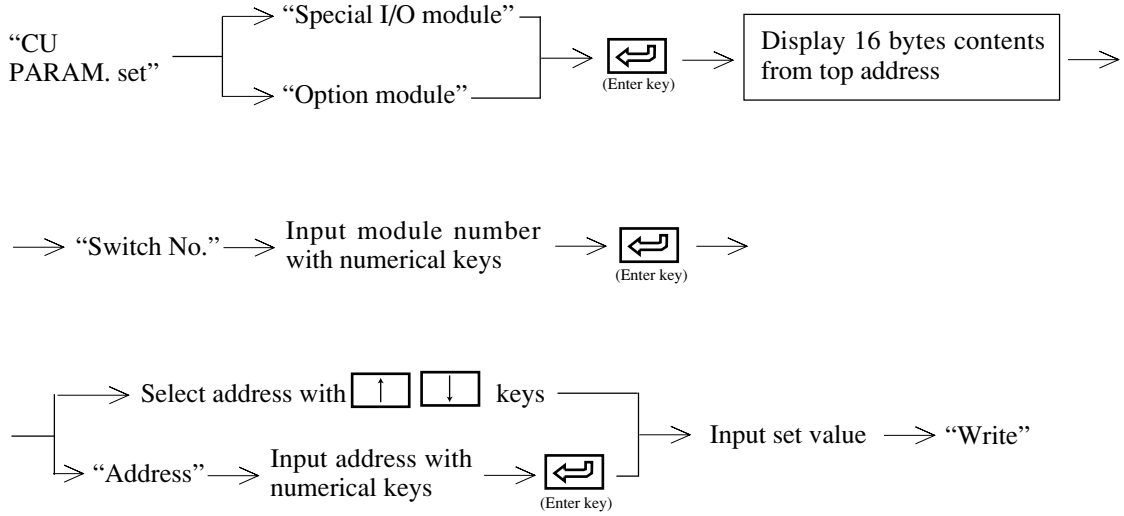
Model name	Model
Link module	JW-21CM

Key operation



Name	Function
Switch No	• Set module number
Address	• Set parameter address
Code CNV	• Switch code of set value (HEX → octal → decimal → binary → JIS)
Word	• Switch display contents (byte → word → double words)
Quit	• Return to "Program edit" menu
Write	• Write set value

Operation example



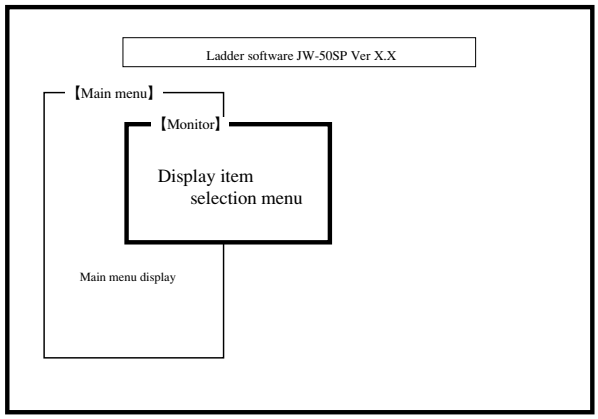
Chapter 8 Monitor

- This mode is used to read program contents of PC and monitor data memory condition such as ON/OFF status of relays and current value of TMR/CNT.
- Prior to monitor memory, read out the program.

Key operation

"Main menu" → "Monitor" → ↵ (Enter key) →

Screen display



Function

Name	Function	Reference page
Ladder monitor	• Monitor ON/OFF of contacts, register value, or current value of TMR, CNT using ladder diagram.	8-2
Mnemonic monitor	• Monitor above contents using instruction words	8-32
Sampling trace	• Sampling ON/OFF information of relays, register contents from any cycle, and display time chart	8-35
FD transfer	• Operation of FD	11-1
PC transfer	• Operation of PC	12-1
SF monitor	• When PC model "JW21 or JW22" is applied, monitor program at step flow instruction (SF).	8-38

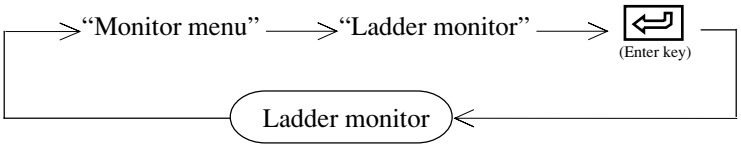
Notes

- Pressing ESC key returns to "Main menu."
- To select any item on the menu, use numerical key or cursor move keys.

8-1 Ladder monitor

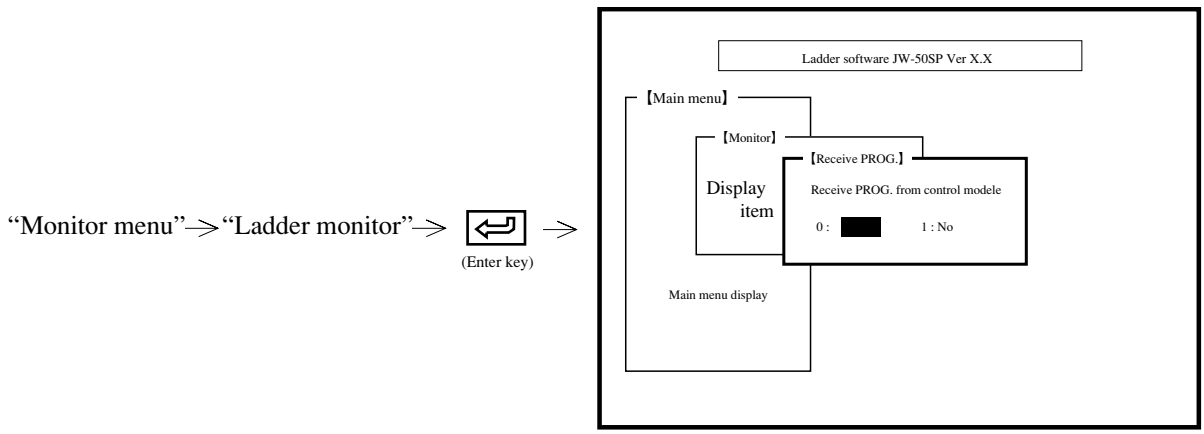
This function monitors operation condition of PC with ladder diagram.

Operation outline

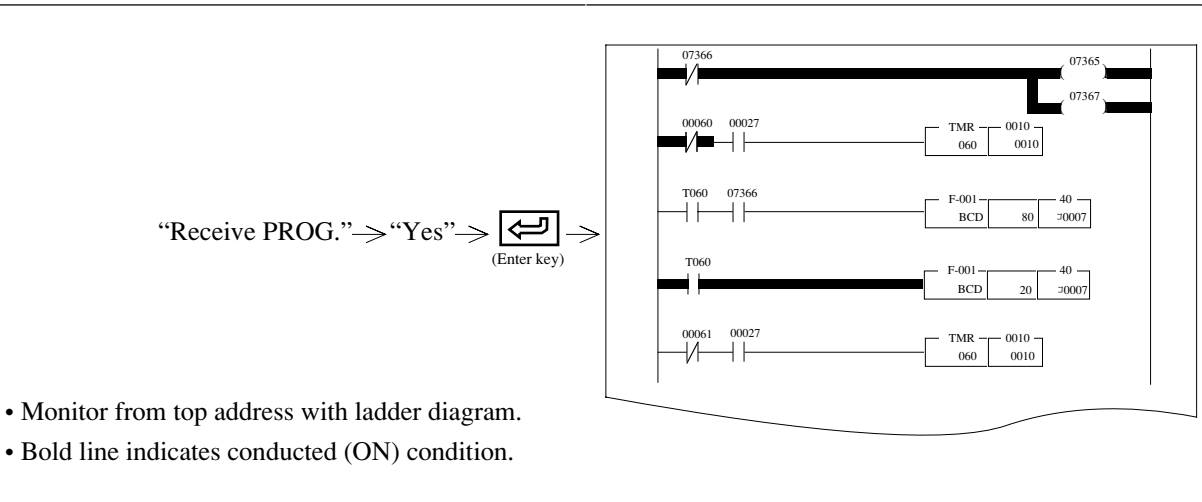


• If there is any secret function programmble controller and is in use, input of a password is required.

Key operation 1



Key operation 2



• Monitor from top address with ladder diagram.
• Bold line indicates conducted (ON) condition.

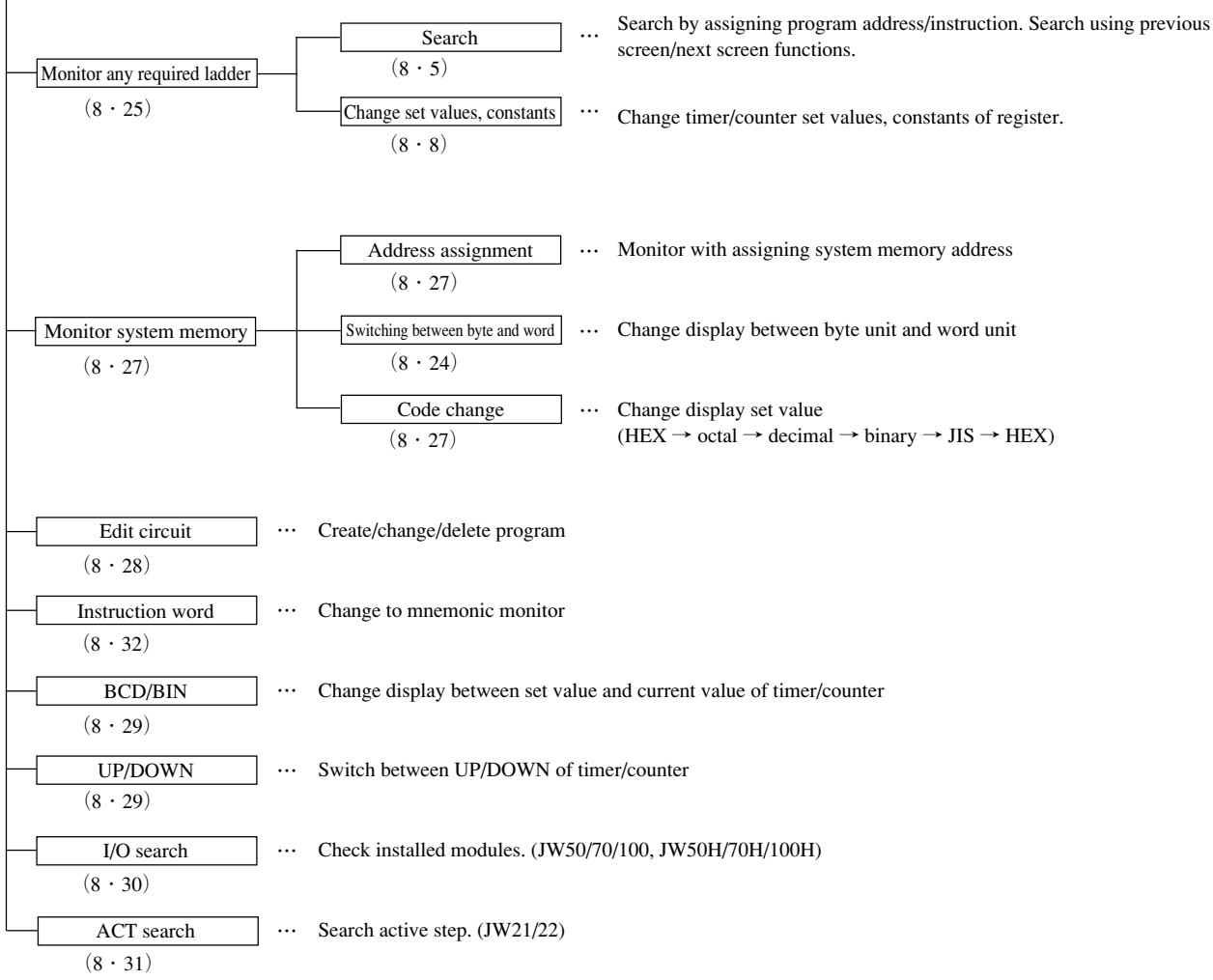
Functions on ladder monitor

• Figures in parenthesis means reference page.

- **Search** (8・5) … Search by assigning program address/instruction. Search using previous screen/next screen functions.
- **Change set values, constants** (8・8) … Change timer/counter set values, constants of register.
- **Set/reset** (8・9) … Set/reset data memory address condition
- **Freeze display** (8・10) … Keep screen display condition currently being monitored
- **Change display** (8・11) … Change contact/coil display as address → symbol → address, symbol → address...
- **Display scan time** (8・12) … Display PC scan time
- **N scan operation** (8・13) … Monitor any (N) scan operation condition
- **Monitor break** (8・14) … Assign program address and break monitor
- **Monitor trigger** (8・15) … Monitor by contact raise/down condition
- **Monitor error** (8・16) … Monitor error history
- **Start/stop PC operation** (8・17) … Switch between PC operation ON/OFF
- **Forced ON/OFF** (8・18) … Assign relay number and forcibly turn ON/OFF
- **Break** (8・19) … Assign program address or END instruction and break monitor
- **Monitor multiple point** (8・23)
  - **Change set values, constants** (8・8) … Change timer/counter set values, constants of register.
  - **Set/reset** (8・9) … Set/reset data memory address condition
  - **Forced ON/OFF** (8・18) … Assign relay number and forcibly turn ON/OFF
  - **Continuous monitor for forward/backward** (8・24) … Continuously monitor next/previous screen currently being monitored.
  - **Switching between byte and word** (8・24) … Change display between byte and word

*

*

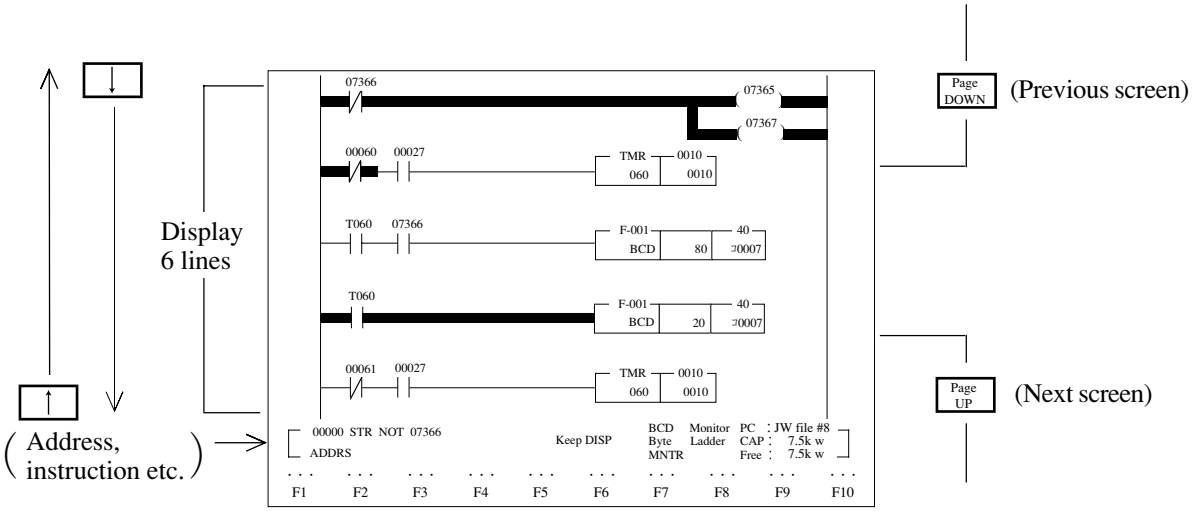

Monitor any required ladder
(8・25)
Search
(8・5)
… Search by assigning program address/instruction. Search using previous screen/next screen functions.
Change set values, constants
(8・8)
… Change timer/counter set values, constants of register.
Monitor system memory
(8・27)
Address assignment
(8・27)
… Monitor with assigning system memory address
Switching between byte and word
(8・24)
… Change display between byte unit and word unit
Code change
(8・27)
… Change display set value
(HEX → octal → decimal → binary → JIS → HEX)
Edit circuit
(8・28)
… Create/change/delete program
Instruction word
(8・32)
… Change to mnemonic monitor
BCD/BIN
(8・29)
… Change display between set value and current value of timer/counter
UP/DOWN
(8・29)
… Switch between UP/DOWN of timer/counter
I/O search
(8・30)
… Check installed modules. (JW50/70/100, JW50H/70H/100H)
ACT search
(8・31)
… Search active step. (JW21/22)

(1) Search

Same as “Ladder programming” mode, search operation displays condition with 6 lines on 1 screen.

a. Search with key operation

- Pressing [↑] key moves the cursor in upper direction. When the cursor is at top line of the screen, another press of [↑] key shifts previous ladder diagram by 1 line.
- Pressing [↓] key moves the cursor in downward direction. When the cursor is at bottom line of the screen, another press of [↓] key shifts next ladder diagram by 1 line.
- Pressing [→] key moves the cursor in right direction. When more than 11 contacts are allocated, the screen can shift in right direction. When the cursor is at right end, another press of this key moves the cursor to next line top position.
- Pressing [←] key moves the cursor in left direction. When the cursor is at left end, another press of this key moves the cursor to previous line top position.
- Pressing [Page DOWN] key displays previous ladder diagram while taking the currently displayed top line as a bottom line.
- Pressing [Page UP] key displays next ladder diagram while taking the currently displayed bottom line as a top line.



b. Display with instruction word search

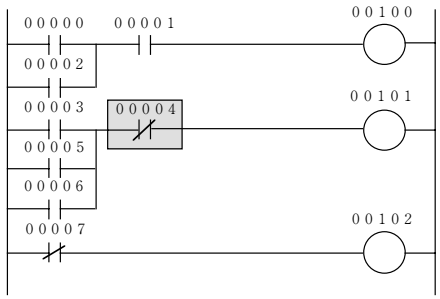
This function designates any of the instruction words and displays a circuit (network) having its instruction at top of screen.

<Key operation>

“Clear” ⟶ “Address” ⟶ Input search start program address * ⟶ Instruction word (ladder symbol) + number ⟶ “Search:+” ⟶ Display a circuit having designated instruction at top of screen

- When searching for an instruction from program address 00000, operations with “ * ” are not required.
- Continuous press of “Search:+” key allows the module to search to the end address.
- Press of “Search:–” key allows the module to search to a smaller address number.

(Example) Search AND NOT 00004



Address	Instruction	
00100	STR	00000
00101	OR	00002
00102	AND	00001
00103	OUT	00100
00104	STR	00003
00105	OR	00005
00106	OR	00006
00107	**AND NOT**	**00004**
00110	OUT	00101
00111	STR NOT	00007
00112	OUT	00102

"Clear" → "Address" → [1] [0] [0] → [AND] [NOT] [4] →

Set search start address — AND NOT 00004

→ "Search :+" → Display a circuit having AND NOT 00004 at top of screen

8

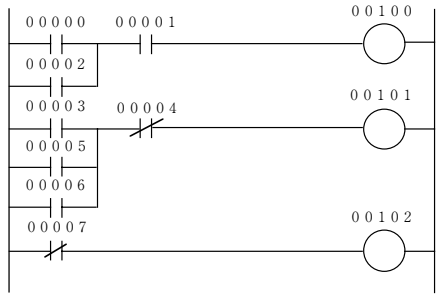
c. Display with program address search

This function assigns any program address and displays a circuit having its address as top of the screen.

<Key operation>

"Clear" → "Address" → Input program address → [Enter key] → Display a circuit having designated program address at top of screen

(Example) Search program address 00102



Address	Instruction	
00100	STR	00000
00101	OR	00002
00102	AND	00001
00103	OUT	00100
00104	STR	00003
00105	OR	00005
00106	OR	00006
00107	AND NOT	00004
00110	OUT	00101
00111	STR NOT	00007
00112	OUT	00102

"Clear" → "Address" → [1] [0] [2] → [Enter key] → Display a circuit having program address 00102 at top of screen

Set search address

d. Display with data memory address search

This function assigns required data memory (relay, TMR/CNT etc.) and displays a circuit having its data memory as top of the screen.

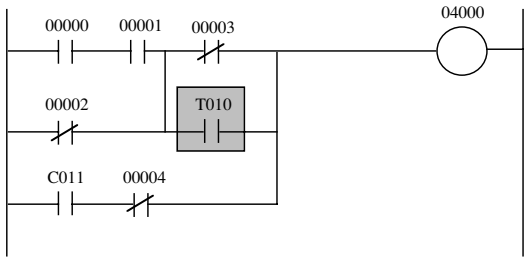
<Key operation>

"Clear" → "Code" → Select data memory area → Input data memory number → "Search:+" →

→ Display a circuit having designated data memory at top of screen

- Press "Code" key and select data memory area.
- Continuous press of "Search:+" key allows the module to search to the end address.
- Press of "Search:–" key allows the module to search to a smaller address number.

(Example) Search TMR 010



Address	Instruction	
00000	STR	00000
00001	AND	00001
00002	OR NOT	00001
00003	STR NOT	00003
00004	OR TMR	**010**
00005	AND STR	
00006	STR CNT	0011
00007	AND NOT	00004
00010	OR STR	
00011	OUT	04000

"Clear" → "Code" → [1] [0] → "Search:+" → Display a circuit having TMR 010 at top of screen

Select area of TMR・CNT in the program

Search TMR 010

- If you press "Zoom (+)" or "Zoom (–)", only circuits having the specified data memory address as output will be searched (relay, TMR/CNT only).
- A previously searched program address will be displayed with "Previous search".

(2) Change set values, constants

While in monitoring ladder diagram, change of set values, constants of timer, counter, MD, or register is possible.

<Key operation>

Move the cursor to an instruction word attempting to change ⟶ Input set value or constant ⟶ "Write"

(Example) Change set value of TMR 015 from 0050 to 0030

Address	Instruction	
00130	STR	00112
00131	AND NOT	00110
00132	TMR	012
00133		0050

⟶

Address	Instruction	
00130	STR	00112
00131	AND NOT	00110
00132	TMR	012
00133		0030

"Clear" "Code" [1] [2] "Search:+" ⟶ [→] (Move cursor) ⟶ [3] [0] "Write"

[1] [2]: Search TMR 012

[→]: Move the cursor to set value column

[3] [0] "Write": Write set value after change

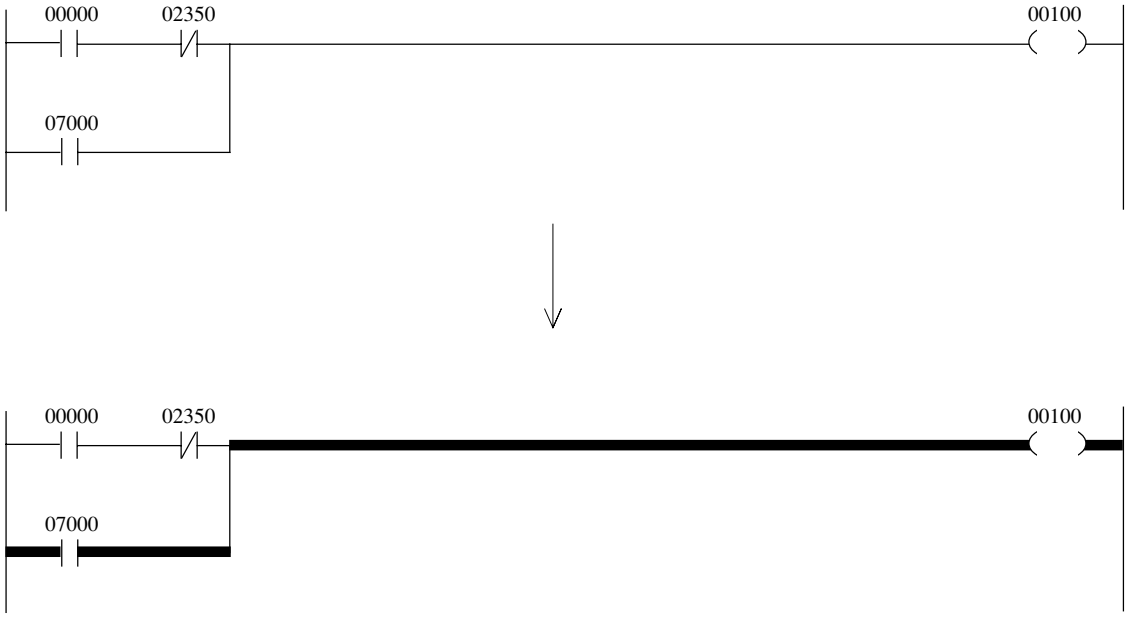
(3) Set/reset

While in monitoring ladder diagram, set (ON)/reset (OFF) of relays, and set (time up)/reset (preset to set value) of current timer value, counter are possible regardless of PC operation.

<Key operation>

Move the cursor to an instruction attempting to set/reset → Press "Set" or "Reset" key

(Example) Set (ON) relay 07000



"Clear" [OR] [7] [0] [0] [0] "Search:+" → "Set"

Search OR 07000

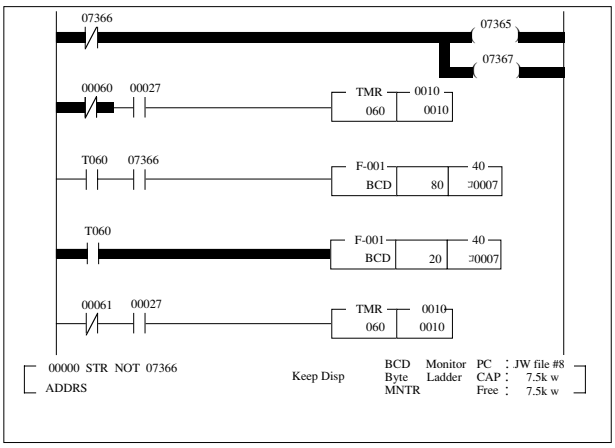
(4) Freeze display

While in monitoring ladder diagram, this function keeps display condition regardless of PC operation.

<Key operation>

Search for network attempt to keep display ⟶ Press “Keep Disp” key

(Example) In case of pressing “Keep Disp” key while monitoring program from the top address

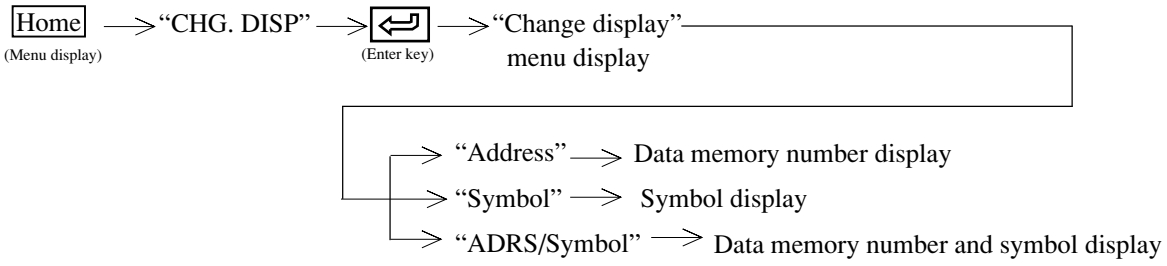


- While keeping the display, indication of “Keep Disp” appears in the message area.
- Another press of “Keep Disp” key when keeping display, display keep is released.

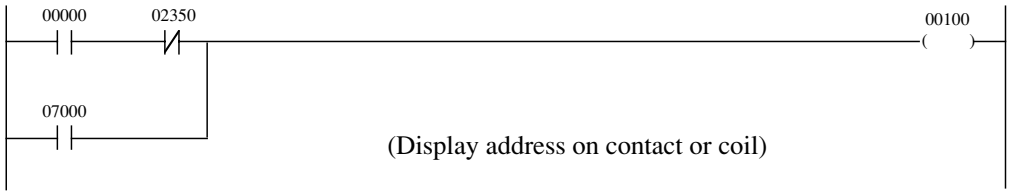
(5) Change display

Change display contents to contact, coil etc.

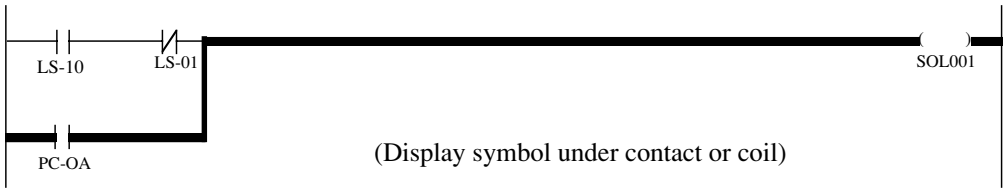
<Key operation>



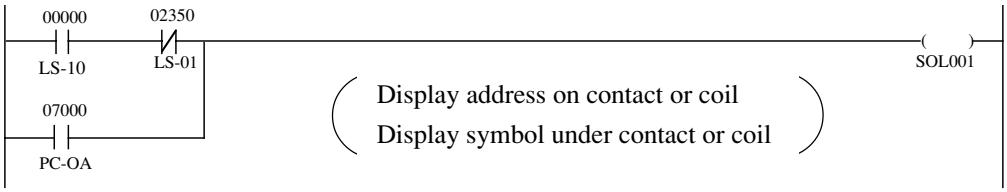
a. Address



b. Symbol



c. Address/symbol



For "symbol", 16 characters in half size can be set, but only the portion of the first 6 half-size characters will be displayed.

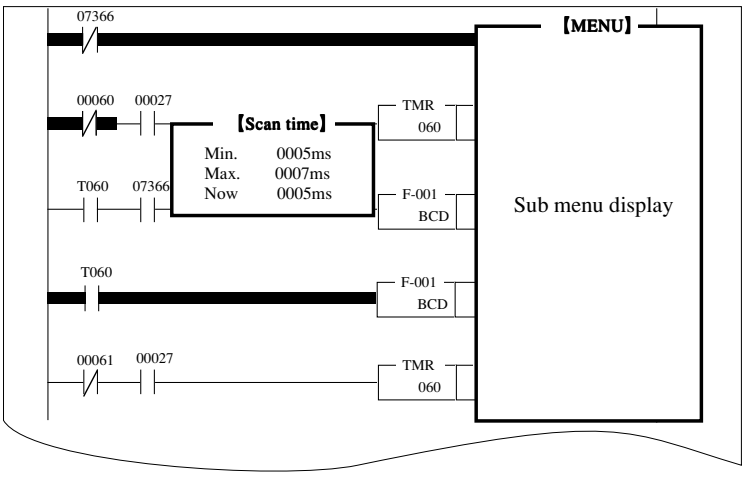
(6) Display scan time

This function displays scan time (operation time) of PC.
Its also displays “Current value,” “Max. value,” and “Min. value.”

<Key operation>

Home → “Scan time” → ↵
(Menu display) (Enter key)

<Display example>

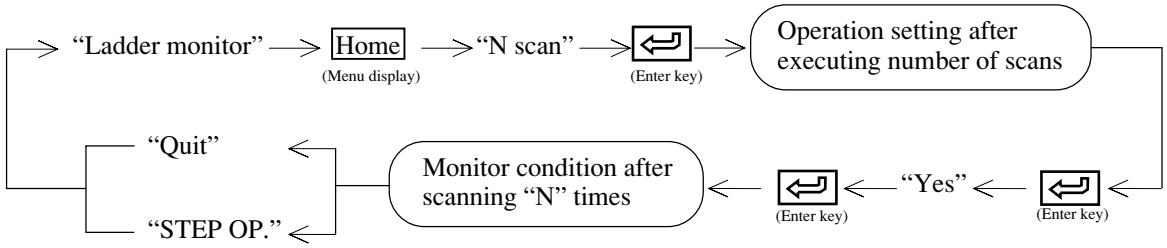


- Its displays in 1 ms unit.
- Pressing ESC key terminates “Scan time monitor.”

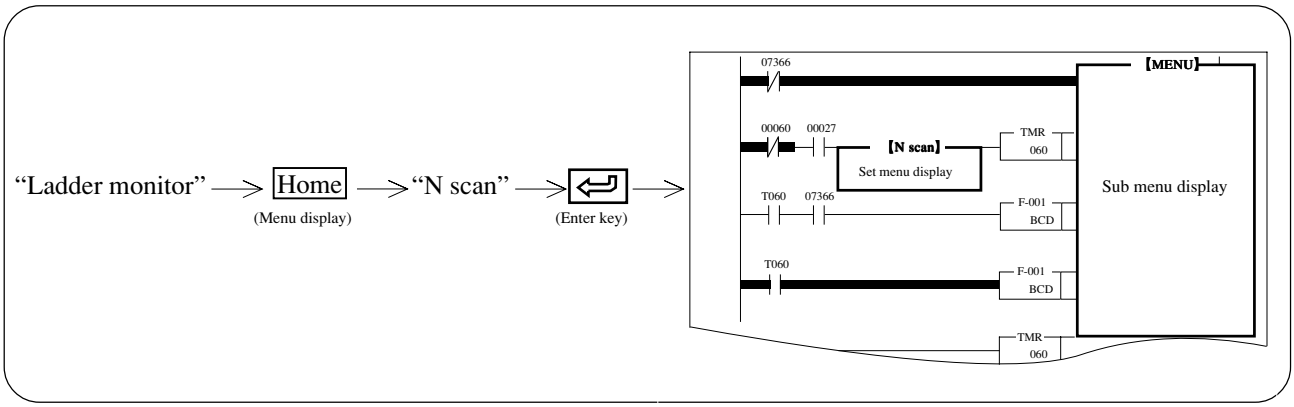
(7) N scan operation

This function displays PC condition after operating assigned scan times (operation).

Operation outline

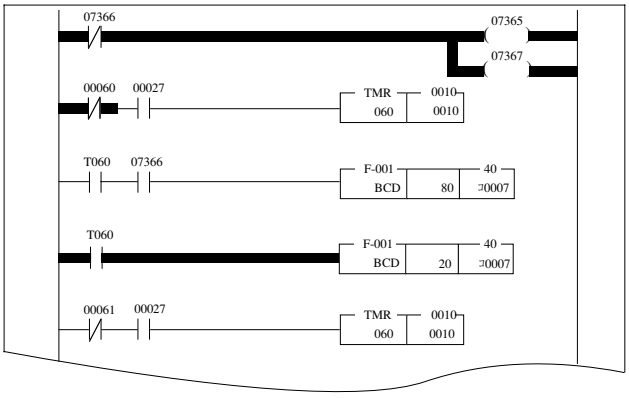


Key operation



Operation example

① Input number of scan times (0000 to 9999) with numerical keys.
② Press [↓] key.
③ The cursor moves to executing condition.
④ Select "Stop" or "Run" with [←] [→] keys.
⑤ Press [↵] (enter key).
⑥ Press "Yes" and [↵] (enter key) to execute N scan.
⑦ Displays condition after executing assigned scan times.

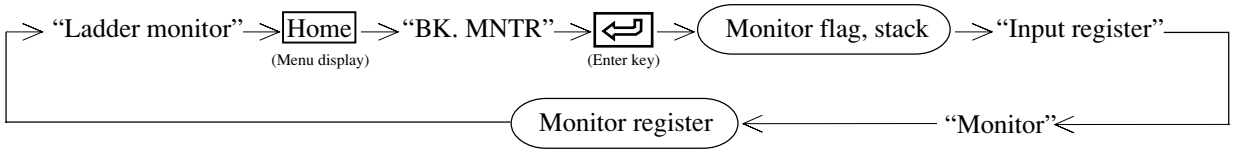


⑧ Press "STEP OP." key to stop operation after executing one step.
⑨ Press "Quit" key or [ESC] key to return to "Ladder monitor"

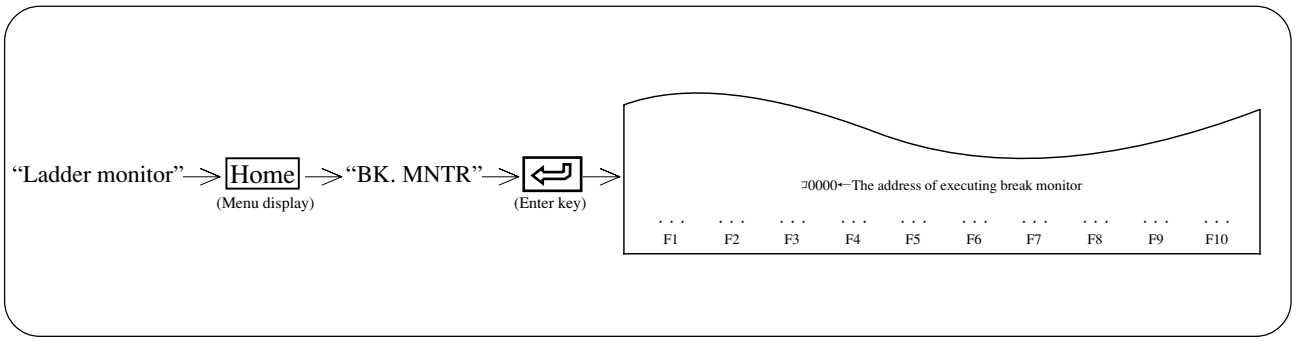
(8) Break monitor

This function monitors flag, stack, register contents of assigned instruction.

Operation outline



Key operation



8

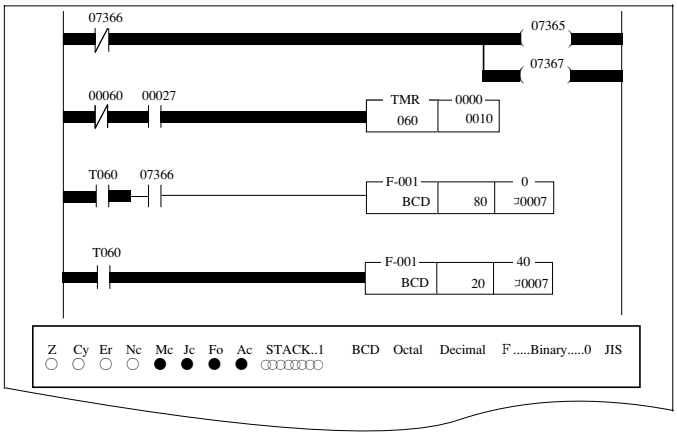
Operation example

① Monitors "Flag, Stack" with above operations.

② Select data memory area to execute break monitor with "Code" key.

③ Input data memory address with numerical key.

④ Pressing "Monitor" key displays the below screen.



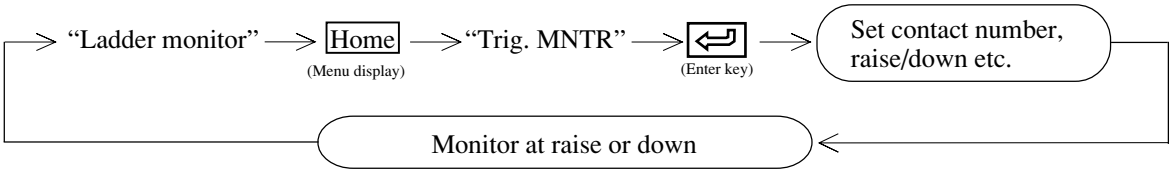
⑤ To continue break monitor, repeat operation from ② to ④ above.

⑥ Press "Quit" key or ESC key to return to "Ladder monitor"

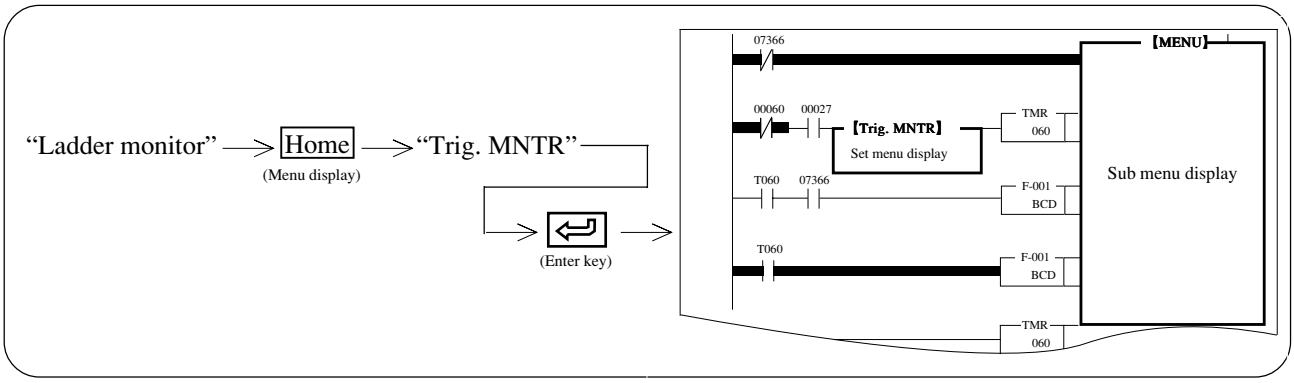
(9) Trigger monitor

This function takes any of contacts used during program as trigger point, and monitors program condition at raise/down of this trigger point.

Operation outline

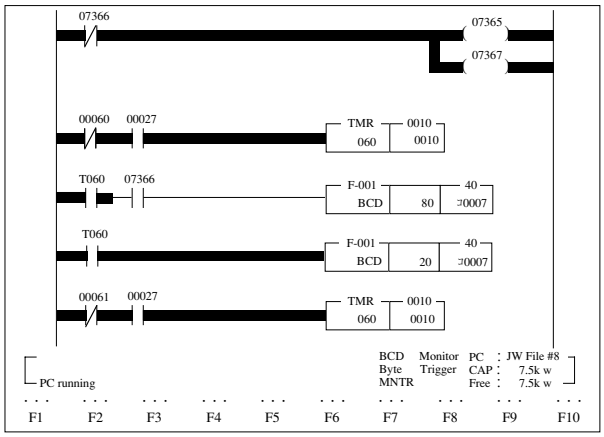


Key operation



Operation example

① Input a contact (relay) number to assign as trigger point.
② Press ' key to move the cursor to "Trigger" and select condition with ← → keys.
③ After setting conditions, press (enter key) and then "Yes" and (enter key).
④ Display monitor with assigned conditions



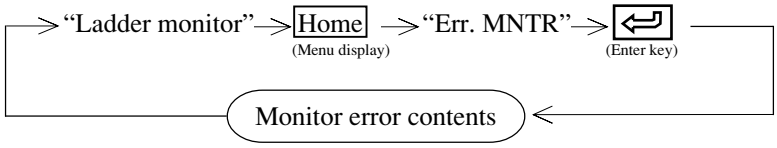
⑤ Press "Quit" key or ESC key to return to "Ladder monitor"

The actual monitoring is delayed from the time of detection of any change (raise or down) in the trigger point. Use "Break" to see any momentary data.

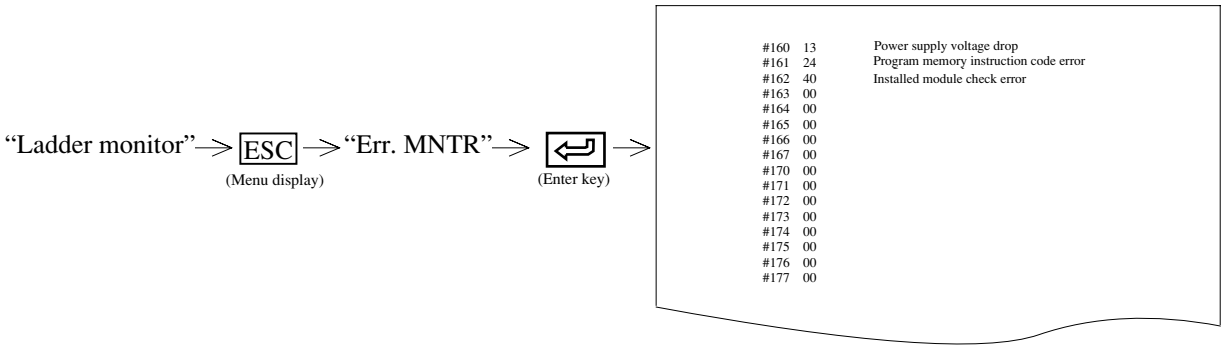
(10) Error monitor

This function monitors error contents of PC (system memory #160 to 167) and error contents of option (system memory #170 to 177).

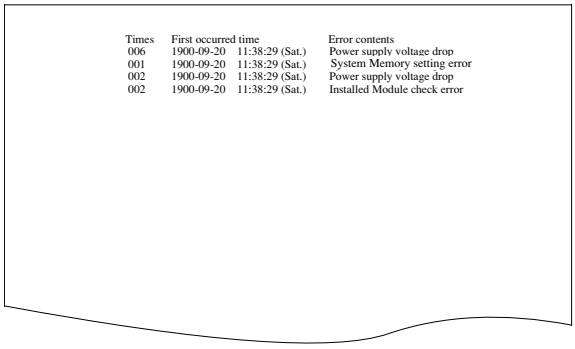
Operation outline



Key operation



- Display error code (BCD) and message.
- The "error history" display appears as below.

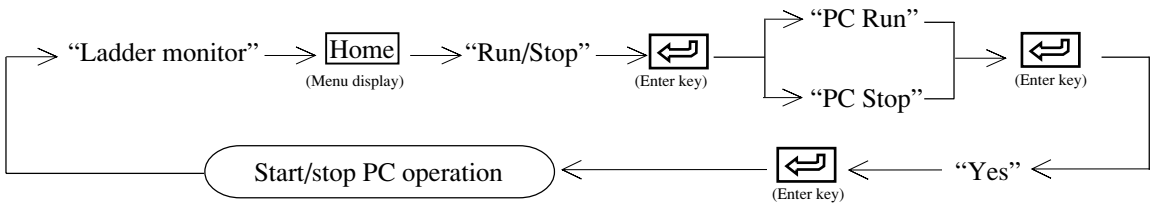


- Press "Slot ASGN" key, slot number switches CU → 1 → 2 ... 7.
- After assigning slot number, press "Exec." key. The screen shows error history of assigned slot.

(11) Start/stop PC operation

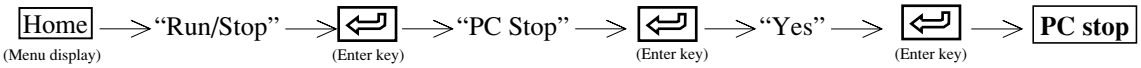
This function starts/stops PC operation while monitoring.

Operation outline

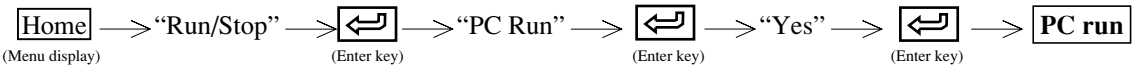


Operation example

① Running → Stop



② Stopping → Run



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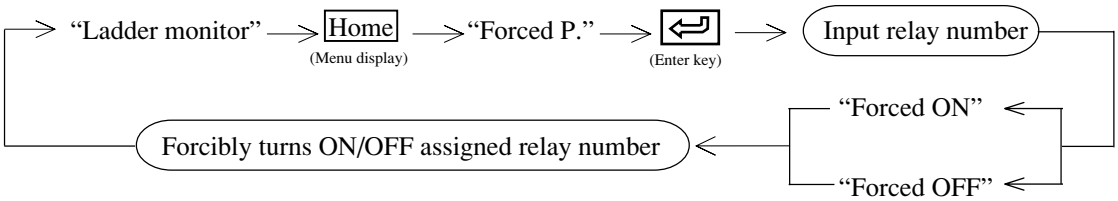
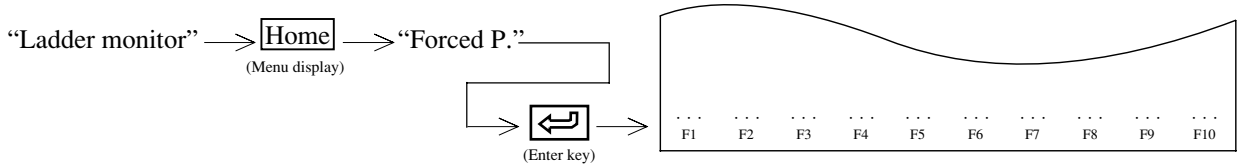
(12) Forced ON/OFF

This function forcibly turns ON/OFF any relay number assigned relay (I/O relay, auxiliary relay, latched relay, general purpose relay).

Operation outline

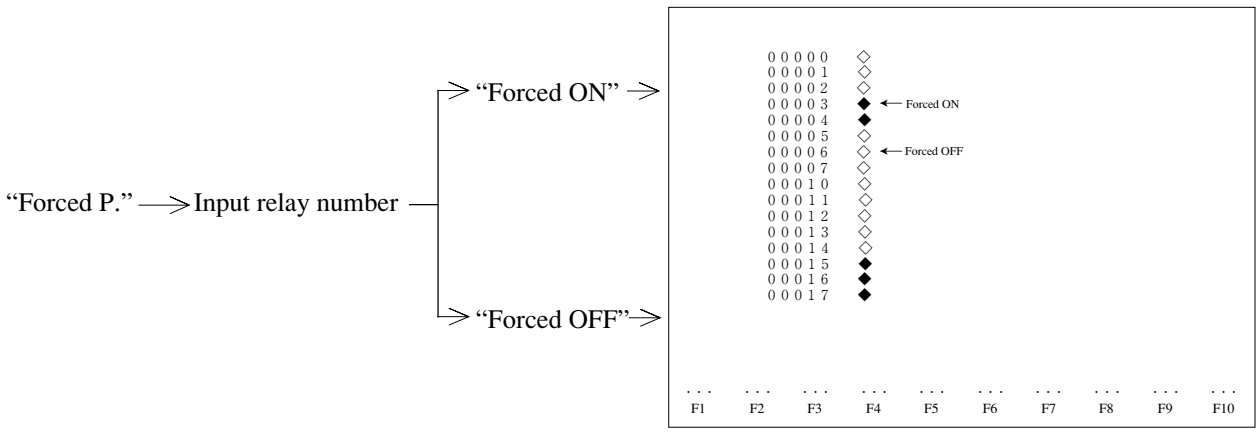


Key operation



• Function display of F1 to F10 will change.

Operation example



Name	Contents
Forced ON	Forced turn ON of assigned relay number
Forced OFF	Forced turn OFF of assigned relay number
Forced CLR.	Release forced ON/OFF
CLR. one	Release relay number assigned forced ON/OFF
Quit	Return to "Ladder monitor" mode

(13) Break

a. Break with program address assignment

Assign an instruction allocated address as break point, the module monitors data memory condition of the assigned address after execution of this instruction.

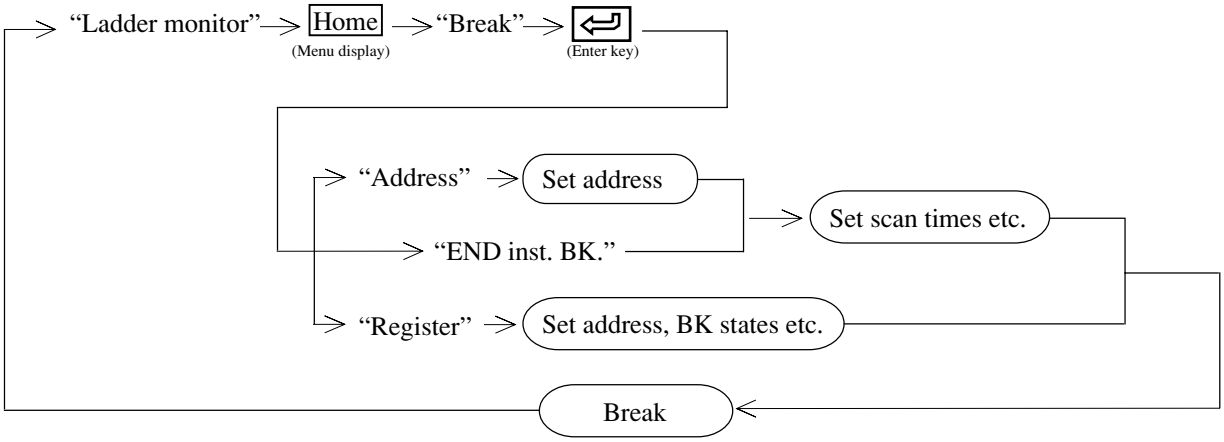
b. Break with END instruction

Assign number of execution times. The module executes top of program, or from break point address, to END (F-40)/ENDC (F-49) instruction for number of assigned times, and monitors data memory condition.

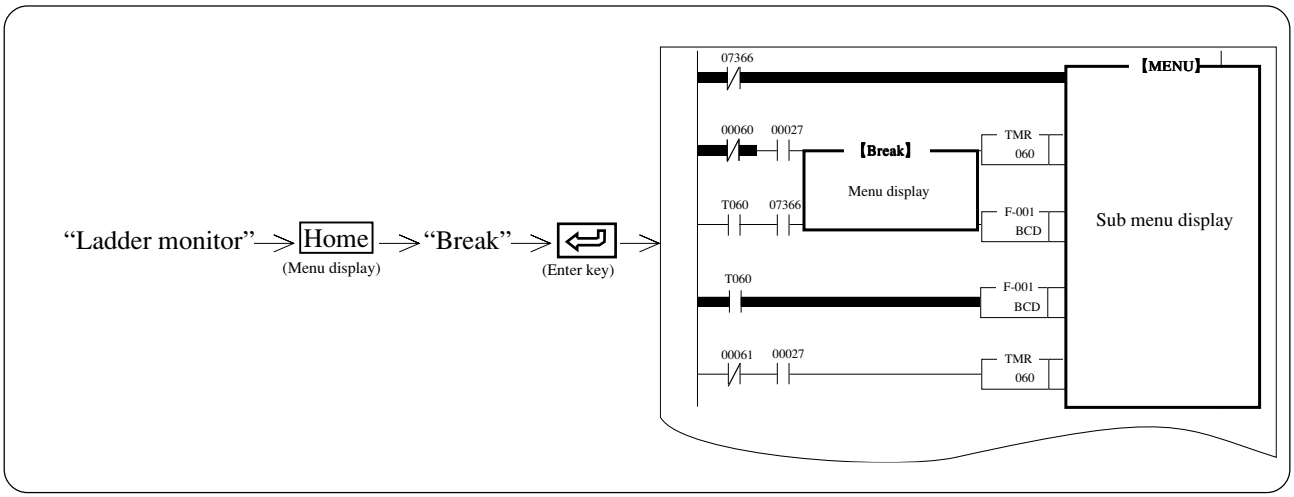
c. Break with register address assignment

Assign register address as break point, the module monitors data memory condition when data is written in its data address.

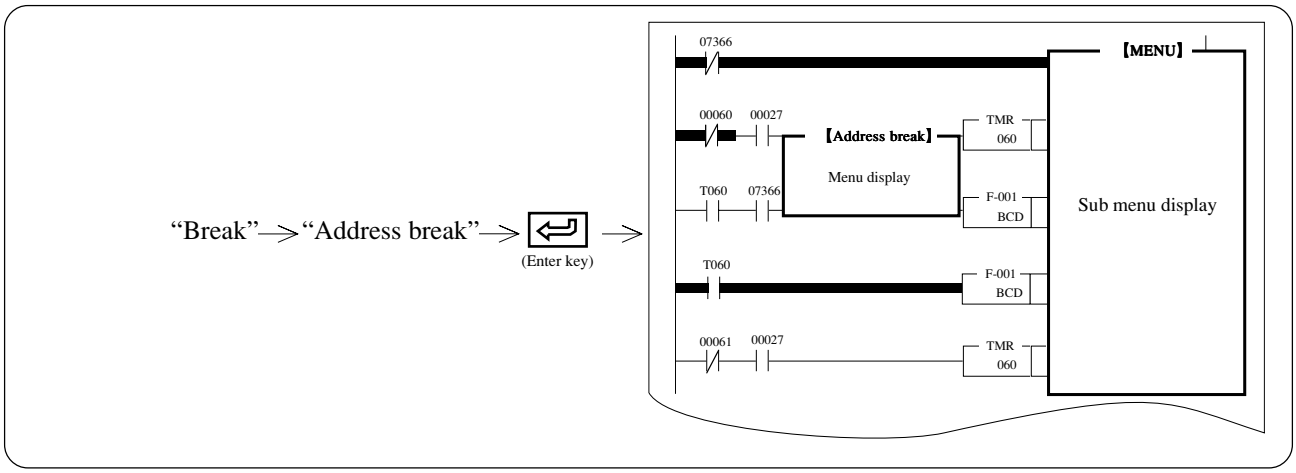
Operation outline



Key operation 1



Key operation 2 **(Break with program address assignment)**



Operation example

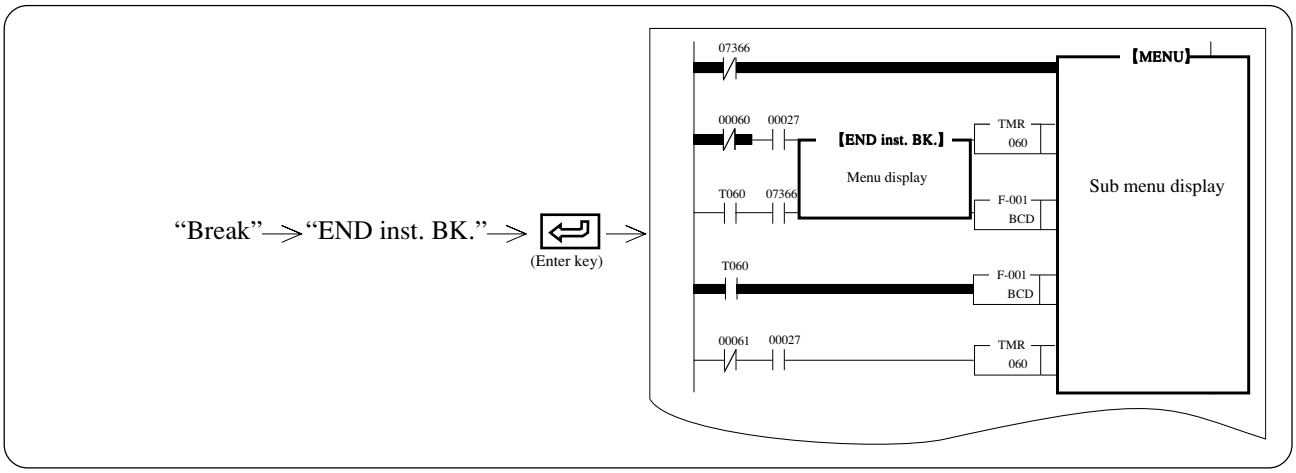
8

① Input address to assign as break point using numerical key.
② Press [↓] key to move the cursor to "Scan times" column.
③ Set number of scan (operation) times between 0001 to 9999.
④ Press [↓] key to move the cursor to "After BK." column.
⑤ Set PC operation condition after break by moving the cursor with [←] [→] keys.
⑥ Press ' key to move the cursor to "Register" column.
⑦ Set exist/not exist of register to monitor after break by moving the cursor with [←] [→] keys.
⑧ When monitoring register after break:
- Set data memory area using "Code" key, and input address with numerical keys.
- Press [↵] (enter key), the module monitors assigned register address.

⑨ During monitoring register:
- Pressing "Code CNV" key switches code as HEX → octal → decimal → binary → JIS.
- Pressing "Word" key switches between byte unit and word unit.
- Pressing [Page DOWN] key monitors forward 15 points while taking the assigned register address as a bottom line.
- Pressing [Page UP] key monitors backward 15 points while taking the assigned register address as a top line.

⑩ Press "Quit" key or B key to return to "Ladder monitor"

Key operation 3 **(Break with END instruction)**

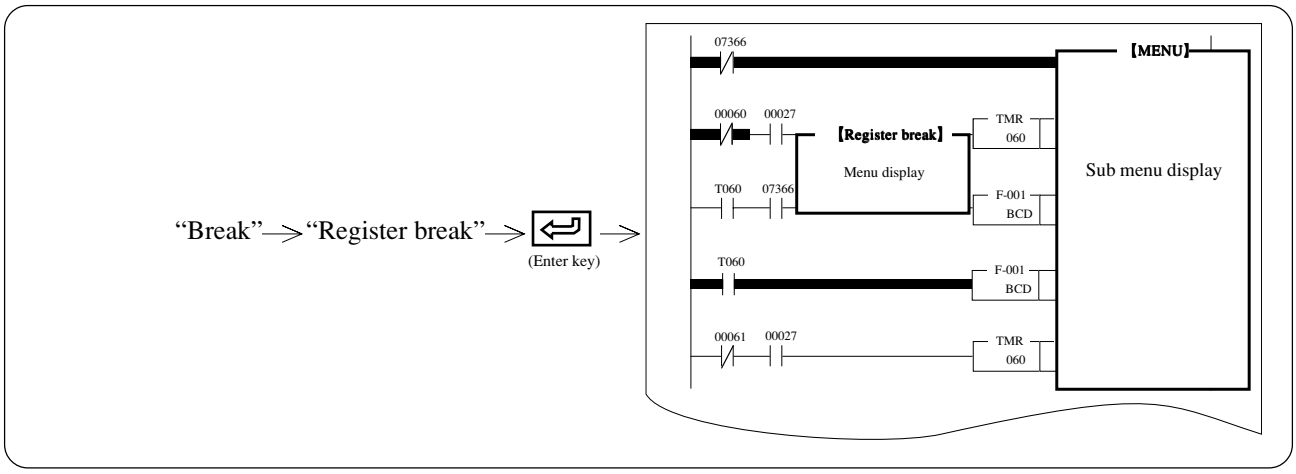


① Set number of scan (operation) times between 0001 to 9999.
② Press [↓] key to move the cursor to "After BK." column.
③ Set PC operation condition after break by moving the cursor with [←] [→] keys.
④ Press ' key to move the cursor to "Register" column.
⑤ Set exist/not exist of register to monitor after break by moving the cursor with [←] [→] keys.
⑥ Press [↵] (enter key) and then "Yes" [↵] (enter key) to execute "Break with END instruction"
⑦ When monitoring register after break:
- Set data memory area using "Code" key, and input address with numerical keys.
- Press [↵] (enter key), the module monitors assigned Register address.

⑧ During monitoring register:
- Pressing "Code CNV" key switches code as HEX → octal → decimal → binary → JIS.
- Pressing "Word" key switches between byte unit and word unit.
- Pressing [Page DOWN] key monitors forward 15 points while taking the assigned register address as a bottom line.
- Pressing [Page UP] key monitors backward 15 points while taking the assigned register address as a top line.

⑨ Press "Quit" key or [ESC] key to return to "Ladder monitor"

Key operation 4 **(Break with register address assignment)**



① Press "Code" key and set register area.
② Input register address using numerical keys.
③ Press [↓] key to move the cursor to "Compare data" column.
④ Input "Compare data" with numerical keys.
⑤ Press [↓] key to move the cursor to "BK status" column.
⑥ Set break status by moving the cursor with [←] [→] keys.
⑦ Press [↓] key to move the cursor to "After BK." column.
⑧ Set PC operation condition after break by moving the cursor with [←] [→] keys.
⑨ Set exist/not exist of register to monitor after break by moving the cursor with [←] [→] keys.
⑩ Press [↵] (enter key) and then "Yes" [↵] (enter key) to execute "Break with register address assignment"
⑪ When monitoring register after break:
- Set data memory area using "Code" key, and input address with numerical keys.
- Press [↵] (enter key), the module monitors assigned register address.

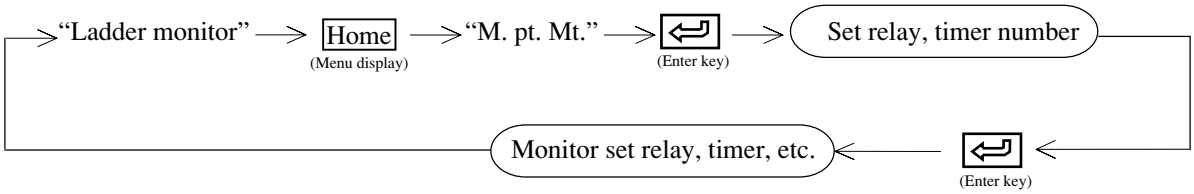
⑫ During monitoring register:
- Pressing "Code CNV" key switches code as HEX → octal → decimal → binary → JIS.
- Pressing "Word" key switches between byte unit and word unit.
- Pressing [Page DOWN] key monitors forward 15 points while taking the assigned register address as a bottom line.
- Pressing [Page UP] key monitors backward 15 points while taking the assigned register address as a top line.

⑬ Press "Quit" key or [ESC] key to return to "Ladder monitor"

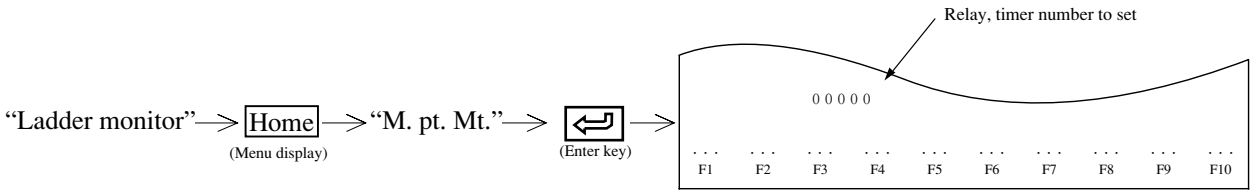
(14) Monitor multiple point

This function assigns each number of relay, timer, counter, register, and monitors their contents. It can monitor up to 16 relays, timers, etc.

Operation outline



Key operation



Name	Contents
Word	Change display contents between byte unit and word unit
Code	Change data memory area
CNV	Change display of register
Set	Set assigned relay, timer etc.
Reset	Reset assigned relay, timer etc.
Fr. block	Monitor assigned 15 relay, timer, etc. in forward direction
Rr. block	Monitor assigned 15 relay, timer, etc. in backward direction
Quit	Finish multipoint monitoring and return to "Ladder monitor"
Forced P	Return to forced set/reset mode
Write	Write set value

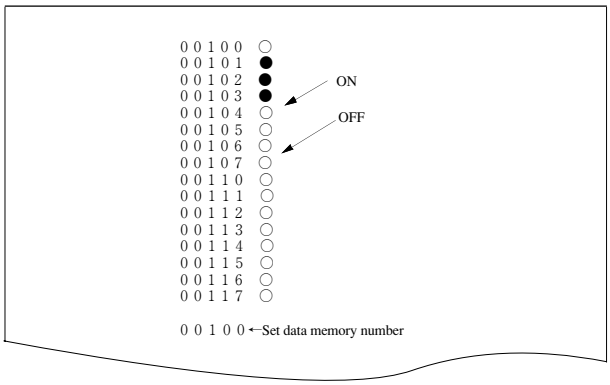
• See page 8-9, "Set/reset"
• See page 8-18, "Forced processing"

Operation example

① Continuous monitor

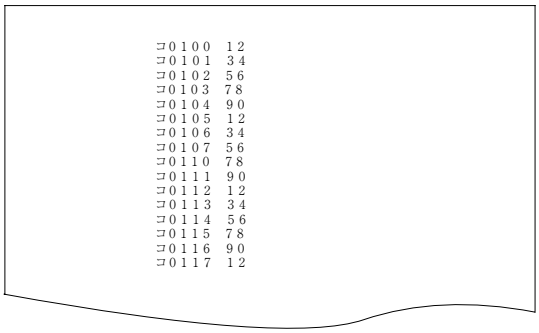
[1] [0] [0] [↵] (Enter key) → "Rr. block" → Monitor 16 data from 00100 to 00117

Monitor 00100

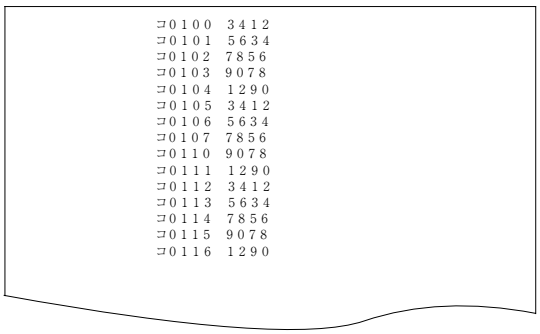


8

② Change between byte unit and word unit



⇐ "Word" ⇒



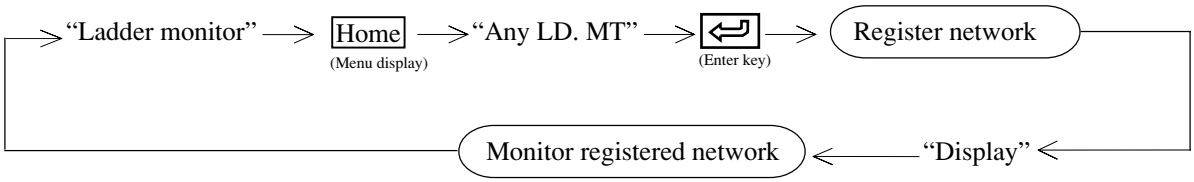
(Byte unit) (Word unit)

• Pressing "Code CNV" key switches display as "HEX" → "octal" →"decimal" →"binary" →"JIS."

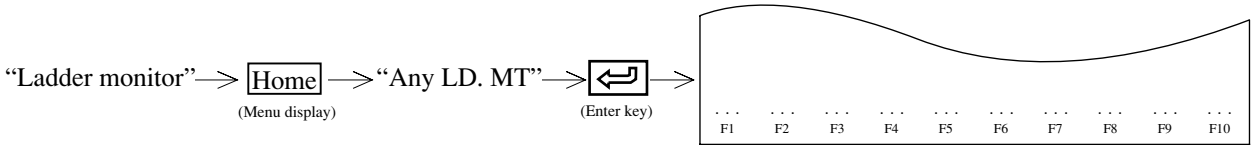
(15) Monitor any required ladder

This function enables monitoring of any network in order of selection regardless of order of program. Selectable (registerable) up to 16 networks.

Operation outline



Key operation



Name	Contents
Clear	Clear program address, instruction word, symbol, or comment on cursor position
Address	Set program address
Code	Change data memory area
Code CNV	Change register area
Search:–	Search for cursor positioned program address number decrement direction
Search:+	Search for cursor positioned program address number increment direction
Quit	Return to "Ladder monitor"
Display	Monitor registered network
Regist	Register network on cursor position
Previous screen	Pressing Page DOWN key displays previous screen while taking the currently displayed top line as a bottom line.
Next screen	Pressing Page UP key displays next screen while taking the currently displayed bottom line as a top line.

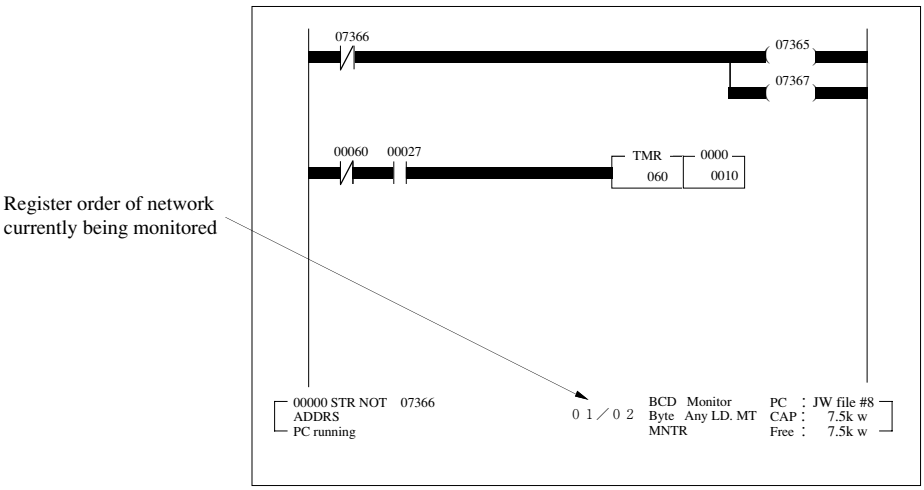
Operation example

① Move the cursor to any required network using search function (see page 8-5).

② Press “Regist” key to register.

③ Repeat above items ① and ② to register any required network.

④ Pressing “Display” key monitors any of registered network.

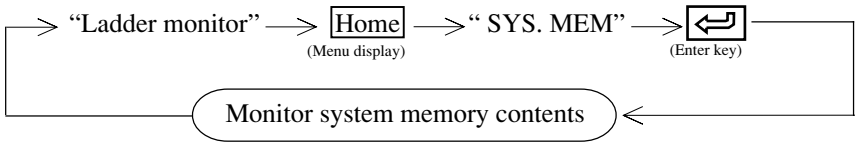


⑤ Press “Quit” key or B key to return to “Ladder monitor”.

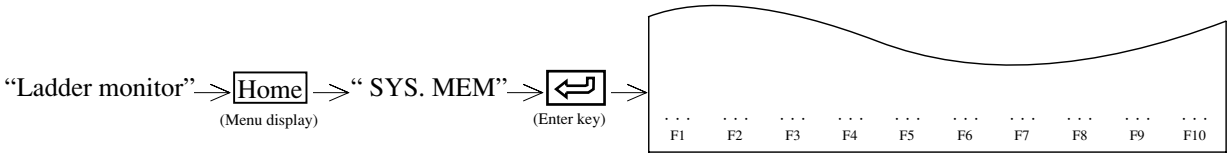
(16) Monitor system memory

This function monitors system memory contents in which each function of PC is set.

Operation outline



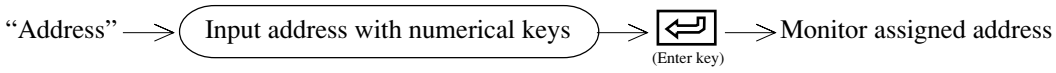
Key operation



Name	Contents
Address	Set system memory address
Code CNV	Change code of display contents
Word	Change display contents between byte unit and word unit
Quit	Return to "Ladder monitor"

Operation example

① Address assignment



② Change between byte unit and word unit

- Pressing "Word" key can change display unit between "byte" and "word."

③ Code change

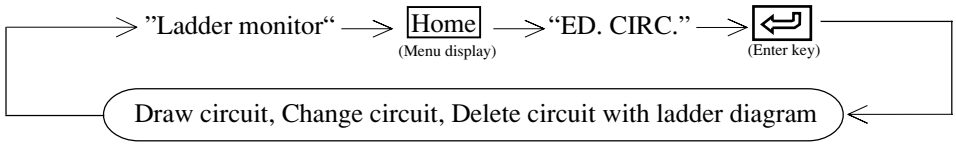
- Pressing "Code CNV" key switches display as "HEX" → "octal" → "decimal" → "binary" → "JIS."

(17) Edit circuit

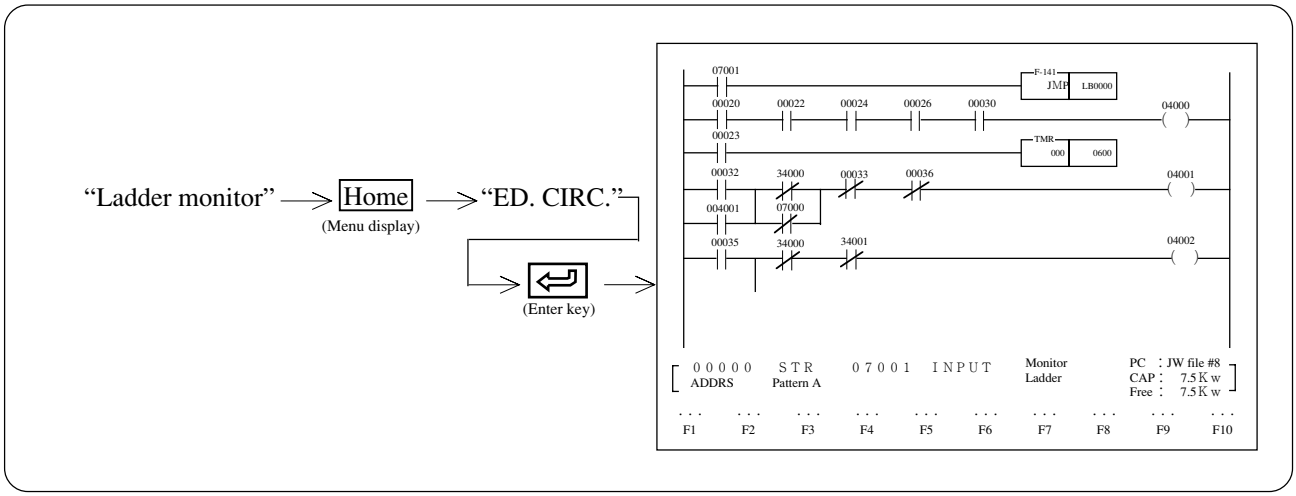
This function enables “Draw circuit” “Change circuit” “Delete circuit” with ladder diagram in ladder monitoring condition.

Take good care about a change during an operation of the programmable controller because the contents of the PC body are also changed at the same time.

Operation outline



Key operation



Operation example

① Draw circuit

“Draw CIRC.” → See page 7-27, “Ladder programming”

② Change circuit

“CHG. CIRC.” → See page 7-36, “Ladder programming”

③ Delete circuit

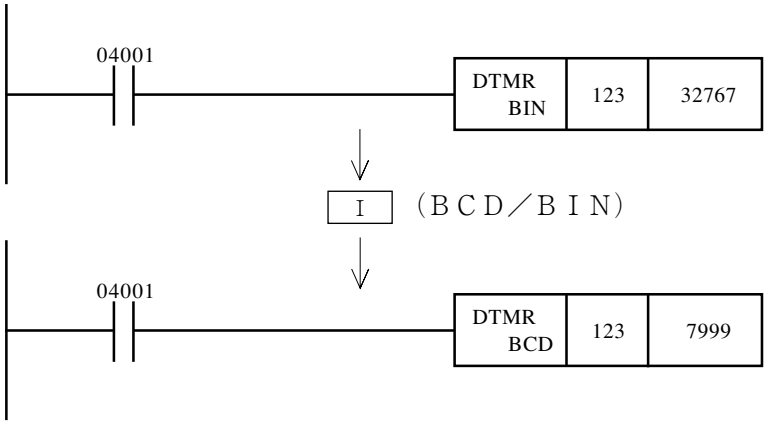
“DEL. CIRC.” → See page 7-44, “Ladder programming”

(18) BCD/BIN

This function switches set value of UP timer/counter or DOWN timer/counter between BCD and BIN.

Operation example

① Search UP timer/counter or DOWN timer/counter.
② Pressing I key shifts between “BCD” and “BIN.”

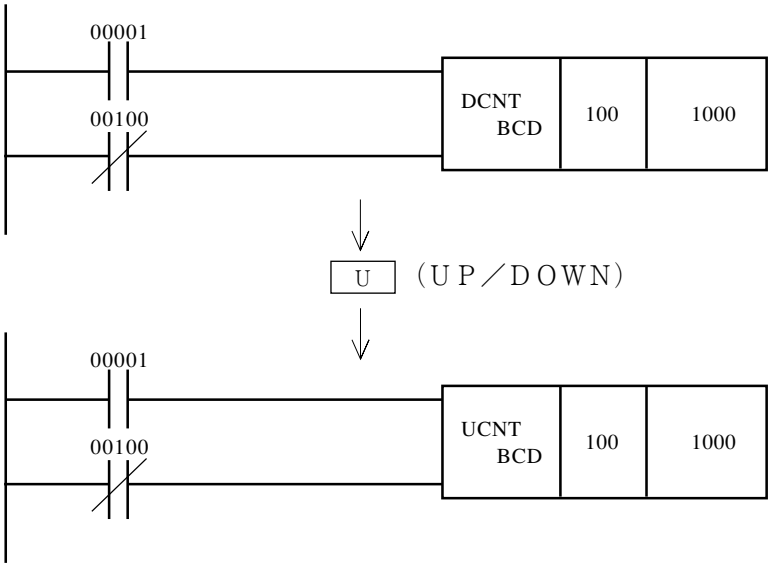


(19) UP/DOWN

Set UP timer/counter or DOWN timer/counter.

Operation example

① Search UP timer/counter or DOWN timer/counter.
② Pressing H key shifts between “UP” and “DOWN.”



(20) I/O search (JW50/70/100, JW50H/70H/100H)

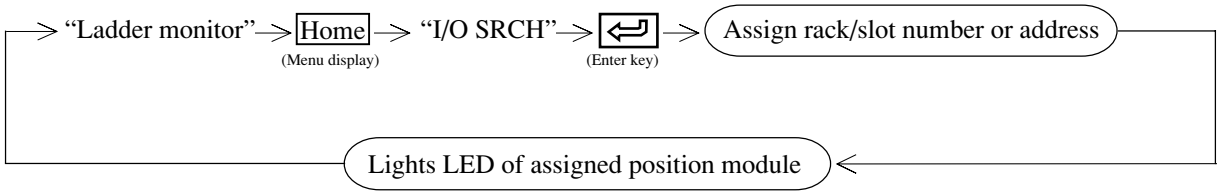
① Assign rack/slot number

Assign rack number (rack panel number), slot number to check assigned position module LED.

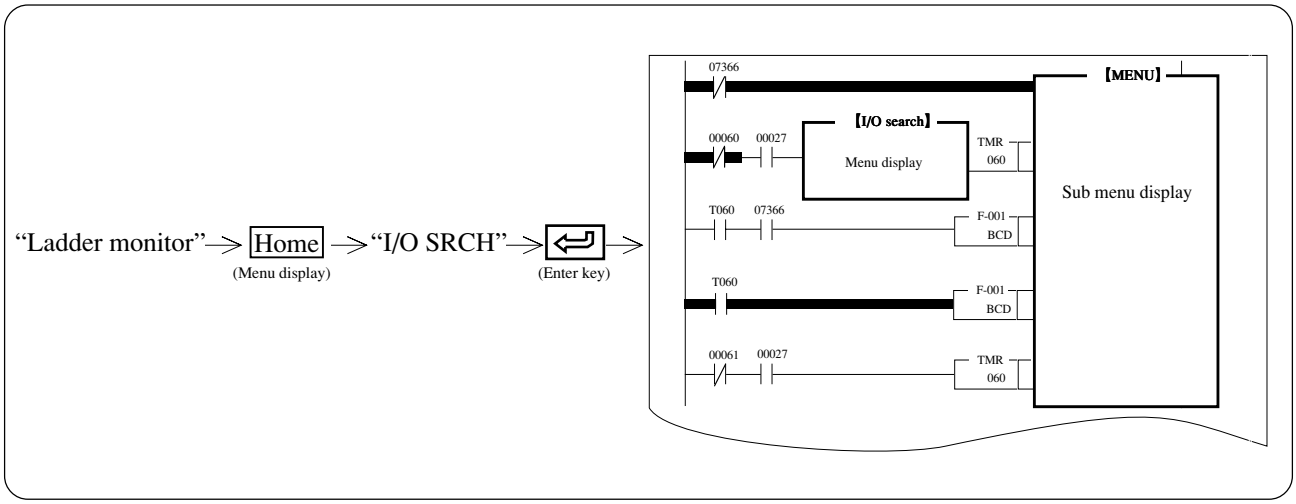
② Assign address

Check LED of a module in the assigned address.

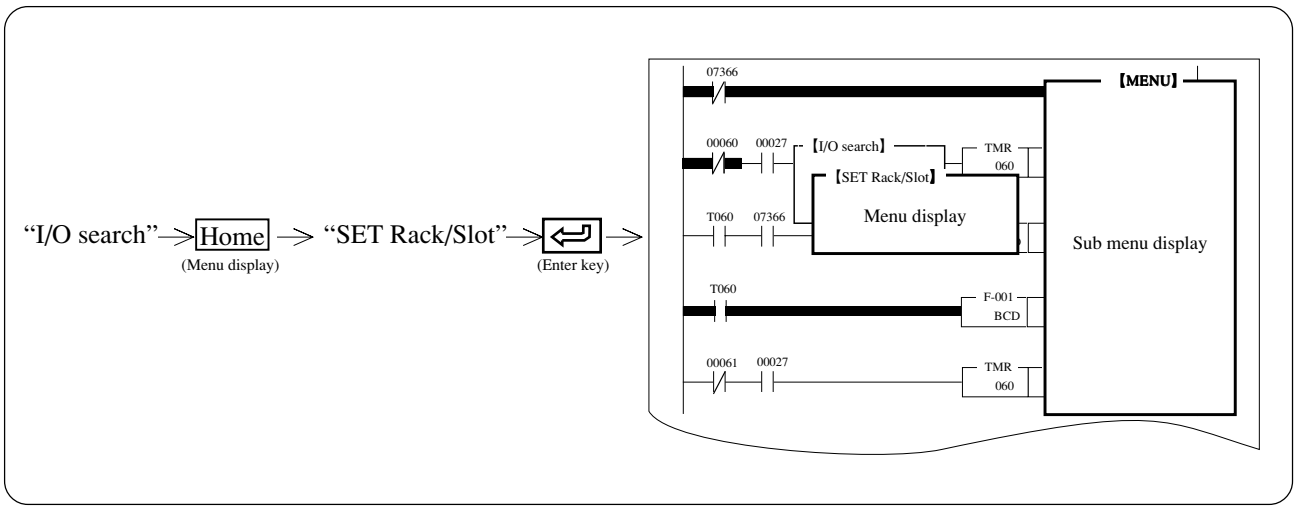
Operation outline



Key operation 1



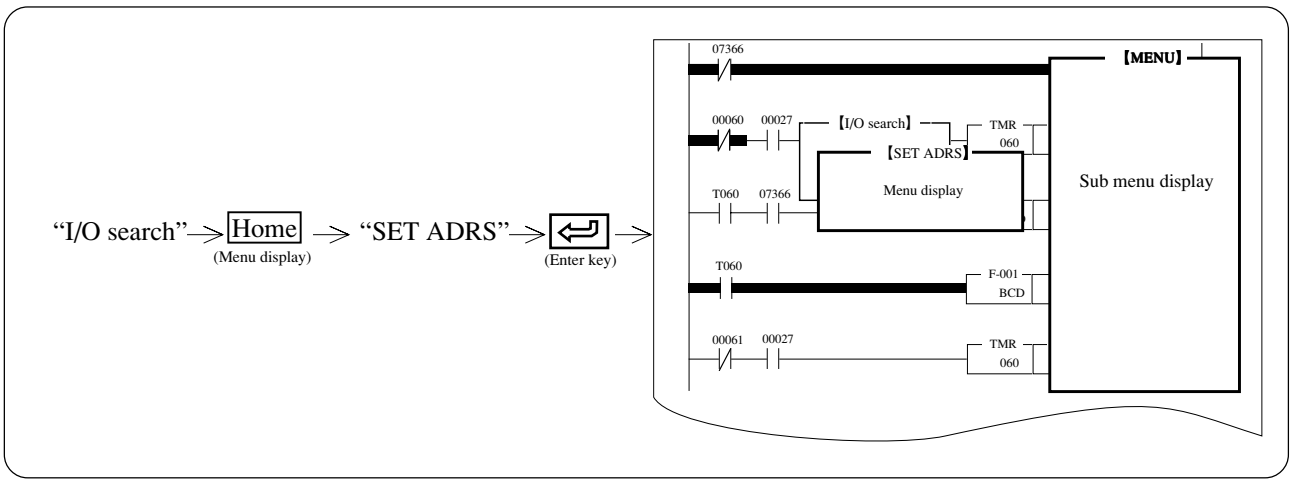
Key operation 2 **(I/O search assigned rack/slot number)**



Operation example

① Input rack number (0 to 7) with numerical keys.
② Press [↓] key to move the cursor to the slot number column.
③ Input slot number (0 to 9, A to F) with alphabetical and numerical keys.
④ Press [↓] key to move the cursor to the operation contents column.
⑤ Set by pressing [←] [→] keys.
⑥ Press [↵] (enter key), and then "Yes" [↵] (enter key) to execute "I/O SRCH."
⑦ Select "LED ON," LED of assigned position module lights approximately 1 second.
⑧ Select "SU OFF," "SU" LED of assigned position goes OFF.

Key operation 3 **(I/O search assigned address)**



Operation example

① Input address with numerical keys.
(Prior to assigning byte address with (コ××××), change code with "Code" key and input byte address.)
② Press [↓] key to move the cursor to the operation contents column.
③ Set by pressing [←] [→] keys.
④ Press [↵] (enter key), and then "Yes" [↵] (enter key) to execute "I/O SRCH."
⑤ Select "LED ON," LED of assigned address module lights approximately 1 second.
⑥ Select "SU OFF," "SU" LED of assigned position goes OFF.

(21) ACT search

When PC model "JW21/22" is applied, the module monitors contents of active (currently executing) step of SF instruction with ladder diagram.

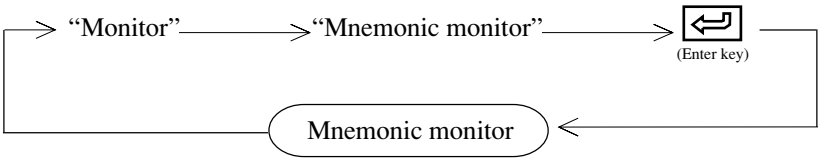
<Key operation>

"Ladder monitor" → Home (Menu display) → "ACT SRCH" → [↵] (Enter key) → Ladder display active step contents

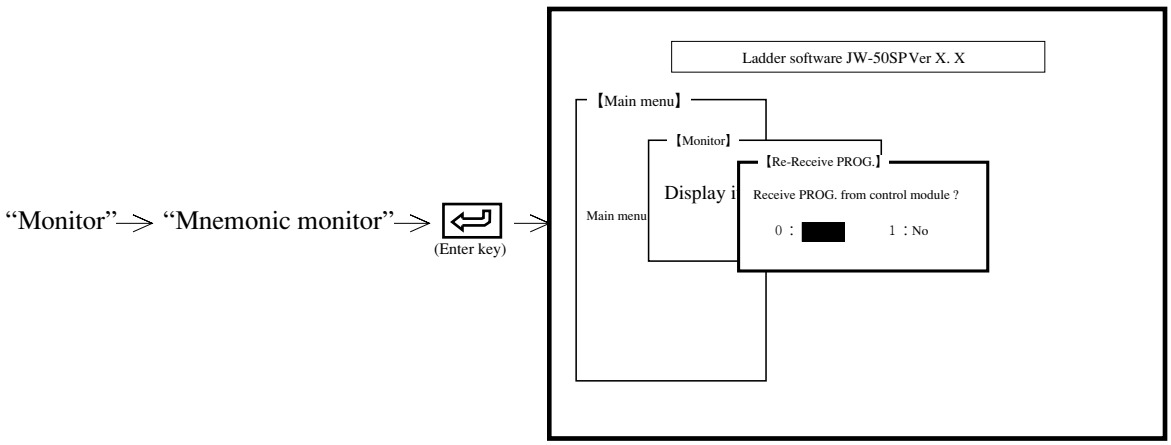
8-2 Mnemonic monitor

This function monitors operation condition of PC with instruction words.

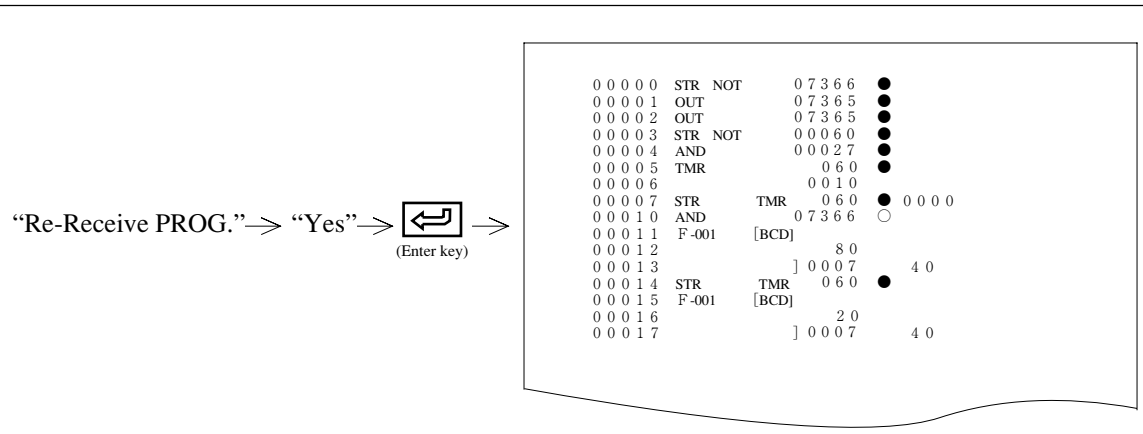
Operation outline



Key operation 1



Key operation 2



- Monitor with instruction words from top address.
- "○" mark means OFF. "●" mark means ON.

Functions on mnemonic monitor

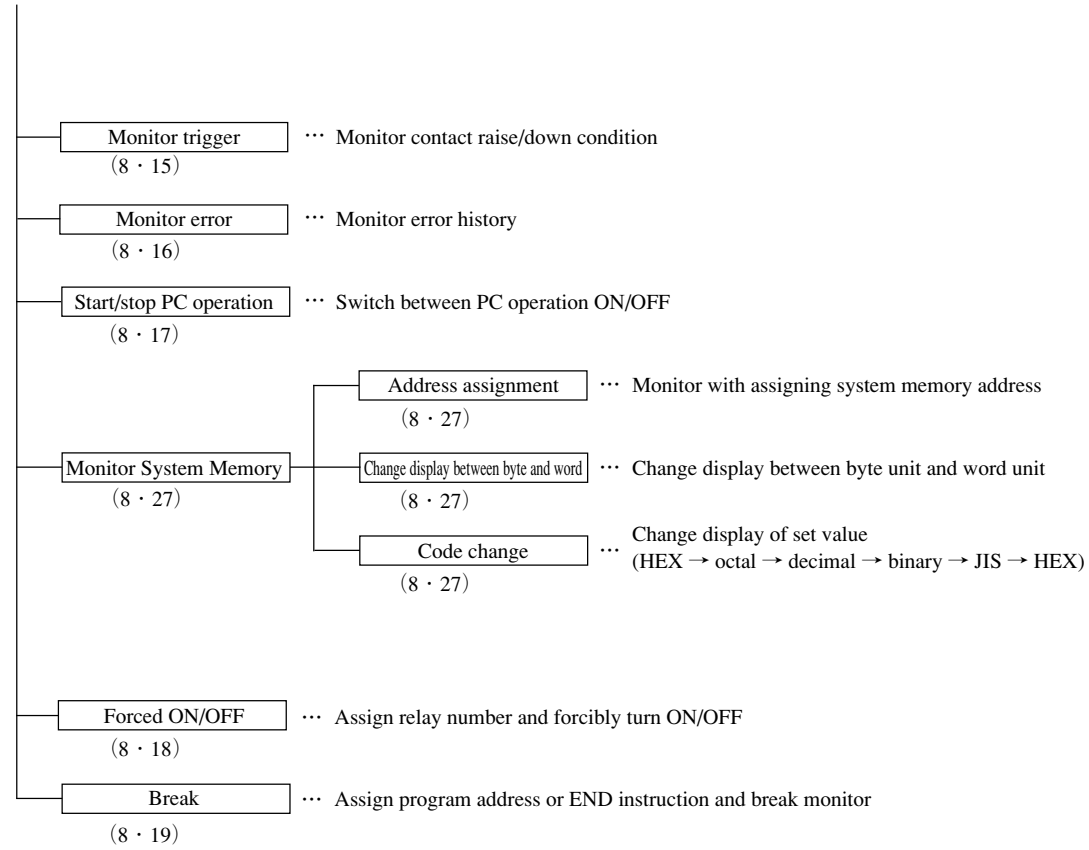
※Operation method of each function while in monitoring instruction word is the same as operations in "Ladder monitor." Operate by reading description of page 8-2 to 8-31 as taking "Ladder monitor" as "Mnemonic monitor."

• Figures in parenthesis means reference page.

- Ladder (8・2) … Change to ladder monitor
- Search (8・5) … Search by assigning program address/instruction. Search using previous screen/next screen functions.
- Change set values, constants (8・8) … Change timer/counter set values, constants of register.
- Set/reset (8・9) … Set/reset data memory address condition
- Freeze display (8・10) … Keep screen display condition currently being monitored
- Change display (8・11) … Change contact/coil display as address → symbol → address, symbol → address...
- Display scan time (8・12) … Display PC scan time
- N scan operation (8・13) … Monitor any (N) scan operation condition
- Break monitor (8・14) … Assign program address and break monitor
- Trigger monitor (8・15) … Monitor contact raise/down condition
- Error monitor (8・16) … Monitor error history
- Start/stop PC operation (8・17) … Switch between PC opration ON/OFF
- Forced ON/OFF (8・18) … Assign relay number and forcibly turn ON/OFF
- Break (8・19) … Assign program address or END instruction and break monitor
- Monitor multiple point (8・23)
  - Change set values, constants (8・8) … Change timer/counter set values, constants of register.
  - Set/reset (8・9) … Set/reset data memory address condition
  - Forced ON/OFF (8・18) … Assign relay number and forcibly turn ON/OFF
  - Continuous monitor for forward/backward (8・24) … Continuously monitor next/previous screen currently being monitored.
  - Switching between byte and word (8・24) … Change display between byte and word.

※

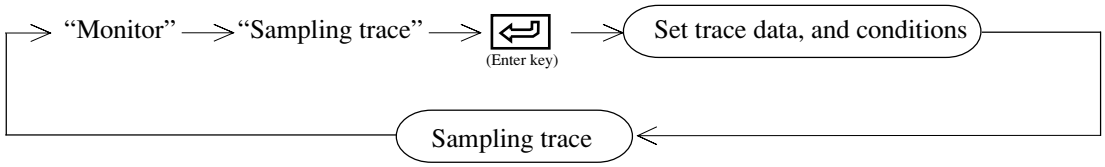
※


Monitor trigger
(8・15)
… Monitor contact raise/down condition
Monitor error
(8・16)
… Monitor error history
Start/stop PC operation
(8・17)
… Switch between PC operation ON/OFF
Monitor System Memory
(8・27)
Address assignment
(8・27)
… Monitor with assigning system memory address
Change display between byte and word
(8・27)
… Change display between byte unit and word unit
Code change
(8・27)
… Change display of set value
(HEX → octal → decimal → binary → JIS → HEX)
Forced ON/OFF
(8・18)
… Assign relay number and forcibly turn ON/OFF
Break
(8・19)
… Assign program address or END instruction and break monitor

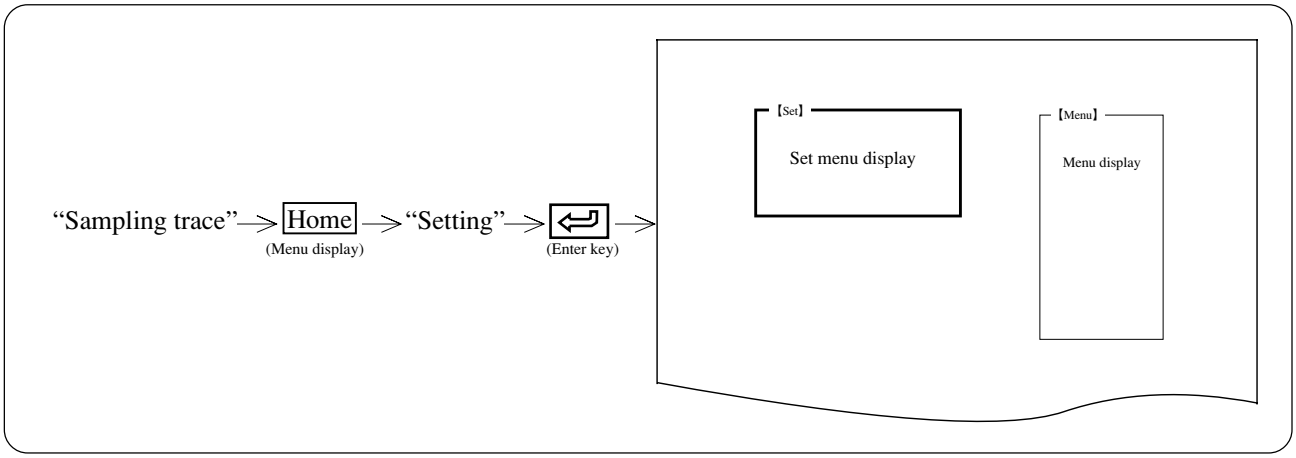
8-3 Sampling trace

This function samples and displays ON/OFF condition of any relay and contents of register value with any cycle.

Operation outline



Key operation



Operation example

(1) Setting

① Trace memory file

Set file number used in data sampling.

- Move the cursor to "Trace MEM file" using numerical key or cursor move keys (↓ ↑).
- Input file number using alphabetical and numerical keys.

② Trace memory capacity

Set memory capacity used in data sampling.

- Move the cursor to "Trace MEM cap" using numerical key or cursor move keys (↓ ↑).
- Input memory capacity using numerical keys.

③ Set circuit interval

Select data sampling cycle

- Move the cursor to "Trigger set" using numerical key or cursor move keys (↓ ↑).
- Select by moving the cursor with ← → .
- When selecting "Time," input time 0000 to 1000 ms using numerical keys.

④ Trigger mode

Select sampling start condition

• Move the cursor to “Trig. mode” using numerical key or cursor move keys (↓ ↑).

• Select by moving the cursor with (← →).

(2) Set trace data

• Set relay, register number to sample.

• Settable trace data up to 15 of relay contacts, and 6 bytes of register.

• Press Home (menu display) key and then “Trace DT” ↵ (enter key), trace data setting screen appears.

• Function display of F1 to F10 will also change as follows:

“Clear” : Set trace data address as “0”

“Code” : Change data memory area

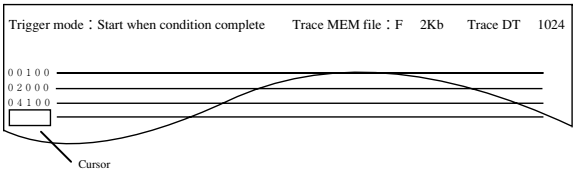
“Insert” : Insert trace data in the cursor position

“Quit” : Quit trace data setting mode

“Delete” : Delete trace data on cursor position

“Write” : Register trace data

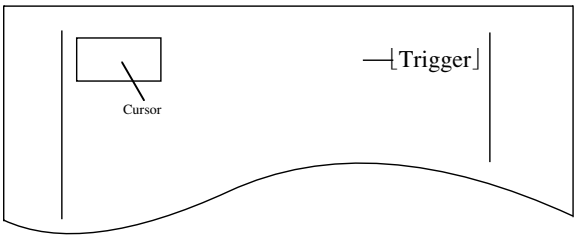
• Move trace data cursor with ↑ ↓ keys and input relay number, register number.



• Pressing “Write” key registers display contents.

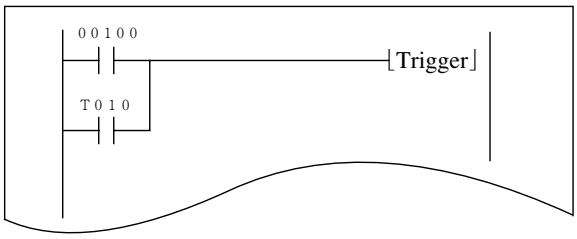
(3) Trigger condition setting

• Press Home (menu display) key and then “Trig. ST.” ↵ (enter key), the screen appears as below.



• Set “Trig. ST.” with AND/OR system using 5 contacts at maximum.

(Example) When taking OR condition of relay 00100 and timer 010 as trigger condition.



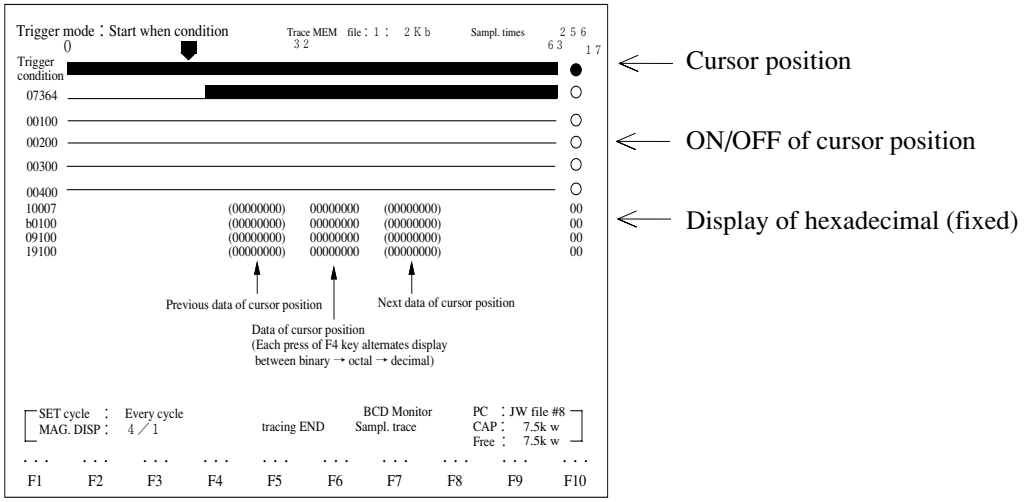
• Input of contacts, change of data memory area are the same as “Ladder programming.”
• Pressing [⏎] (enter key) registers input “Trig. ST.”

(4) Change display

• Change contents of trace data with “Address” or “Symbol.”
• Press [Home] (menu display) key and then “CHG. DISP”[⏎] (enter key), selection of “Address” “Symbol” become available.

(5) Start monitor

• After setting trigger condition, trigger mode etc., and press [Home] (menu display) key and “Start MT.” [⏎] (enter key), the module starts sample tracing.
• When sample tracing terminates or “Stop” key is pressed, the display becomes as follows:

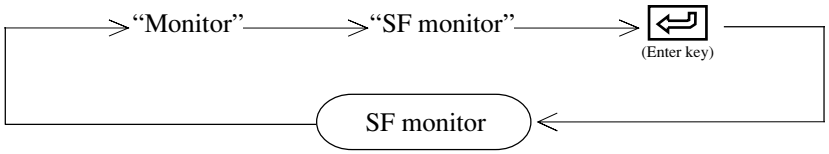


• Relay is shown as “■” at ON.
• The cursor (▼) moves with [←] [→] keys. Pressing “Cursor” key and input with numerical keys is also available.
• At right end of the screen, cursor position and its information appear.
• The register displays cursor position and data of before and after the cursor position. Data shifts with “Code CNV” key as “binary” → “octal” → “decimal.”
• Pressing “EL. DISP.” key changes display magnification “1/1” → “2/1” → “4/1” → “8/1” → “32/1”
• Pressing “RD. DISP.” key changes display magnification “1/2” → “1/4” → “1/8” → “1/16”
• When trace data amount is 15 or more, change display to previous screen/next screen with [Page DOWN] / [Page UP] keys

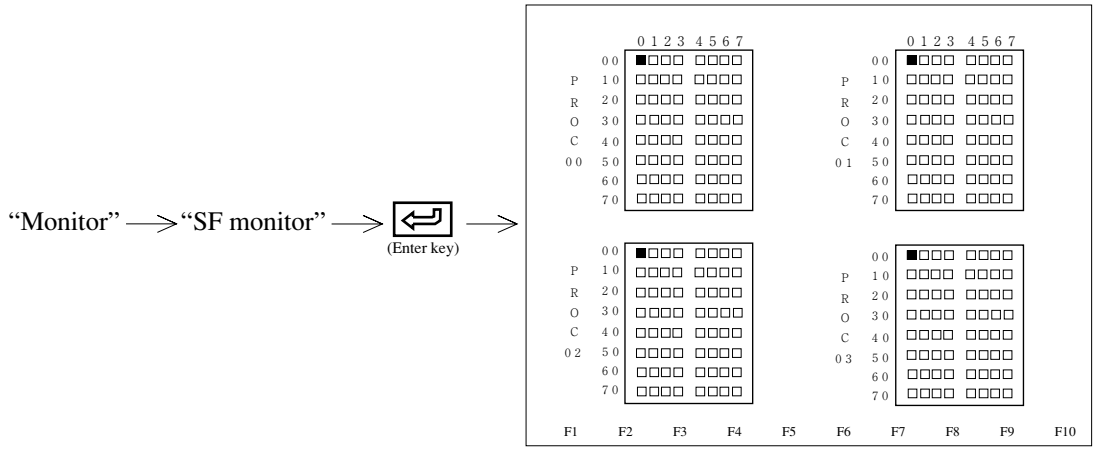
8-4 SF monitor (JW-21/22CU only)

This function monitors step condition of SF instruction.

Operation outline



Key operation



- Display active step as "■" mark.
- Display non active step as "□" mark.

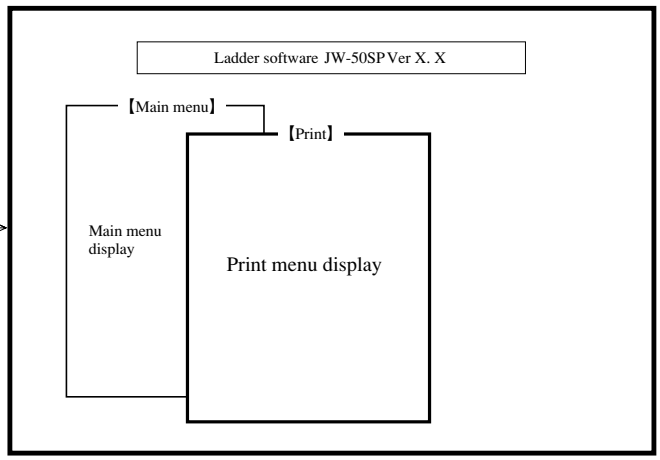
Chapter 9 Print

• This mode is used to print memory contents (program, data, etc.) of the personal computer.

Key operation

"Main menu" → "Print" → ↵ (Enter key) →

Screen display



Function

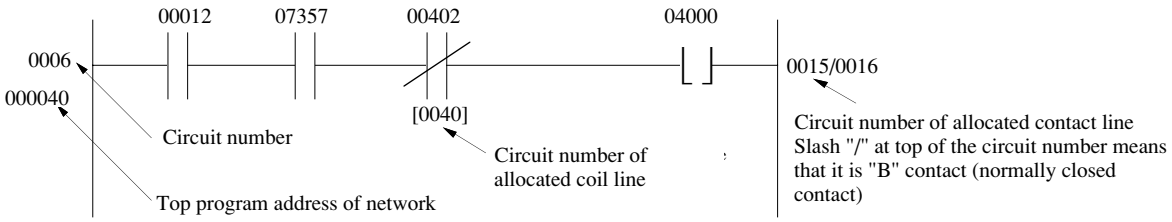
Name	Function	Reference page
Edit cross refer	Create cross reference file	9-2
Ladder print	Print program with ladder diagram	9-3
Mnemonic print	Print program with instruction words	9-8
Used relay list	Print used contact list in order of address number or programmed order	9-11
System memory	Print system memory set contents	9-14
Data memory	Print data memory contents	9-16
Symbol & comment	Print symbol & comment	9-17
Setting of title	Set print title	9-20
Cover set	Set print cover	9-22
PRT. select	Set printer	9-24
FD transfer	Operation of FD	11-1
PC transfer	Operation of PC	12-1
CU PARAM. set	Print CU parameter memory	9-26

Notes

- Prior to printing, create a program with "Program edit" or read (load) a program with "FD transfer" or "PC transfer" for writing contents to print in the personal computer.
- Usable printer models are "ESC/P", "Canon LBP-B404/B406E", "NEC PC-PR20/F/H/V/B/J/X/G" or printer of HP LASER JET2.
- To select any item on the menu, use numerical key or cursor move keys.
- Press ESC key to return to the previous screen.

9-1 Edit cross reference

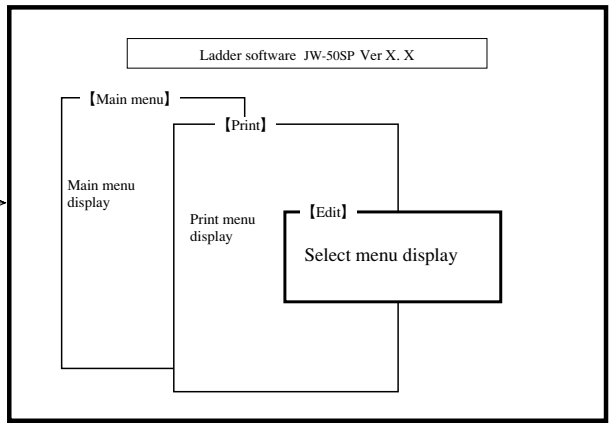
This function creates allocated contact list of relays, timers, counters, as well as allocated coil list. The cross reference can easily refer to allocated contacts, coils targets on the ladder diagram.



Key operation

Screen display

"Print" → "Edit cross refer" → [Enter key] →



Key operation

① When creating cross reference

"Yes" → [Enter key] → "Commence creation" (Editing PASS1XXXXX Display as "PASS4XXXXX Finished: Compile cross reference")

② When not creating cross reference or terminating

"Quit" → [Enter key] → Return to "Print menu"

or

[ESC] → Return to "Print menu"

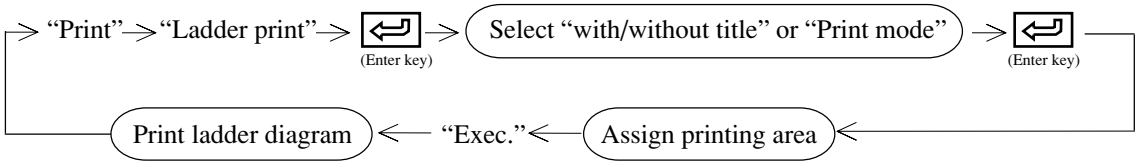
Note

- When printing after creating/modifying program, be sure to create cross reference.

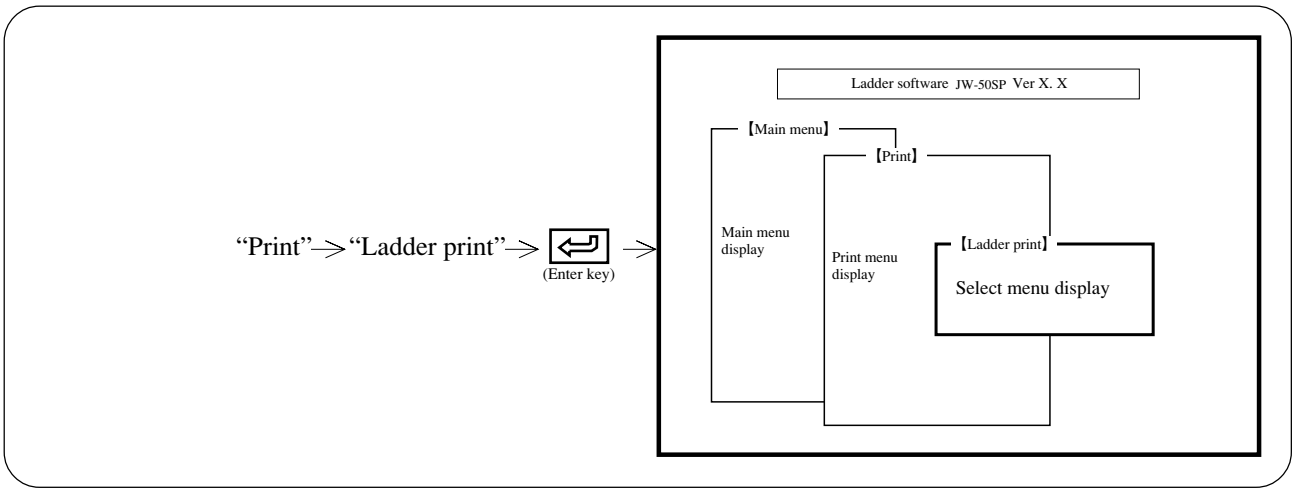
9-2 Ladder print

This function prints program contents with ladder diagram.

Operation outline



Key operation



Operation example

(1) Title

- When "With" is assigned, the printer prints ladder diagram with a title which is input at lower right of each page with "setting of title."
- Select between "With" or "None" using numerical key or cursor move keys (← →).

(2) Mode

- When "Draft" is assigned, the vertical line (bus line of ladder diagram, vertical line of title) may deviate 1 to 2 dots for left/right/up/down.
- Select between "Draft" or "Normal" using numerical key or cursor move keys (← →).

(3) Coil

- Set with or without symbol & comment for coil (OUT instruction)

- None (print address number only) 00001
- Comment (print address number and comment) 00001 Complete zero return
- Symbol (print address number and symbol) LS001 00001
- Symbol & comment (print address number and symbol & comment) LS001 00001 Complete zero return

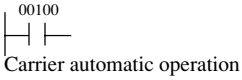
- Select between "None" "Sym" "Comm." "Sym/Comm" with numerical key or cursor move keys (← →).

(4) Contact

• Assign with or without symbol & comment to contact.

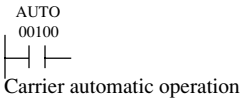
• None (print address number only)

• Comment (print address number and comment)



• Symbol (print address number and symbol)

• Symbol & comment



• Select between “None” “Sym” “Comm.” “Sym/Comm” with numerical key or cursor move keys (← →).

(5) Cross reference

9

• When “With” is assigned, the module prints the ladder diagram while adding cross reference to each contact and coil (OUT instruction).

• Select between “With” or “None” using numerical key or cursor move keys (← →).

• The cross reference must be prepared by the printing. Be sure to select “Yes” when a cross reference selecting picture appeared.

(6) Save paper form

• When “Yes” is assigned, the printer continues printing even if end of page is in the middle of a network. When “No” is assigned, the printer starts printing another network at top of next page when end of page is supposed to be in the middle of printing network.

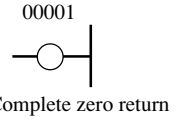
• Select between “Yes” or “No” using numerical key or cursor move keys (← →).

The following items (7) to (11) can be specified with the software version 5.3 and later.

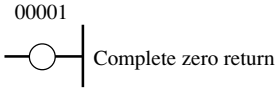
(7) Comment position for coils

If you have selected “with comment” or “with symbol & comment” for (3) Coil, specify whether you want the comments to be printed “Under” or to the “Right” of the coils.

"Under"



"Right"



• Select between “Under” or “Right” using the numerical keys or the cursor move keys (← →).

(8) No. of max. symbol characters

If you have selected “with symbol” or “with symbol & comment” for (3) Coil and (4) Contact, specify how many characters you want the symbols to be printed from the first character.

• Specify the maximum value (16 characters) to completely print the symbols.

• Select “No. of max. symbol characters” using the cursor move keys and then set the desired value using the numerical keys (0 to 9).

(9) No. of max. comment characters

If you have selected “with comment” or “with symbol & comment” for (3) Coil and (4) Contact, specify how many characters you want the comments to be printed from the first character.

- Specify the maximum value (28 characters) to completely print the comments.
- Select “No. of max. comment characters” using the cursor move keys and then set the desired value using the numerical keys (0 to 9).

(10) Program address print

- Select “Yes” if you want the program address to be printed at the beginning of each circuit.
- Select “No” if you do not want the program address to be printed at the beginning of each circuit.
  If you have specified the program address as a title, however, the program address will be printed in the place of the title.
- Select “Yes” or “No” using the numerical keys or the cursor move keys (← →).

(11) No. of lines for printing application instructions

Specify the number of lines used for printing application instructions, timer instructions, etc.

- 3 lines

F-000 XFER	09000	19122

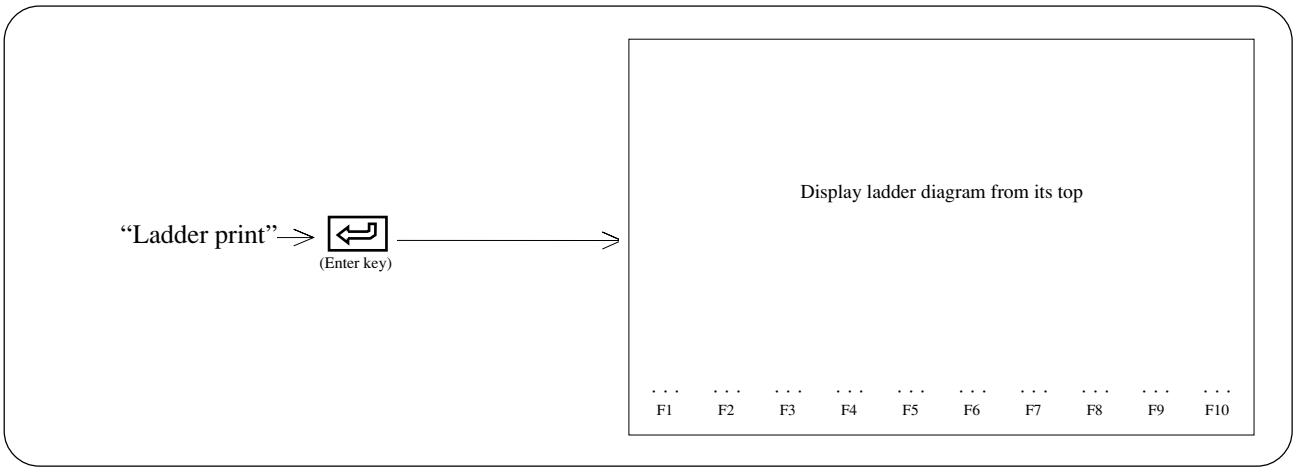
- 5 lines

F-000 XFER	09000	19122

- Select “3 lines” or 5 lines” using the numerical keys or the cursor move keys (← →).

(12) After setting above 11 items, press ↵ (enter key).

Key operation 2



When printing all program

• Press “Exec.” key will allow a printer to print program from “top address” to “end address.”

• The screen displays currently printing network.

When assigning printing area

(1) Move the cursor to the top network of assigning area using “Clear” to “Search:+” keys.

(2) Press “Area Assi” key. (The network on the cursor position turns to reverse display.)

(3) Move the cursor to the last network of assigning area using “Clear” to “Search:+” keys.

(4) Press “Area Assi” key. (The display turns to “Area Assign” from “Area Assigning.”

(5) Pressing “Exec.” key initiates printing from assigned top network.

When printer stops (end) at intermediate point in printing

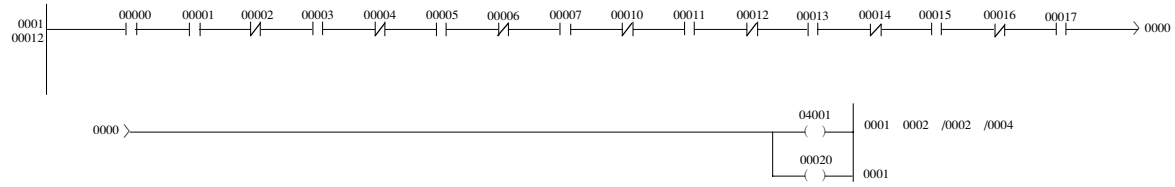
(1) Press “Stop” key, the printer stops printing after completing currently displayed network printing.

(2) When “Quit” key is pressed while the printer has stopped printing, the module terminates “Ladder print” and returns to “Print menu.”

(3) When “Reset” key is pressed while the printer has stopped printing, the module starts “Ladder print” again.

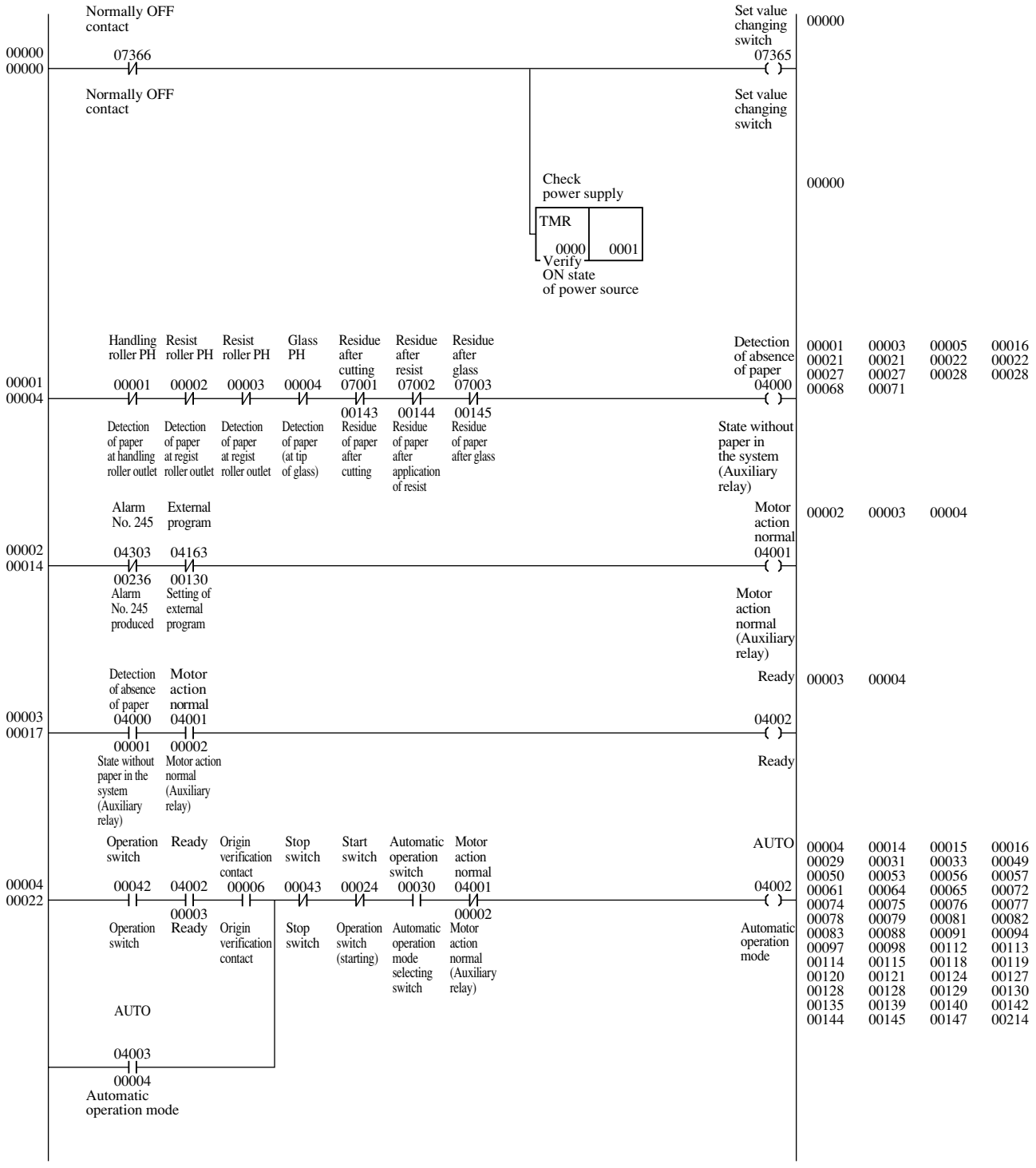
Notes

- When symbol or comment is registered with F-90 (instruction for comment input) which is special instruction for JW series comment input, the printer prints symbol or comment instead of F-90 instruction in ladder diagram printing. However, when “@” mark (at mark) is put at top of symbol, the module treats this mark as paging and does not print symbol.
- When there are a lot of AND connections of contacts and that 1 line is not enough for the printing, print as shown in the drawing below.



An example of printing

(High-quality printing with title; contact: symbol/comment; coil: symbol/comment; with cross reference)

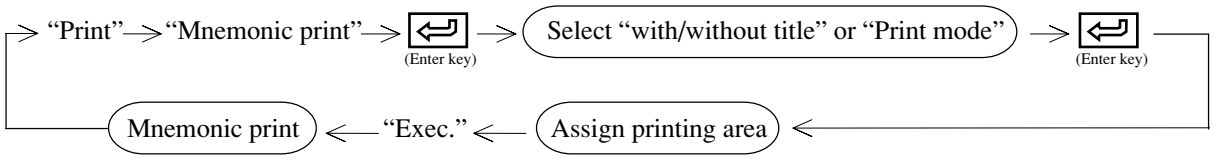


Model Cap.	JW32H 15.5kw	Start address; Start network	00000 00000	Name	A Line
Data	Note		CODE	CA-5100	
95-09-03 95-09-30		DESI DRAW INSP APPR	Fig. No.	D1005621	
			SHARP MANUFACTURING SYSTEMS CORPORATION	Data	95-09-30
				Page	00000001

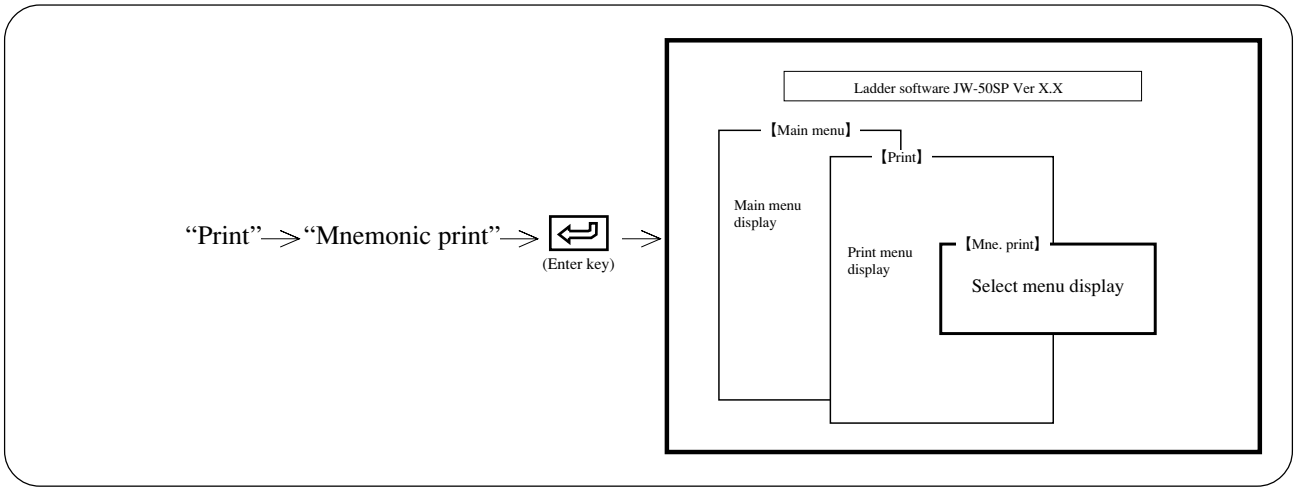
9-3 Mnemonic print

This function prints program contents with instruction words.

Operation outline



Key operation 1



Operation example

(1) Title

- When "With" is assigned, the printer prints ladder diagram with a title which is input at lower right of each page with "setting of title."
- Select between "With" or "None" using numerical key or cursor move keys (← →).

(2) Mode

- When "Draft" is assigned, the vertical lines of title may deiate 1 to 2 dots for left/right/up/down.
- Select between "Draft" or "Normal" using numerical key or cursor move keys (← →).

(3) Symbol

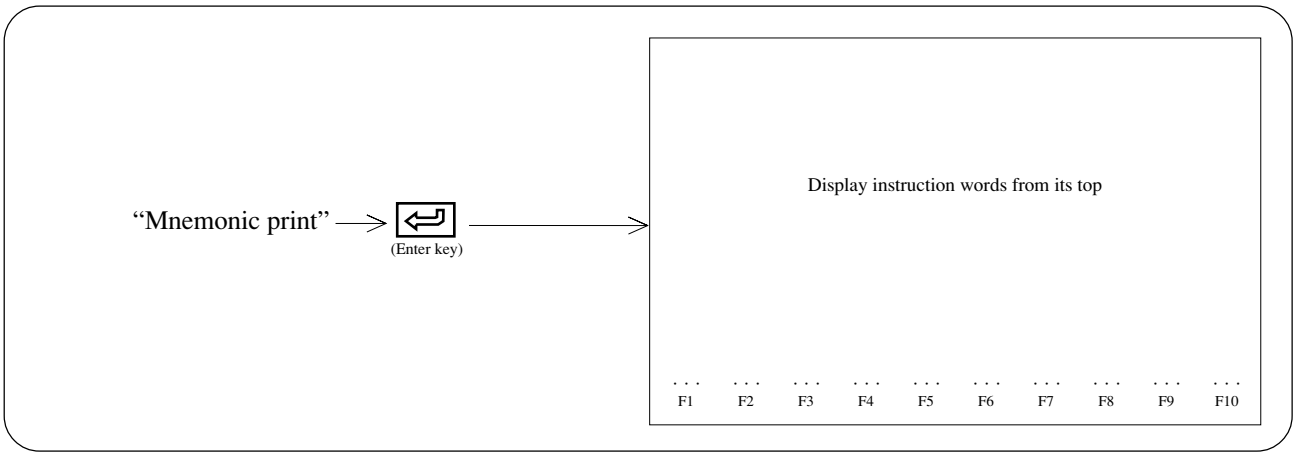
- When "With" is assigned, the printer prints ladder diagram with a symbol.
- Select between "With" or "None" using numerical key or cursor move keys (← →).

(4) Comment

- When "With" is assigned, the printer prints ladder diagram with a comment.
- Select between "With" or "None" using numerical key or cursor move keys (← →).

(5) After setting above 4 items, press ⏎ (enter key).

Key operation 2



When printing all program

• Press "Exec." key will allow a printer to print program from "top address" to "end address."

• The screen displays currently printing address.

When assigning printing area

(1) Move the cursor to the top address of assigning area using "Clear" to "Search:+" keys.

(2) Press "Area Assi" key. (Display area at the cursor position such as instruction word turns to reverse display.)

(3) Move the cursor to the last address of assigning area using "Clear" to "Search:+" keys.

(4) Press "Area Assi" key. (The display turns to "Area Assign" from "Area Assigning."

(5) Pressing "Exec." key initiates printing from assigned top address.

• The screen displays currently printing address.

When printer stops (end) at intermediate point in printing

(1) Press "Stop" key, the printer stops printing after completing currently displayed address printing.

(2) When "Quit" key is pressed while the printer has stopped printing, the module terminates "Mnemonic print" and returns to "Print menu."

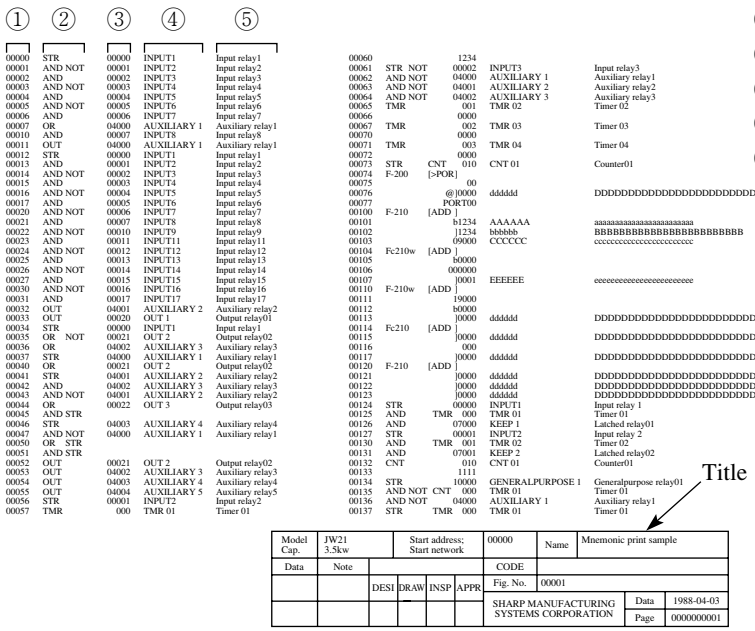
(3) When "Reset" key is pressed while the printer has stopped printing, the module starts "Mnemonic print" again.

Note

When symbol or comment is registered with F-90 (instruction for comment input) which is special instruction for JW series comment input, the printer prints instruction words, symbol, or comment the same as normal application instruction. As opposed to ladder diagram printing, "@" mark (at mark) at top of symbol & comment does not change page, and print symbol and comment.

An example of printing

(High-resolution with title, with symbol & comment)

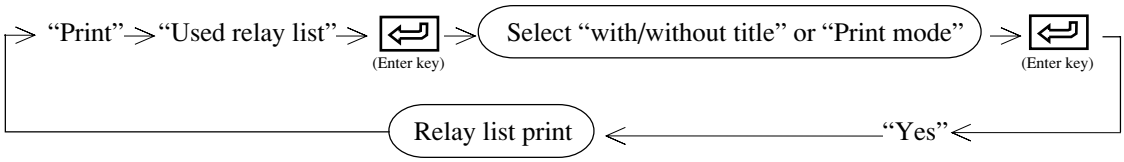


9-4 Used relay list print

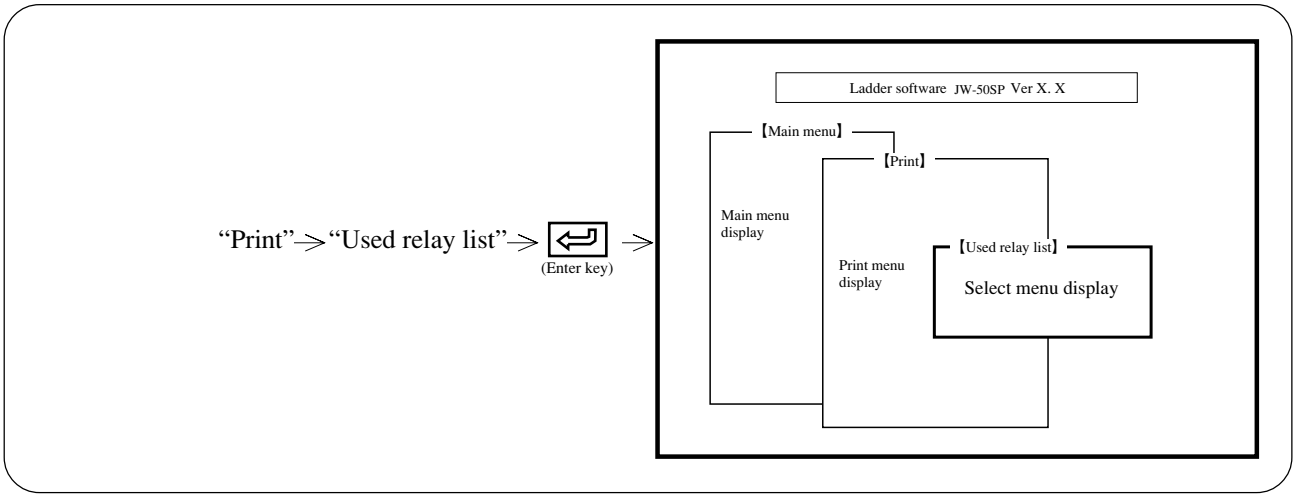
This function prints contact number, circuit number, and address number which are assigned in the program.

Printing is selectable between “in PROG.” or “in ADRS.”

Operation outline



Key operation 1



Operation example

(1) Title

- When “With” is assigned, the printer prints ladder diagram with a title which is input at lower right of each page with “setting of title.”
- Select between “With” or “None” using numerical key or cursor move keys (← →).

(2) Mode

- When “Draft” is assigned, the vertical lines of title may deviate 1 to 2 dots for left/right/up/down.
- Select between “Draft” or “Normal” using numerical key or cursor move keys (← →).

(3) Printing order

- Select whether “in PROG.” or “in ADRS.”
- Select between “in ADRS.” or “in PROG.” using numerical key or cursor move keys (← →).

(4) Start number

- Set start address number of printing.
- Move the cursor to the start number input column and change data memory area with “Code” key.
- Input start number with numerical key and move the cursor so this setting is completed.

(5) End number

- Set end address number of printing.
- Move the cursor to the end number input column and change data memory area with “Code” key.
- Input end number with numerical key and move the cursor so this setting is completed.

(6) Comment

- When “With” is assigned, the printer prints ladder diagram with a comment.
- Select between “With” or “None” using numerical key or cursor move keys (← →).

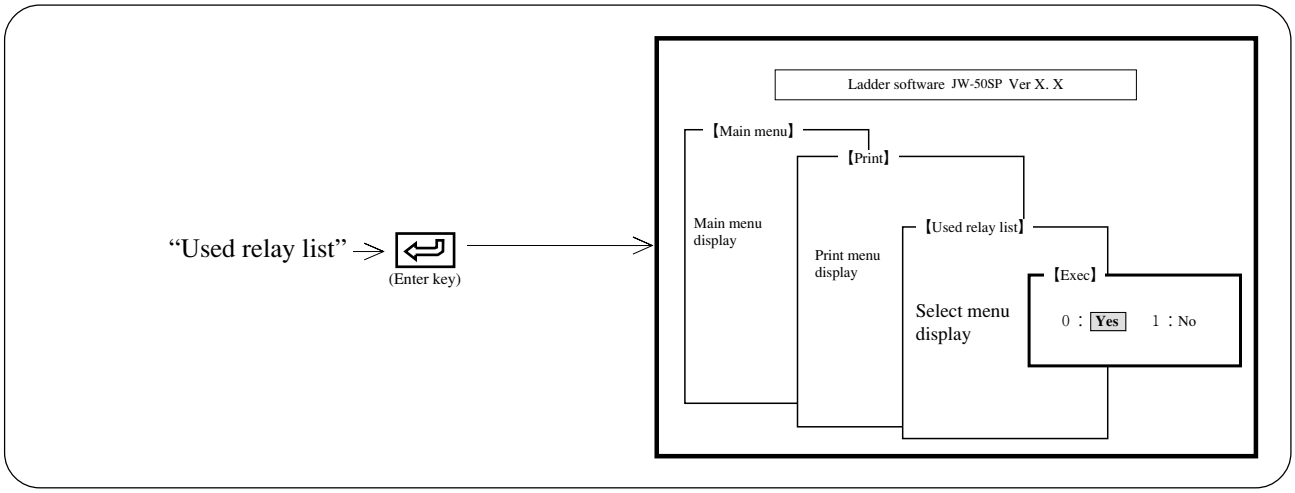
(7) Symbol

- When “With” is assigned, the printer prints ladder diagram with a symbol.
- Select between “With” or “None” using numerical key or cursor move keys (← →).

(8) Print not use address

- If you set for “Yes” at the time of printing in the order of addresses, addresses not used for the program will also be printed.
- Select between “Yes” or ”No” using numerical key or cursor move keys (← →).

Key operation 2



When printer starts printing

After assigning “Exec.,” press ↵ (enter key). The printer commences printing with set contents from start number.

The cross reference must be prepared by the printing. Be sure to select “Yes” when a cross reference selecting picture appeared.

When printer stops (end) at intermediate point in printing

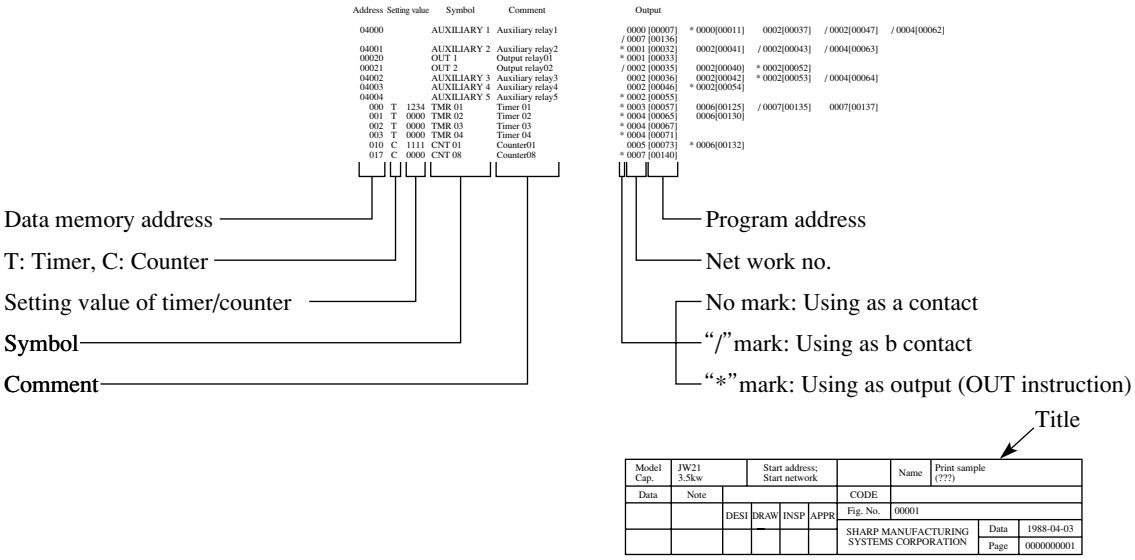
(1) Press “Stop” key, the printer stops printing after completing currently printed list printing.

(2) When “Quit” key is pressed while the printer has stopped printing, the module returns to “Print”

(3) When “Reset” key is pressed while the printer has stopped printing, the module starts “Used relay list print” again.

An example of printing 1

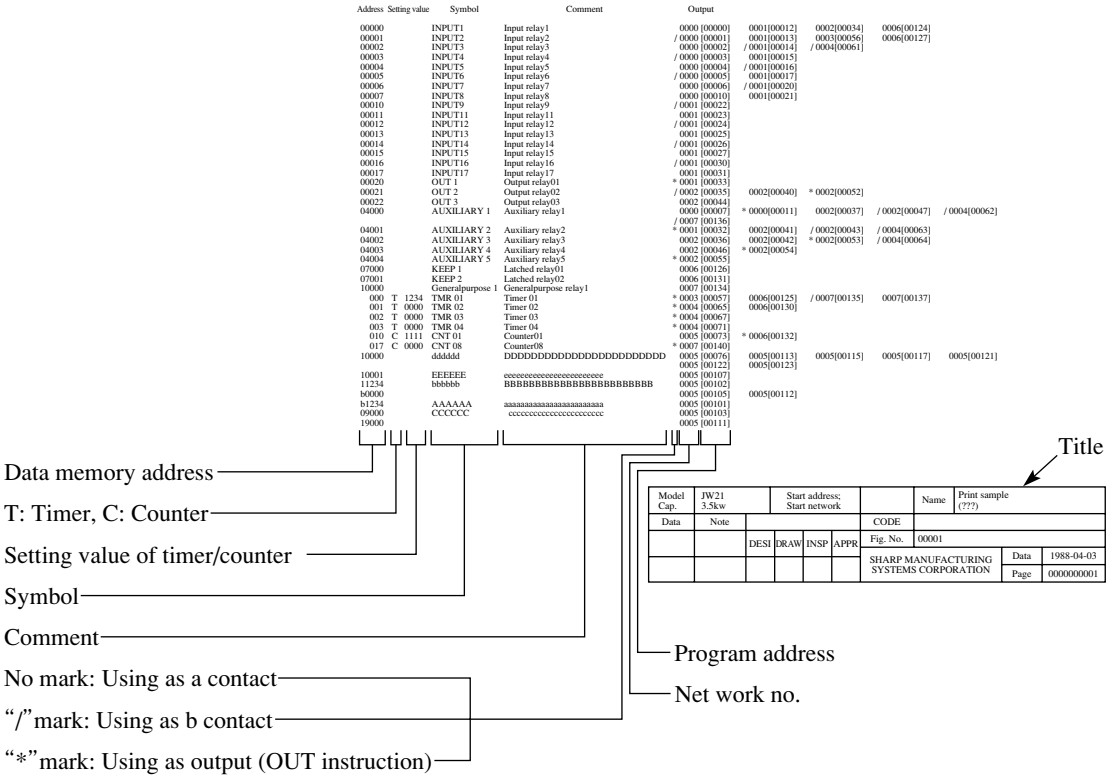
Program order (High-resolution with title, with symbol & comment)



9

An example of printing 2

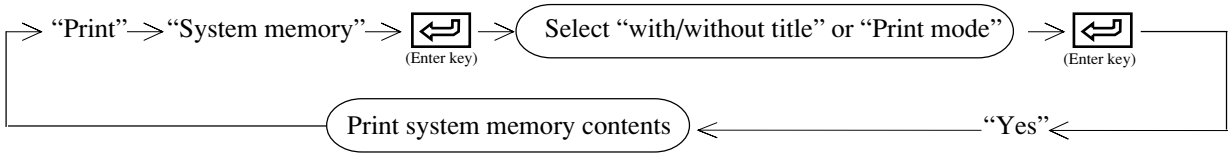
Address order (High-resolution with title, with symbol & comment)



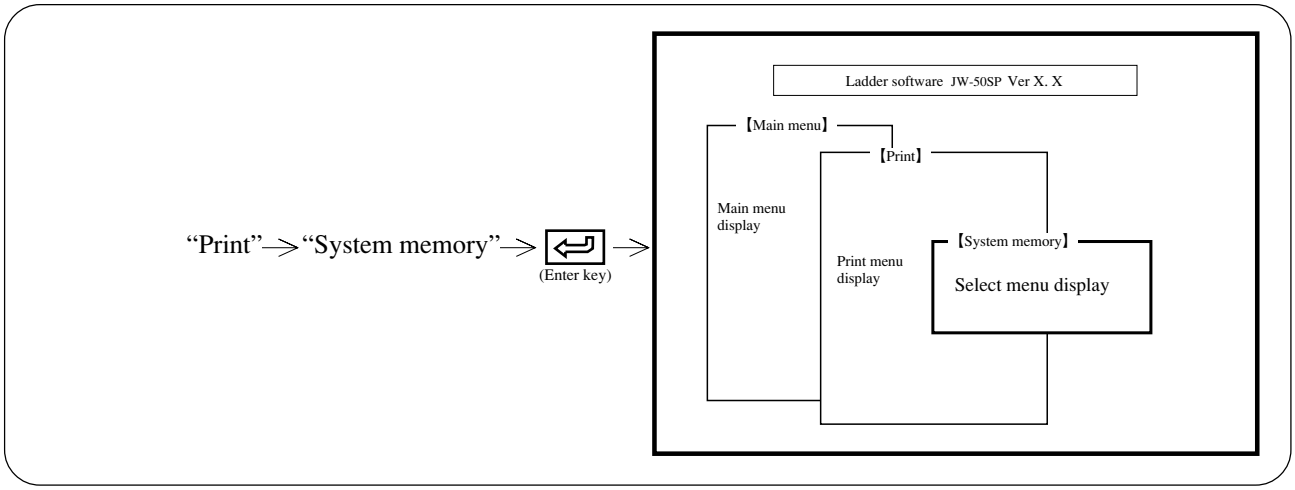
9-5 System memory print

This function prints system memory set values with comments.

Operation outline



Key operation



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Operation example

(1) Title

- When "With" is assigned, the printer prints ladder diagram with a title which is input at lower right of each page with "setting of title."
- Select between "With" or "None" using numerical key or cursor move keys (← →).

(2) Mode

- When "Draft" is assigned, the vertical lines of title may deviate 1 to 2 dots for left/right/up/down.
- Select between "Draft" or "Normal" using numerical key or cursor move keys (← →).

When printing from top address to end address

- Press ↵ (enter key) and then "Yes" key at the "Exec. menu." The module prints the program from top address to end address.
- After printing is finished, the display returns to "Print".

When assigning printing area

(1) Move the cursor to "Start No" column with ↑ ↓ keys, and input start number with numerical key.

(2) Move the cursor to "End No." column with ' key, and input last number with numerical key.

(3) Press [⏎] (enter key) and press “Yes” key at the “Exec. menu.” The module prints the program from start address to end address.

(4) After printing is finished, the display returns to “Print”.

When printer stops (end) at intermediate point in printing

(1) Press “Stop” key, the printer stops printing after completing currently displayed address printing.

(2) When “Quit” key is pressed while the printer has stopped printing, the module returns to “Print”

(3) When “Reset” key is pressed while the printer has stopped printing, the module starts “System memory print” again.

An example of printing

(High resolution with title print)

Address	76543210	HEX	DCML	OCT	Contents
#0200	00000000	00	000	000	
#0201	00000000	00	000	000	TMR - Reset at restoration of power supply;
#0202	00000000	00	000	000	CNT - Reset with ON
#0203	00000000	00	000	000	
#0204	10000011	83	131	203	
#0205	00000001	01	001	001	
#0206	00000000	00	000	000	Operation continued at blowing of fuse
#0207	00000000	00	000	000	Operation stopped in case of abnormality with option
#0210	00000000	00	000	000	
#0211	00000000	00	000	000	
#0212	00000000	00	000	000	
#0213	00000000	00	000	000	
#0214	00000000	00	000	000	
#0215	00000000	00	000	000	
#0216	00000000	00	000	000	
#0217	00000000	00	000	000	
#0220	00000000	00	000	000	
#0221	00000000	00	000	000	
#0222	00000000	00	000	000	
#0223	00000000	00	000	000	Use of clock function register
#0224	00000000	00	000	000	Area used for comment memory
#0225	00000000	00	000	000	Forefront file No.: 0, Capacity: 0000 KB
#0226	00000000	00	000	000	Scan time setting (00 mS)
#0227	00000000	00	000	000	The timer 000 to 777 is a 100 mS timer
#0230	11000000	C0	192	300	The keep relay area is (file address) 000700 onward.
#0231	00000001	01	001	001	
#0232	00000000	00	000	000	During stop of main body, output retaining forefront file address (000000)
#0233	00000000	00	000	000	
#0234	00000000	00	000	000	Transmission speed: Unusual; Parity: None; Stop: 1 bit;
#0235	00000000	00	000	000	Station NO.: 00 (COM0)
#0236	00000000	00	000	000	Transmission speed: Unusual; Parity: None; Stop: 1 bit
#0237	00000000	00	000	000	Station NO.: 00 (COM1)
#0240	00000000	00	000	000	Timer interrupt: Not set
#0241	00000000	00	000	000	Interrupt input unit, Rack: 0, Slot: 0
#0242	00000000	00	000	000	Setting of rise/fall of interrupt input unit
#0243	00000000	00	000	000	Setting of rise/fall of interrupt input unit
#0244	00000000	00	000	000	
#0245	00000000	00	000	000	
#0246	00001010	0A	010	012	Instantaneous stop detecting time: 010 mS
#0247	00000000	00	000	000	Address at forefront of rack: Continuous
#0250	10000000	80	128	200	The keep relay expansion area is (file address) 0007600 onward.
#0251	00001111	0F	015	017	
#0252	01111111	7F	127	177	Output retention ending file address (001577)
#0253	00000011	03	003	003	
#0254	00000000	00	000	000	
#0255	00000000	00	000	000	Normal operation
#0256	00000000	00	000	000	
#0257	10100000	A0	160	240	Check codes #200 to #256
#0260	00000000	00	000	000	Number of substations connecting data link (ZW-10CM)

If you select “with title” when making various kinds of printing, the contents set here will be printed at the bottom right of each page. The portion ____ can be set at the time of various kinds of printing.

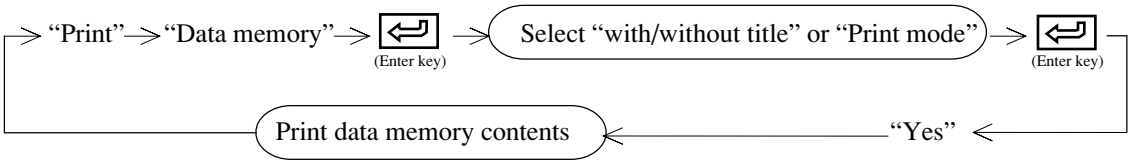
Automatically prints date with date :950918, and prints starting address of the page with start address: ___.
Automatically prints model name with model :JW33H and prints network No. with network No.: ___.
Automatically prints page with page :00000001 and increases by 1 on each page with increment: 00000.
Automatically prints memory capacity with capacity :31.5 kw and prints _____ NO. (Setting possible)

Set after clearing with F5 (Clear all).
Refer to the instruction manual for details.

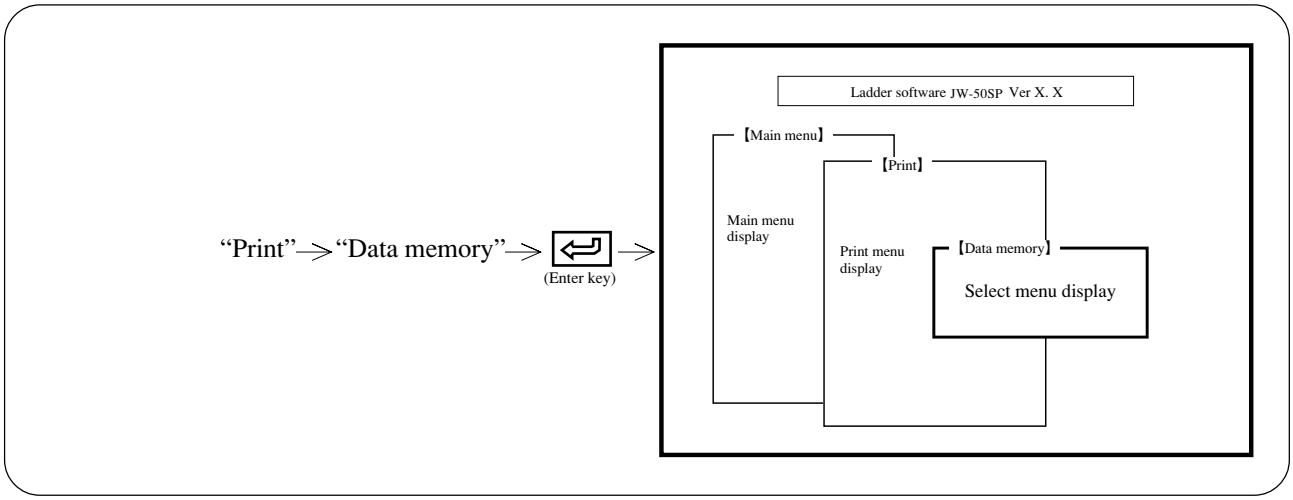
9-6 Data memory print

This function prints data memory contents in “binary,” “BCD,” “decimal,” or “octal.”

Operation outline



Key operation



9

Operation example

(1) Title

- When “With” is assigned, the printer prints ladder diagram with a title which is input at lower right of each page with “setting of title.”
- Select between “With” or “None” using numerical key or cursor move keys (← →).

(2) Mode

- When “Draft” is assigned, the vertical lines of title may deviate 1 to 2 dots for left/right/up/down.
- Select between “Draft” or “Normal” using numerical key or cursor move keys (← →).

When printing from top address to end address

- Press ↵ (enter key) and then “Yes” key at the “Exec. menu.” The module prints the program from top address to end address.
- After printing is finished, the display returns to “Print”

When assigning printing area

- Move the cursor to “Start No” column and set data memory area with “Code” key. Then input start number with numerical keys.

(2) Move the cursor to “End No.” column with [↑] [↓] keys, and set data memory area with “Code” key. Then input last number with numerical keys.

(3) Press [⏎] (enter key) and then “Yes” key at the “Exec. menu.” The module prints the program from start address to end address.

(4) After printing is finished, the display returns to “Print menu.”

When printer stops (end) at intermediate point in printing

(1) Press “Stop” key, the printer stops printing after completing currently displayed address printing.

(2) When “Quit” key is pressed while the printer has stopped printing, the module returns to “Print”

(3) When “Reset” key is pressed while the printer has stopped printing, the module starts “Data memory print” again.

An example of printing

(High resolution with title print)

RL/Coil	7 6 5 4 3 2 1 0	BCD	DEM	OCT
00000	0 0 0 0 0 0 0 0	00	000	000
00010	0 0 0 0 0 0 0 0	00	000	000
00020	0 0 0 0 0 0 0 0	00	000	000
00030	0 0 0 0 0 0 0 0	00	000	000
00040	0 0 0 0 0 0 0 0	00	000	000
00050	0 0 0 0 0 0 0 0	00	000	000
00060	0 0 0 0 0 0 0 0	00	000	000
00070	0 0 0 0 0 0 0 0	00	000	000

RL/Coil	7 6 5 4 3 2 1 0	BCD	DEM	OCT
00100	0 0 0 0 0 0 0 0	00	000	000
00110	0 0 0 0 0 0 0 0	00	000	000
00120	0 0 0 0 0 0 0 0	00	000	000
00130	0 0 0 0 0 0 0 0	00	000	000
00140	0 0 0 0 0 0 0 0	00	000	000
00150	0 0 0 0 0 0 0 0	00	000	000
00160	0 0 0 0 0 0 0 0	00	000	000
00170	0 0 0 0 0 0 0 0	00	000	000

RL/Coil	7 6 5 4 3 2 1 0	BCD	DEM	OCT
00200	0 0 0 0 0 0 0 0	00	000	000
00210	0 0 0 0 0 0 0 0	00	000	000
00220	0 0 0 0 0 0 0 0	00	000	000
00230	0 0 0 0 0 0 0 0	00	000	000
00240	0 0 0 0 0 0 0 0	00	000	000
00250	0 0 0 0 0 0 0 0	00	000	000
00260	0 0 0 0 0 0 0 0	00	000	000
00270	0 0 0 0 0 0 0 0	00	000	000

RL/Coil	7 6 5 4 3 2 1 0	BCD	DEM	OCT
00300	0 0 0 0 0 0 0 0	00	000	000
00310	0 0 0 0 0 0 0 0	00	000	000
00320	0 0 0 0 0 0 0 0	00	000	000
00330	0 0 0 0 0 0 0 0	00	000	000
00340	0 0 0 0 0 0 0 0	00	000	000
00350	0 0 0 0 0 0 0 0	00	000	000
00360	0 0 0 0 0 0 0 0	00	000	000
00370	0 0 0 0 0 0 0 0	00	000	000

RL/Coil	7 6 5 4 3 2 1 0	BCD	DEM	OCT
00400	0 0 0 0 0 0 0 0	00	000	000
00410	0 0 0 0 0 0 0 0	00	000	000
00420	0 0 0 0 0 0 0 0	00	000	000
00430	0 0 0 0 0 0 0 0	00	000	000
00440	0 0 0 0 0 0 0 0	00	000	000
00450	0 0 0 0 0 0 0 0	00	000	000
00460	0 0 0 0 0 0 0 0	00	000	000
00470	0 0 0 0 0 0 0 0	00	000	000

RL/Coil	7 6 5 4 3 2 1 0	BCD	DEM	OCT
00500	0 0 0 0 0 0 0 0	00	000	000
00510	0 0 0 0 0 0 0 0	00	000	000
00520	0 0 0 0 0 0 0 0	00	000	000
00530	0 0 0 0 0 0 0 0	00	000	000
00540	0 0 0 0 0 0 0 0	00	000	000
00550	0 0 0 0 0 0 0 0	00	000	000
00560	0 0 0 0 0 0 0 0	00	000	000
00570	0 0 0 0 0 0 0 0	00	000	000

RL/Coil	7 6 5 4 3 2 1 0	BCD	DEM	OCT
00600	0 0 0 0 0 0 0 0	00	000	000
00610	0 0 0 0 0 0 0 0	00	000	000
00620	0 0 0 0 0 0 0 0	00	000	000
00630	0 0 0 0 0 0 0 0	00	000	000
00640	0 0 0 0 0 0 0 0	00	000	000
00650	0 0 0 0 0 0 0 0	00	000	000
00660	0 0 0 0 0 0 0 0	00	000	000
00670	0 0 0 0 0 0 0 0	00	000	000

RL/Coil	7 6 5 4 3 2 1 0	BCD	DEM	OCT
00700	0 0 0 0 0 0 0 0	00	000	000
00710	0 0 0 0 0 0 0 0	00	000	000
00720	0 0 0 0 0 0 0 0	00	000	000
00730	0 0 0 0 0 0 0 0	00	000	000
00740	0 0 0 0 0 0 0 0	00	000	000
00750	0 0 0 0 0 0 0 0	00	000	000
00760	0 0 0 0 0 0 0 0	00	000	000
00770	0 0 0 0 0 0 0 0	00	000	000

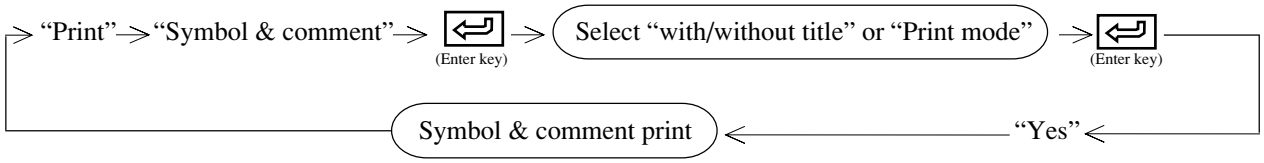
Title

Model Cap.	JW21 3.5kw	Start address; Start network					Name	Print sample (Data memory)	
Data	Note					CODE			
		DESI	DRAW	INSP	APPR	Fig. No.	00001		
						SHARP MANUFACTURING SYSTEMS CORPORATION		Data	1988-04-03
								Page	0000000001

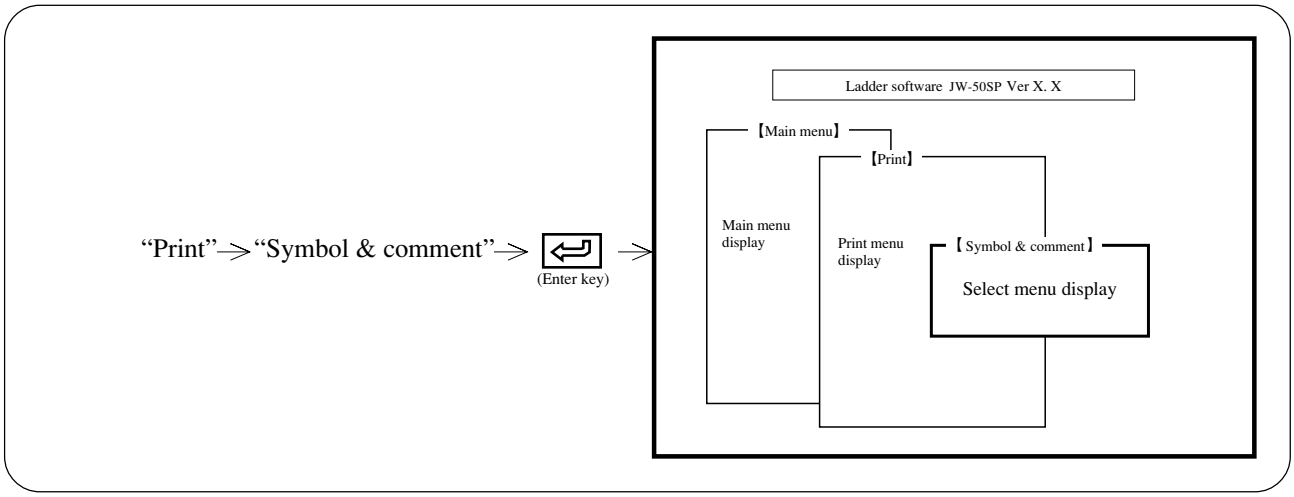
9-7 Symbol & comment print

This function prints registered symbol & comment.

Operation outline



Key operation



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Operation example

(1) Title

- When "With" is assigned, the printer prints ladder diagram with a title which is input at lower right of each page with "setting of title."
- Select between "With" or "None" using numerical key or cursor move keys (← →).

(2) Mode

- When "Draft" is assigned, the vertical lines of title may deviate 1 to 2 dots for left/right/up/down.
- Select between "Draft" or "Normal" using numerical key or cursor move keys (← →).

When printing from top address to end address

- Press [↵] (enter key) and then "Yes" key at the "Exec. menu." The module prints the program from top address to end address.
- After printing is finished, the display returns to "Print"

When assigning printing area

(1) Move the cursor to "start number" column with [↑] [↓] keys and set data memory area with "Code," "F-90," "PROC," and "STEP" keys. Then input start number with numerical keys.

(2) Move the cursor to “End No.” column with ' keys and set data memory area with “Code,” “F-90,” “PROC,” and “STEP” keys. Then input last number with numerical keys.

(3) Press [⏎] (enter key) and then “Yes” key at the “Exec. menu.” The module prints the program from start address to end address.

(4) After printing is finished, the display returns to “Print menu.”

When printer stops (end) at intermediate point in printing

(1) Press “Stop” key, the printer stops printing after completing currently displayed address printing.

(2) When “Quit” key is pressed while the printer has stopped printing, the module returns to “Print”

(3) When “Reset” key is pressed while the printer has stopped printing, the module starts “Symbol & comment print” again.

An example of printing

(High resolution with title print)

Address	Symbol	Comment
00001	Resist roller PH	Detection of paper at handling roller outlet
00002	Resist roller PH	Detection of paper at resist roller inlet
00003	Resist roller PH	Detection of paper at resist roller outlet
00004	Glass PH	Detection of paper (at tip of glass)
00006	Origin verification contact	Switch for checking origin
00007	Individual-Automatic selecting switch	Individual-Automatic selecting switch No. 1
00010	Automatic operation switch	Automatic operation switch No. 1
00011	Automatic checking of return end	Switch for checking return end LS during an automatic operation
00013	Unit-A up	Lifting of unit A
00014	Lift-D down	Descending of lifter D
00024	Start SW	Operation switch (Starting)
00025	Automatic operation switch	Automatic operation selecting switch No. 25
00030	Automatic operation switch	Automatic operation mode selecting switch
00042	Operation SW	Operation switch
00043	Stop SW	Stop switch
04000	Detection of absence of paper	State without paper in the system (auxiliary relay)
04001	Motor action normal	Motor action normal (auxiliary relay)
04002	Ready	Ready
04003	AUTO	Automatic operation mode
04163	External program	Setting of external program
04303	Alarm No. 245	Alarm No. 245 produced
07001	Residue after cutting	Residue of paper after cutting
07002	Residue after resist	Residue of paper after application of resist
07003	Residue after glass	Residue of paper after glass
07365	Set value change switch	Set value change switch
07366	Normally OFF contact	Normally OFF contact
0000	Check power supply	Verify ON state of power source
]0200	Accumulated data	Accumulated data storing area A0
]0201	Accumulated data	Accumulated data storing area A1
]0202	Accumulated data	Accumulated data storing area A2
]0203	Accumulated data	Accumulated data storing area A3
]0204	Accumulated data	Accumulated data storing area A4
]0205	Accumulated data	Accumulated data storing area A5
]0206	Accumulated data	Accumulated data storing area A6
]0207	Accumulated data	Accumulated data storing area A7
09000	Current value store	Current value store area
09001	Current value store	Current value store area
09002	Current value store	Current value store area
09003	Current value store	Current value store area
09004	Current value store	Current value store area
09005	Current value store	Current value store area
09006	Current value store	Current value store area
09007	Current value store	Current value store area

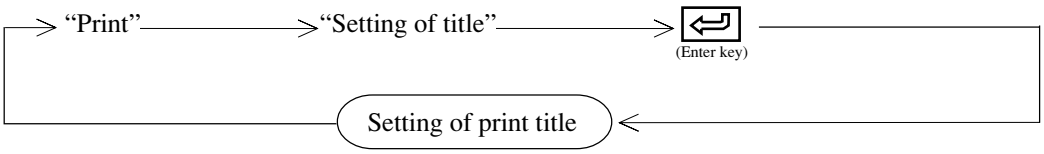
Model Cap.	JW32H 15.5kw	Start address; Start network					Name	A Line	
Data	Note					CODE	CA-5100		
		DESI	DRAW	INSP	APPR	Fig. No.	D1005621		
						SHARP MANUFACTURING SYSTEMS CORPORATION		Data	1995-09-30
								Page	00000001

9-8 Setting of title

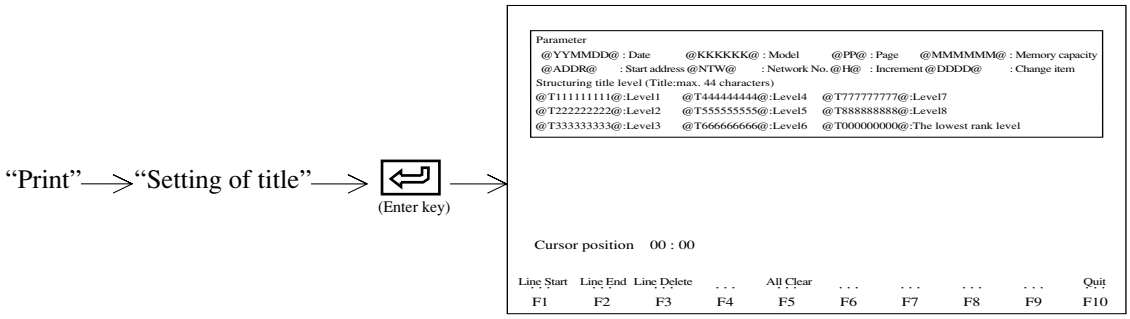
This function sets title contents to print with title.

Registerable 40 characters×13 lines with full size letters.

Operation outline



Key operation



(Sample screen for above diagram)

• Display set contents

Name	Contents
ST. R. L.	• Assign ruled line start position
End R. L.	• Assign ruled line end position • Draw a ruled line from the start point to end point
DEL. R. L.	• Delete the ruled line where the cursor is positioned
All CLR.	• Delete all contents currently being displayed
Quit	• Write the displayed contents in the memory, and return to "Print"

Operation example

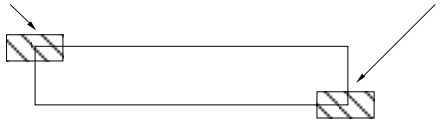
(1) How to draw ruled lines

① Straight line

Move the cursor to ruled line start position → "ST. R. L." → Move the cursor to ruled line end position → "End R. L."

② Frame

Move the cursor to ruled line start position → "ST. R. L." → Move the cursor to diagonal position of the frame → "End R. L."



(2) Set date and model name

	Memory type	Set method	Print contents
	Date	@YYYY-MM-DD@	1996-07-31
*	Model	@KK@	JW22
*	Page	@PPPP@	000001 to 999999
*	MEM. CAP.	@MMM@	3.5KW
	Start address	@ADR@	00000 to 167777
	Network No.	@NTW@	0000 to 9999
*	Increment	@III@	Increase by increment of one for each page
*	Change item	@DDDD@	Change item
*	Structuring level 1 title	@T111@	• If JW31H/32H/33H is used for structured programming, setting these items prints the corresponding title. (available with version 5.3 or later).
*	Structuring level 2 title	@T222@	
*	⋮	⋮	
*	Structuring level 8 title	@T888@	
*	Lowest level title	@T000@	

* For items marked with "*", the number of characters to be printed can be adjusted as desired by changing the number of the set method symbols (including @) (available with version 5.3 or later).

[Example] If you set "@PP@", the page numbers will be printed as 0000 to 9999.

- "Date" prints date which the module is controlling.
- "Model name" and "Memory capacity" print model name of PC registered in this module and memory capacity of the module.
- Set above alphabetical letters with half size capital letters.

Notes

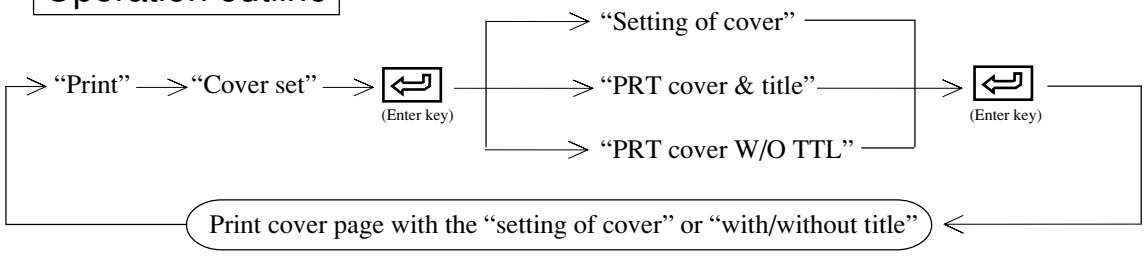
- Prior to inserting characters, press the Insert key.
- To delete characters, press Delete or Back Space key.
- If you make the setting close to the bottom when not using the title up to 13 vertical lines, you can use the blank part for the printing of ladder drawing, etc.
- There are cases where no printing is made at the right end part depending on the type of paper used for the printing. Set close to the left end in such a case.

9-9 Setting of cover

This function sets and prints cover page contents.

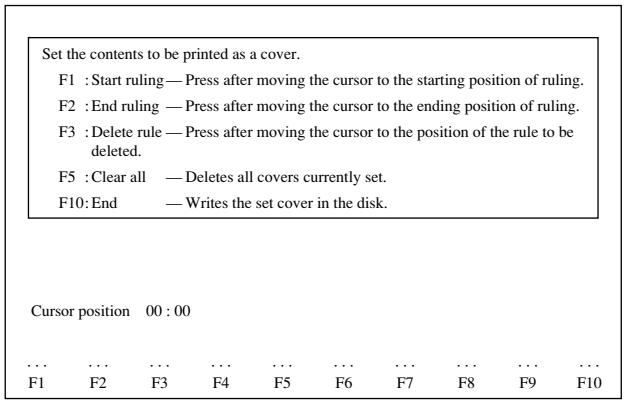
Registerable 40 characters×18 lines with full size letters.

Operation outline



Key operation 1 (Setting of cover)

"Cover set" → "Setting of cover" → (Enter key) →



• Display set contents

Name	Contents
ST. R. L.	• Assign the ruled line start position
End R. L.	• Assign the ruled line end position • Draw a ruled line from the start point to end point
DEL. R. L.	• Delete the ruled line where the cursor is positioned
ALL CLR.	• Delete all contents currently being displayed
Quit	• Write the displayed contents in the memory, and return to "Print"

Operation example

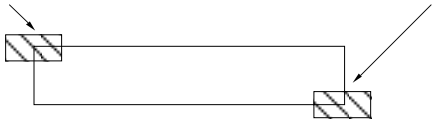
(1) How to draw ruled lines

① Straight line

Move the cursor to ruled line start position → "ST. R. L." → Move the cursor to ruled line end position → "End R. L."

② Frame

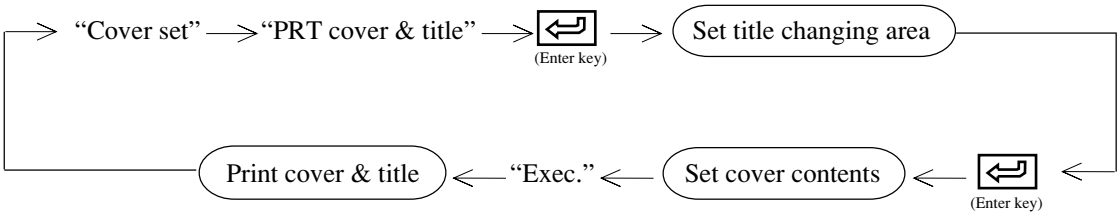
Move the cursor to ruled line start position → "ST. R. L." → Move the cursor to diagonal position of the frame → "End R. L."



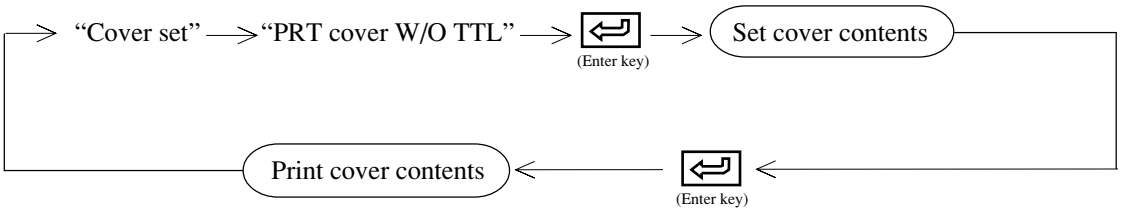
Notes

- Prior to inserting characters, press the Insert key.
- To delete characters, press Delete or Back Space key.
- There are cases where no printing is made at the right end part depending on the type of paper used for the printing. Set close to the left end in such a case.

Key operation 2 **(Print cover & title)**



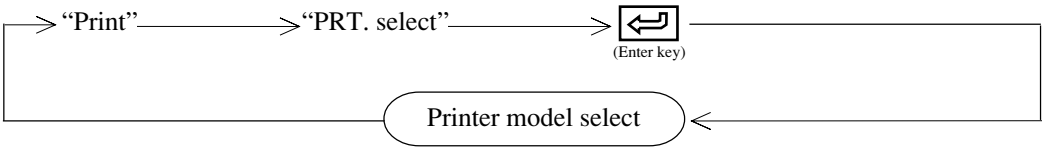
Key operation 3 **(Print cover without title)**



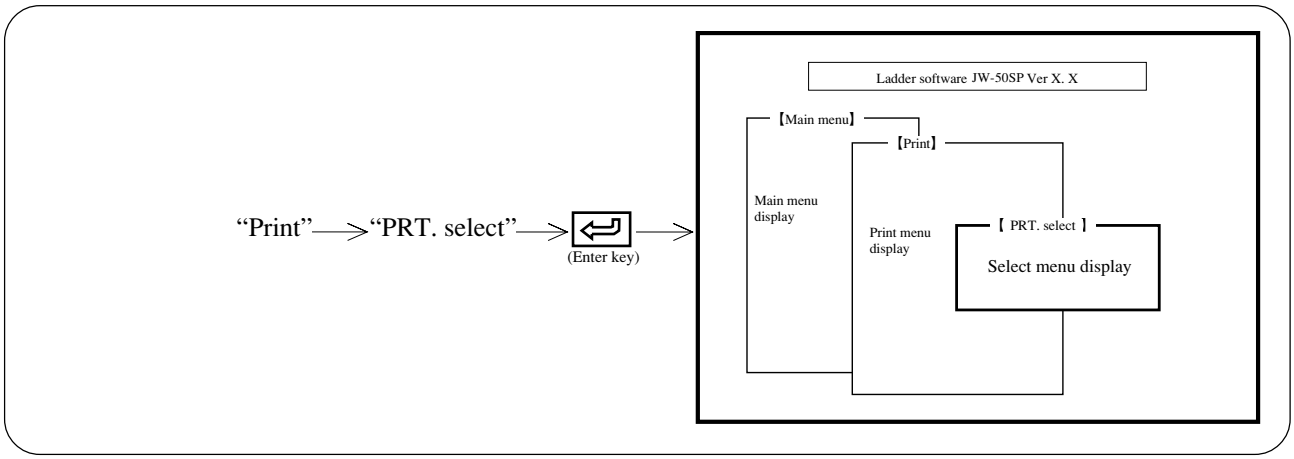
9-10 Printer select

This function sets printer model to print ladder diagrams or instruction words.

Operation outline



Key operation



Operation example

The module reverse displays currently set model.

(1) Paper size

- The paper size is set with the paper size used for the printing. After selecting "Paper size", select either an existing form or input (a new form) in inches with the cursor moving keys (← →).
- When selecting input in inches, set the size of the paper to be used in inches.

①Setting of printer model: Case of "PC-PR201*", "ESC/P24", "Others"

Existing form → "A3 vertical"/"B4 horizontal"/"A4 vertical"/"A4 horizontal"

Input (a new form) in inches → Minimum value: (11×08) or (08×11), Maximum value: (25×21) or (21×25)

②Setting of printer model: Case of "LASER SHOT", "LASER JET2"

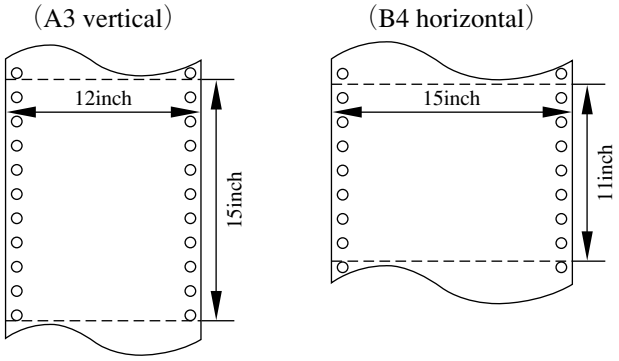
Existing form※ → "A3 vertical"/"A3 horizontal"/"B4 vertical"/"B4 horizontal"/"A4 vertical"/"A4 horizontal"

Input (a new form) in inches※ → Minimum value: (11×08) or (08×11), Maximum value: (19×17) or (17×19)

※To be cut paper.

(2) Paper type

- When the printer model is set for other than “LASER SHOT”, “LASER JET2”, select the type of print form.
- After selecting “Paper type”, select either “Continuous paper” or “Cut paper” with the cursor moving keys (← →).
- In the case of “Continuous paper”, the size of “A3 vertical”/”B4 horizontal” will be the following:



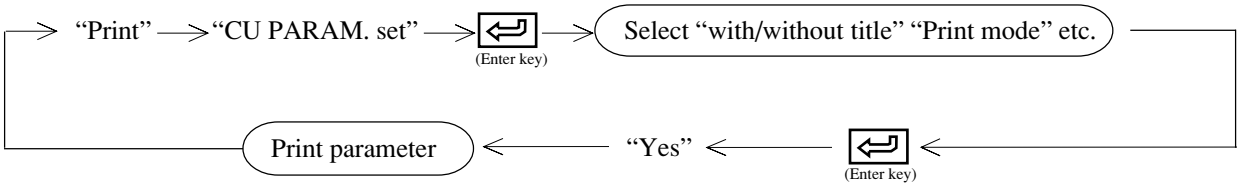
(3) Printer model

- Select with numerical key or cursor move keys (← →).
- PC-PR201*
  → PC-PR201H series (NEC) and succeeding models.
- LASER SHOT
  → LIPSII class of Canon printer specifications and succeeding models.
- ESC/P24
  → ESC/P class of Epson printer specifications and succeeding models.
- LASER JET2
  → LASER JET2 class of HP printer specifications and succeeding models.
- Others
  → Printing is possible even with printers other than above, but the printing quality will be inferior compared with the above-mentioned models. There are also cases where printing of full-size characters and symbols, etc. is impossible.

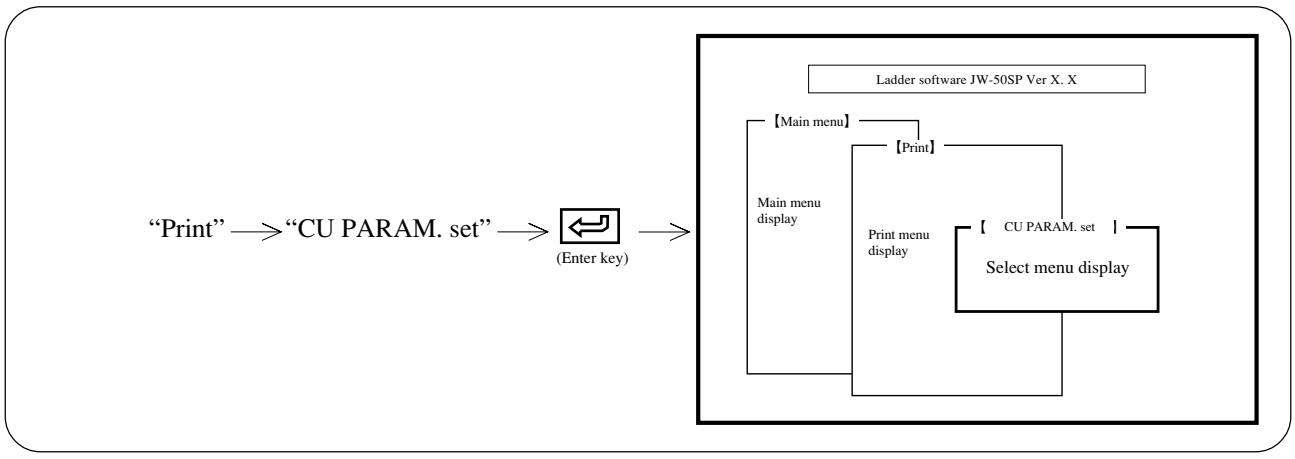
9-11 Printing PC parameters (JW-21/22CU, JW-31/32/33CUH)

This function prints parameter contents of I/O module and option module in binary, HEX, decimal, or octal.

Operation outline



Key operation



Operation example

(1) Title

- When "With" is assigned, the printer prints ladder diagram with a title which is input at lower right of each page with "setting of title."
- Select between "With" or "None" using numerical key or cursor move keys (← →).

(2) Mode

- When "Draft" is assigned, the vertical lines of title may deviate 1 to 2 dots for left/right/up/down.
- Select between "Draft" or "Normal" using numerical key or cursor move keys (← →).

(3) Module

- Select "Special I/O module" or "Option module."
- Select between "Special I/O module" or "Option module" using numerical keys or cursor move keys (← →).

When printing all lists

- Press ⏎ (enter key) and then "Yes" key at the "Exec. menu." The module prints all lists of special I/O module or option module.
- After finished printing, the display returns to "Print".

When assigning printing area

(1) Move the cursor to “Start No” column with [↑] [↓] keys, and input start number with numerical key.
(2) Move the cursor to “End No.” column with [↓] key, and input last number with numerical key.
(3) Press [⏎] (enter key) and press “Yes” at the “Exec. menu.” The module prints the program from start address to end address.
(4) After printing is finished, the display returns to “Print.”

When printer stops (end) at intermediate point in printing

(1) Press “Stop” key, the printer stops printing after completing currently displayed address printing.
(2) When “Quit” key is pressed while the printer has stopped printing, the module returns to “Print”
(3) When “Reset” key is pressed while the printer has stopped printing, the module starts “Parameter print” again.

An example of printing 1

Special I/O module (High-resolution with title print)

Address	7 6 5 4 3 2 1 0	BCD	DEM	OCT
0-000	0 0 0 0 0 0 0 1	01	001	001
0-001	0 0 0 0 0 0 0 1	01	001	001
0-002	0 0 0 0 0 0 0 1	01	001	001
0-003	0 0 0 0 0 0 0 1	01	001	001
0-004	0 0 0 0 0 0 0 1	01	001	001
0-005	0 0 0 0 0 0 0 1	01	001	001
0-006	0 0 0 0 0 0 0 1	01	001	001
0-007	0 0 0 0 0 0 0 1	01	001	001
0-010	0 0 0 0 0 0 0 0	00	000	000
0-011	0 0 0 0 0 0 0 0	00	000	000
0-012	0 0 0 0 0 0 0 0	00	000	000
0-013	0 0 0 0 0 0 0 0	00	000	000
0-014	0 0 0 0 0 0 0 0	00	000	000
0-015	0 0 0 0 0 0 0 0	00	000	000
0-016	0 0 0 0 0 0 0 0	00	000	000
0-017	0 0 0 0 0 0 0 0	00	000	000
0-020	0 0 0 0 0 0 0 0	00	000	000
0-021	0 0 0 0 0 0 0 0	00	000	000
0-022	0 0 0 0 0 0 0 0	00	000	000
0-023	0 0 0 0 0 0 0 0	00	000	000
0-024	0 0 0 0 0 0 0 0	00	000	000
0-025	0 0 0 0 0 0 0 0	00	000	000
0-026	0 0 0 0 0 0 0 0	00	000	000
0-027	0 0 0 0 0 0 0 0	00	000	000
0-030	0 0 0 0 0 0 0 0	00	000	000
0-031	0 0 0 0 0 0 0 0	00	000	000
0-032	0 0 0 0 0 0 0 0	00	000	000
0-033	0 0 0 0 0 0 0 0	00	000	000
0-034	0 0 0 0 0 0 0 0	00	000	000
0-035	0 0 0 0 0 0 0 0	00	000	000
0-036	0 0 0 0 0 0 0 0	00	000	000
0-037	0 0 0 0 0 0 0 0	00	000	000
0-040	0 0 0 0 0 0 0 0	00	000	000
0-041	0 0 0 0 0 0 0 0	00	000	000
0-042	0 0 0 0 0 0 0 0	00	000	000
0-043	0 0 0 0 0 0 0 0	00	000	000
0-044	0 0 0 0 0 0 0 0	00	000	000
0-045	0 0 0 0 0 0 0 0	00	000	000
0-046	0 0 0 0 0 0 0 0	00	000	000
0-047	0 0 0 0 0 0 0 0	00	000	000
0-050	0 0 0 0 0 0 0 0	00	000	000
0-051	0 0 0 0 0 0 0 0	00	000	000
0-052	0 0 0 0 0 0 0 0	00	000	000
0-053	0 0 0 0 0 0 0 0	00	000	000
0-054	0 0 0 0 0 0 0 0	00	000	000
0-055	0 0 0 0 0 0 0 0	00	000	000
0-056	0 0 0 0 0 0 0 0	00	000	000
0-057	0 0 0 0 0 0 0 0	00	000	000
0-060	0 0 0 0 0 0 0 0	00	000	000
0-061	0 0 0 0 0 0 0 0	00	000	000
0-062	0 0 0 0 0 0 0 0	00	000	000
0-063	0 0 0 0 0 0 0 0	00	000	000
0-064	0 0 0 0 0 0 0 0	00	000	000
0-065	0 0 0 0 0 0 0 0	00	000	000
0-066	0 0 0 0 0 0 0 0	00	000	000
0-067	0 0 0 0 0 0 0 0	00	000	000
0-070	0 0 0 0 0 0 0 0	00	000	000
0-071	0 0 0 0 0 0 0 0	00	000	000
0-072	0 0 0 0 0 0 0 0	00	000	000
0-073	0 0 0 0 0 0 0 0	00	000	000
0-074	0 0 0 0 0 0 0 0	00	000	000
0-075	0 0 0 0 0 0 0 0	00	000	000
0-076	0 0 0 0 0 0 0 0	00	000	000
0-077	0 0 0 0 0 0 0 0	00	000	000
0-100	0 0 0 0 0 0 0 0	00	000	000
0-101	0 0 0 0 0 0 0 0	00	000	000
0-102	0 0 0 0 0 0 0 0	00	000	000
0-103	0 0 0 0 0 0 0 0	00	000	000
0-104	0 0 0 0 0 0 0 0	00	000	000
0-105	0 0 0 0 0 0 0 0	00	000	000
0-106	0 0 0 0 0 0 0 0	00	000	000
0-107	0 0 0 0 0 0 0 0	00	000	000
0-110	0 0 0 0 0 0 0 0	00	000	000
0-111	0 0 0 0 0 0 0 0	00	000	000
0-112	0 0 0 0 0 0 0 0	00	000	000
0-113	0 0 0 0 0 0 0 0	00	000	000
0-114	0 0 0 0 0 0 0 0	00	000	000
0-115	0 0 0 0 0 0 0 0	00	000	000
0-116	0 0 0 0 0 0 0 0	00	000	000
0-117	0 0 0 0 0 0 0 0	00	000	000
0-120	0 0 0 0 0 0 0 0	00	000	000
0-121	0 0 0 0 0 0 0 0	00	000	000
0-122	0 0 0 0 0 0 0 0	00	000	000
0-123	0 0 0 0 0 0 0 0	00	000	000
0-124	0 0 0 0 0 0 0 0	00	000	000
0-125	0 0 0 0 0 0 0 0	00	000	000
0-126	0 0 0 0 0 0 0 0	00	000	000
0-127	0 0 0 0 0 0 0 0	00	000	000
0-130	0 0 0 0 0 0 0 0	00	000	000
0-131	0 0 0 0 0 0 0 0	00	000	000
0-132	0 0 0 0 0 0 0 0	00	000	000
0-133	0 0 0 0 0 0 0 0	00	000	000
0-134	0 0 0 0 0 0 0 0	00	000	000
0-135	0 0 0 0 0 0 0 0	00	000	000
0-136	0 0 0 0 0 0 0 0	00	000	000
0-137	0 0 0 0 0 0 0 0	00	000	000

Model Cap.	JW22 7.5kw	Start address; Start network					Name	Parameter (Special I/O module)	
Data	Note					CODE			
		DESI	DRAW	INSP	APPR	Fig. No.	00001		
						SHARP MANUFACTURING SYSTEMS CORPORATION		Data	1990-04-06
								Page	00000001

9

An example of printing 2

Option module (High-resolution with title print)

Address	7 6 5 4 3 2 1 0	BCD	DEM	OCT
0-000	0 0 0 0 0 0 0 1	01	001	001
0-001	0 0 0 0 0 0 0 1	01	001	001
0-002	0 0 0 0 0 0 0 1	01	001	001
0-003	0 0 0 0 0 0 0 1	01	001	001
0-004	0 0 0 0 0 0 0 1	01	001	001
0-005	0 0 0 0 0 0 0 1	01	001	001
0-006	0 0 0 0 0 0 0 1	01	001	001
0-007	0 0 0 0 0 0 0 1	01	001	001
0-010	0 0 0 0 0 0 0 0	00	000	000
0-011	0 0 0 0 0 0 0 0	00	000	000
0-012	0 0 0 0 0 0 0 0	00	000	000
0-013	0 0 0 0 0 0 0 0	00	000	000
0-014	0 0 0 0 0 0 0 0	00	000	000
0-015	0 0 0 0 0 0 0 0	00	000	000
0-016	0 0 0 0 0 0 0 0	00	000	000
0-017	0 0 0 0 0 0 0 0	00	000	000
0-020	0 0 0 0 0 0 0 0	00	000	000
0-021	0 0 0 0 0 0 0 0	00	000	000
0-022	0 0 0 0 0 0 0 0	00	000	000
0-023	0 0 0 0 0 0 0 0	00	000	000
0-024	0 0 0 0 0 0 0 0	00	000	000
0-025	0 0 0 0 0 0 0 0	00	000	000
0-026	0 0 0 0 0 0 0 0	00	000	000
0-027	0 0 0 0 0 0 0 0	00	000	000
0-030	0 0 0 0 0 0 0 0	00	000	000
0-031	0 0 0 0 0 0 0 0	00	000	000
0-032	0 0 0 0 0 0 0 0	00	000	000
0-033	0 0 0 0 0 0 0 0	00	000	000
0-034	0 0 0 0 0 0 0 0	00	000	000
0-035	0 0 0 0 0 0 0 0	00	000	000
0-036	0 0 0 0 0 0 0 0	00	000	000
0-037	0 0 0 0 0 0 0 0	00	000	000
0-040	0 0 0 0 0 0 0 0	00	000	000
0-041	0 0 0 0 0 0 0 0	00	000	000
0-042	0 0 0 0 0 0 0 0	00	000	000
0-043	0 0 0 0 0 0 0 0	00	000	000
0-044	0 0 0 0 0 0 0 0	00	000	000
0-045	0 0 0 0 0 0 0 0	00	000	000
0-046	0 0 0 0 0 0 0 0	00	000	000
0-047	0 0 0 0 0 0 0 0	00	000	000
0-050	0 0 0 0 0 0 0 0	00	000	000
0-051	0 0 0 0 0 0 0 0	00	000	000
0-052	0 0 0 0 0 0 0 0	00	000	000
0-053	0 0 0 0 0 0 0 0	00	000	000
0-054	0 0 0 0 0 0 0 0	00	000	000
0-055	0 0 0 0 0 0 0 0	00	000	000
0-056	0 0 0 0 0 0 0 0	00	000	000
0-057	0 0 0 0 0 0 0 0	00	000	000
0-060	0 0 0 0 0 0 0 0	00	000	000
0-061	0 0 0 0 0 0 0 0	00	000	000
0-062	0 0 0 0 0 0 0 0	00	000	000
0-063	0 0 0 0 0 0 0 0	00	000	000
0-064	0 0 0 0 0 0 0 0	00	000	000
0-065	0 0 0 0 0 0 0 0	00	000	000
0-066	0 0 0 0 0 0 0 0	00	000	000
0-067	0 0 0 0 0 0 0 0	00	000	000
0-070	0 0 0 0 0 0 0 0	00	000	000
0-071	0 0 0 0 0 0 0 0	00	000	000
0-072	0 0 0 0 0 0 0 0	00	000	000
0-073	0 0 0 0 0 0 0 0	00	000	000
0-074	0 0 0 0 0 0 0 0	00	000	000
0-075	0 0 0 0 0 0 0 0	00	000	000
0-076	0 0 0 0 0 0 0 0	00	000	000
0-077	0 0 0 0 0 0 0 0	00	000	000
1-000	0 0 0 0 0 0 0 1	01	001	001
1-001	0 0 0 0 0 0 0 1	01	001	001
1-002	0 0 0 0 0 0 0 1	01	001	001
1-003	0 0 0 0 0 0 0 1	01	001	001
1-004	0 0 0 0 0 0 0 1	01	001	001
1-005	0 0 0 0 0 0 0 1	01	001	001
1-006	0 0 0 0 0 0 0 1	01	001	001
1-007	0 0 0 0 0 0 0 1	01	001	001
1-010	0 0 0 0 0 0 0 0	00	000	000
1-011	0 0 0 0 0 0 0 0	00	000	000
1-012	0 0 0 0 0 0 0 0	00	000	000
1-013	0 0 0 0 0 0 0 0	00	000	000
1-014	0 0 0 0 0 0 0 0	00	000	000
1-015	0 0 0 0 0 0 0 0	00	000	000
1-016	0 0 0 0 0 0 0 0	00	000	000
1-017	0 0 0 0 0 0 0 0	00	000	000
1-020	0 0 0 0 0 0 0 0	00	000	000
1-021	0 0 0 0 0 0 0 0	00	000	000
1-022	0 0 0 0 0 0 0 0	00	000	000
1-023	0 0 0 0 0 0 0 0	00	000	000
1-024	0 0 0 0 0 0 0 0	00	000	000
1-025	0 0 0 0 0 0 0 0	00	000	000
1-026	0 0 0 0 0 0 0 0	00	000	000
1-027	0 0 0 0 0 0 0 0	00	000	000
1-030	0 0 0 0 0 0 0 0	00	000	000
1-031	0 0 0 0 0 0 0 0	00	000	000
1-032	0 0 0 0 0 0 0 0	00	000	000
1-033	0 0 0 0 0 0 0 0	00	000	000
1-034	0 0 0 0 0 0 0 0	00	000	000
1-035	0 0 0 0 0 0 0 0	00	000	000
1-036	0 0 0 0 0 0 0 0	00	000	000
1-037	0 0 0 0 0 0 0 0	00	000	000

Model Cap.	JW22 7.5kw	Start address; Start network					Name	Parameter (Option module)	
Data	Note					CODE			
		DESI	DRAW	INSP	APPR	Fig. No.	00001		
						SHARP MANUFACTURING SYSTEMS CORPORATION		Data	1990-04-06
								Page	00000001

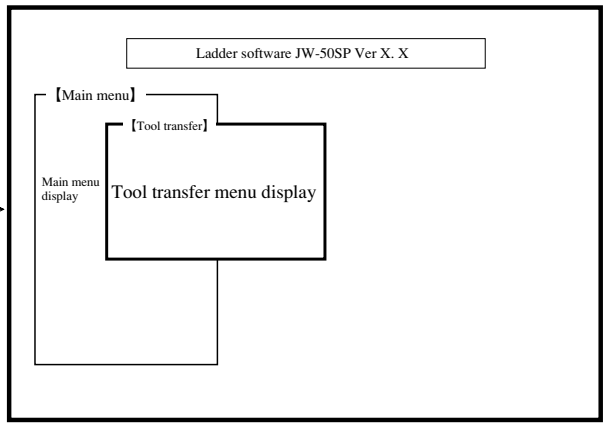
Chapter 10 Transfer to support tool

• This mode is used to transfer data to a PROM programmer, to a floppy disk drive of Z-100LP2S, and to set parameter of network module and ME-NET module.

Key operation

"Main menu" → "Tool transfer" → (Enter key) →

Screen display



Function

Name	Function	Reference page
PROM PROG. transfer	• Transfer program of the module to PROM programmer.	10-2
Z-100LP2S FD TRANS.	• Read and write a program in a floppy diskette which is inserted in Z-100LP2S.	10-5
FD transfer	• Operation of FD	11-1
PC transfer	• Operation of PC	12-1
Satellite net	• Set and print parameters of network module : ZW-20CM, JW-20CM/22CM, or remote slave module: ZW/JW-20RS.	10-10
ME-NET	• Set and print parameters of ME-NET module : ZW-20CM2, JW-20MN/21MN	10-10
SUMINET	• Set and print parameters of network module : ZW-30CM	10-37
Other OP parameter	• Set and print parameters except for above network module's items.	10-42

Notes

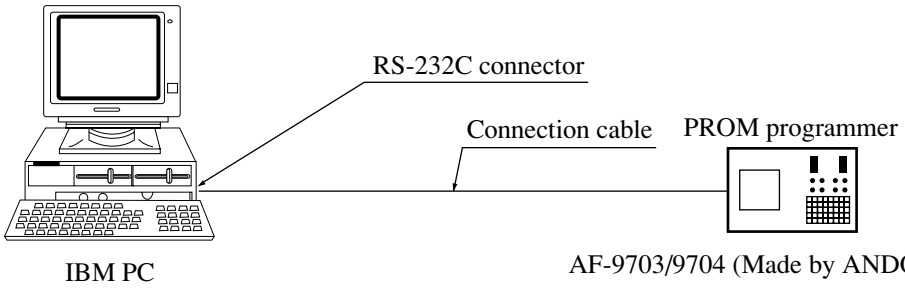
• Pressing ESC key returns to "Main menu."

• To select any item on the menu, use numerical key or cursor move keys.

10-1 PROM programmer transfer

This function transfers programs in the module to the PROM programmer.

Prior to transferring data to the PROM programmer, connect it with the module.



AF-9703/9704 (Made by ANDO)

MODEL-1866A/1890A
(Made by MINATO ELECTRONICS)

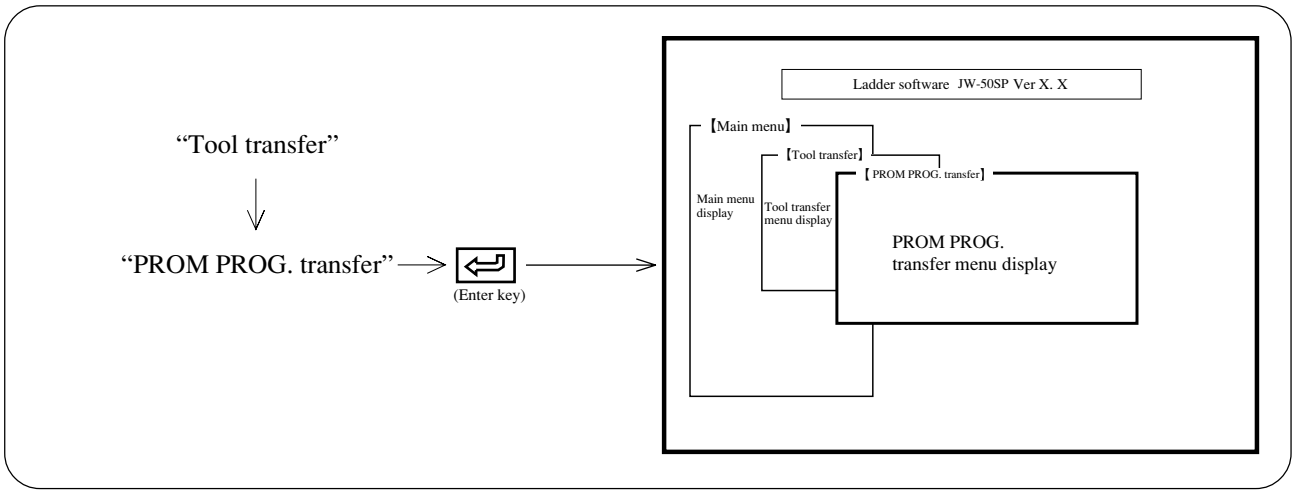
TR4943/4944A (Made by ADVANTEST)

Recommended ROM model name

PC model	Capacity of program	ROM model name
JW10	4.0 K words	27C512 (Made by FUJITSU CO., LTD.)
JW20, 20H	3.5 K words	Installing memory module (JW-21MO)
JW50/70/100 JW50H/70H/100H	7.5 K words	AT28C256-15PC (Made by ATMEL)
	15.5 K words	
	31.5 K words	27C512 (Made by FUJITSU CO., LTD.)

Construction in ROM is impossible when the program capacity exceeds “31.5K words” with JW50/70/100, JW50H/70H/100H.

Key operation 1



Operation example

(1) Baud rate

Select boud rate.

Press a numerical key which is allocated as transfer rate, the baud rate will change to “300,” “600,” “1200,” “2400,” “4800,” and “9600” in order.

(2) Data bits

Select data bits.

Press numerical key or cursor move keys (← →) to select data bits between “7-bit” and “8-bit.”

(3) Parity

Select parity.

Press numerical key or cursor move key (← →) to select parity between “None,” “Odd,” or “Even.”

(4) Stop bit

Select stop bit.

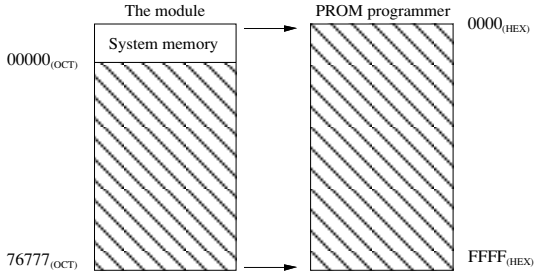
Press numerical key or cursor move keys (← →) to select stop bit between “1-bit” and “2-bit.”

(5) Transfer area

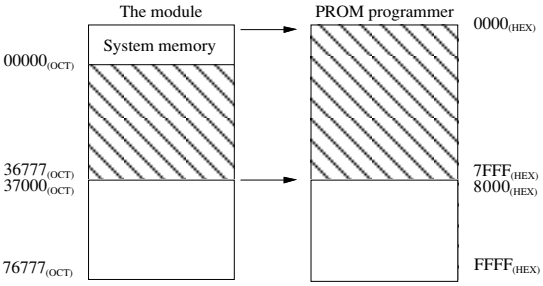
Assign data transfer area of programs to the PROM programmer.

Press numerical key or cursor move keys (← →) to select one of “All,” “FWD,” or “Back.”

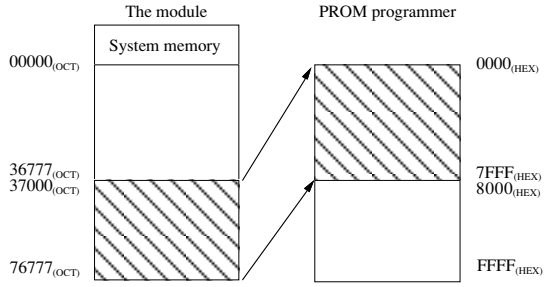
• All ····· Transfer all of program up to 31.5 kw in block.



• FWD ····· Transfer forward half 15.5 kw of the program

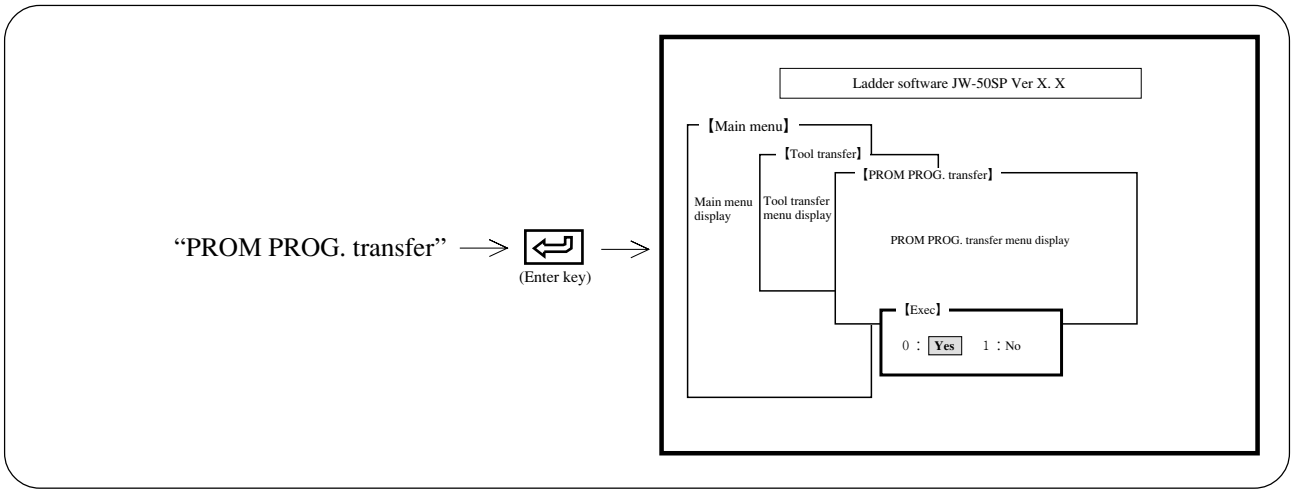


• Back ····· Transfer backward half 15.5 kw of the program



10

Key operation 2



Key operation

(1) When transferring the program to a PROM programmer

- Select "Yes" → Press [↵] (enter key) → Commence data transfer
- While transferring data, the display shows its addresses.
- After completion of data transfer, the display returns to the "PROM PROG. transfer" menu.

(2) When stopping data transfer to PROM programmer

- Select "Quit," → Press [↵] (enter key) → The display returns to "PROM PROG. transfer" menu.

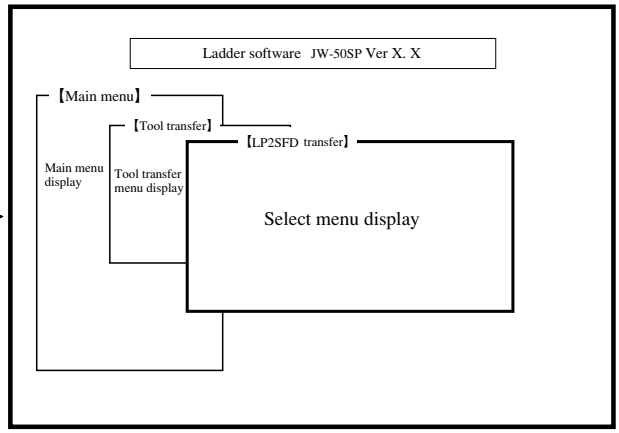
10-2 Z-100LP2S FD transfer

This function is capable of reading contents of user diskette which is registered by a ladder processor II: Z-100LP2S, and writing a program written by this module in a user diskette.

Key operation

"Tool transfer" → "Z-100LP2S FD TRAS." → ↵ (Enter key) →

Screen display



Function

Name	Function	Reference page
File name list	• Display all file names in the user diskette of Z-100LP2S.	10-6
Save	• Write program or system memory which is created or modified by the JW-50SP in the user diskette.	10-7
Load	• Read a file registered in the user diskette.	10-8
Delete	• Delete a file registered in the user diskette.	10-9

10

Notes

• A floppy diskette formatted by the personal computer cannot be used for Z-100LP2S.

Equipment to write or read \ Diskette formatted equipment	JW-50SP	Z-100LP2S
JW-50SP	○	○
Z-100LP2S	×	○

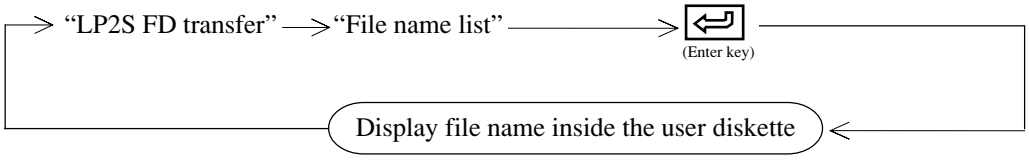
• To select any item on the menu, use numerical key or cursor move keys.

• Press ESC key to return to the previous screen.

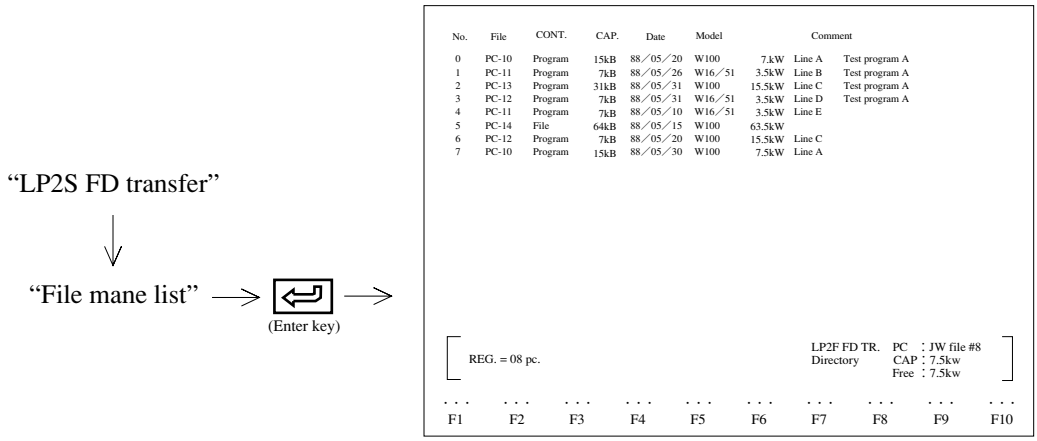
(1) List up file names

This function displays file names registered in the user diskette of Z-100LP2S.

Operation outline



Key operation

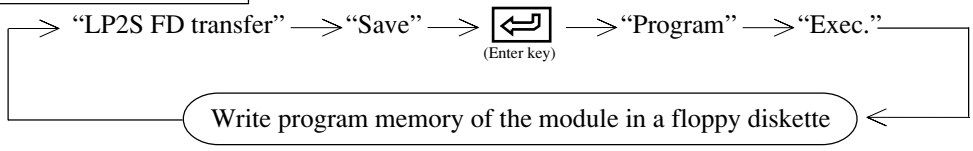


- Up to 16 file names can be displayed on 1 screen.
- When more than 16 files are registered, change display contents by pressing Page DOWN (previous screen), or Page UP (next screen) key.
- At lower left of the screen, number of registered file appears.

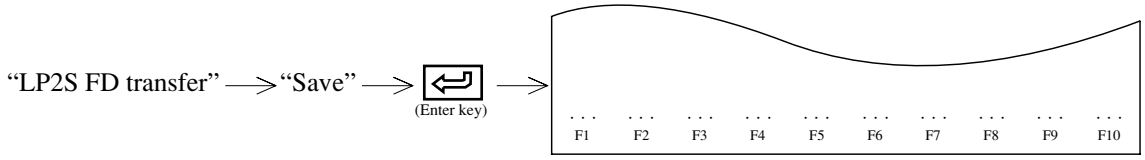
(2) Write

This function writes the memory contents (programs, data etc.) inside the personal computer in a Z-100LP2S user diskette.

Operation outline



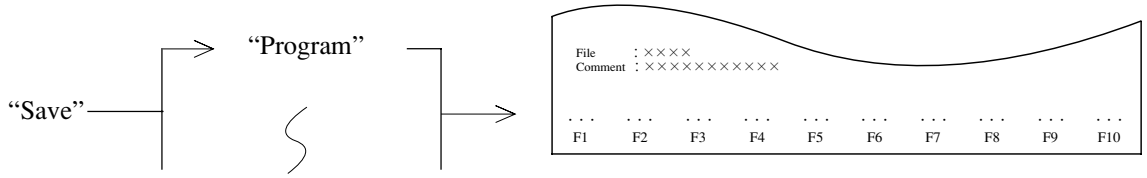
Key operation 1



Function indication of F1 to F10 will change.

Name	Contents
Drive	Change user diskette drive, directory
Program	Write program memory in a user diskette
Data MEM.	Write data memory in a user diskette
File MEM. (PARAM.)	Write file memory (parameter) in a user diskette
COM. MEM.	Write comment memory in a user diskette
Quit	Return to "Z-100LP2S FD transfer" menu

Key operation 2



- Input file name up to 8 characters with half size letters.
- Input comment up to 15 characters with half size letters.
- Input file name and comment, and press (enter key) respectively. The screen changes to the input contents.
- Press "Exec." key, the module commences writing program in a Z-100LP2S user diskette.

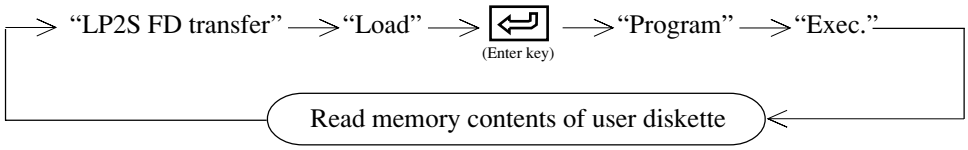
Note

- For "COM. MEM.," input 5 characters with half size letters for symbol, and 20 characters with half size letters for comment.

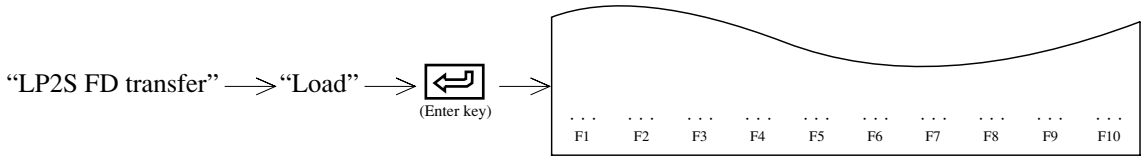
(3) Reading

This function reads the contents (programs, data memory, etc.) registered by Z-100LP2S into the memory of the personal computer.

Operation outline



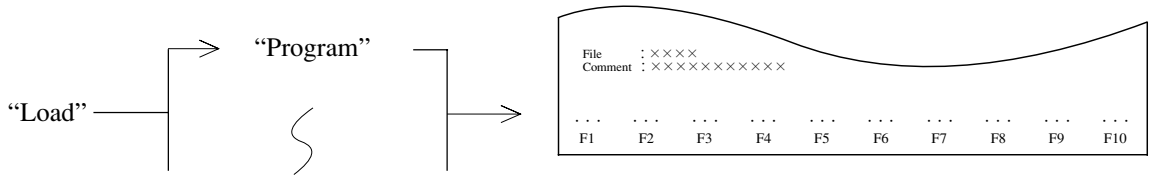
Key operation 1



Function indication of F1 to F10 will change.

Name	Contents
Drive	Change user diskette drive, directory
Program	Read program memory from user diskette
Data MEM.	Read data memory in a user diskette
File MEM. (PARAM.)	Read file memory (parameter) in a user diskette
COM. MEM.	Read comment memory in a user diskette
Quit	Return to "Z-100LP2S FD transfer" menu

Key operation 2



- Input file name up to 8 characters with half size letters.
- Display comment up to 15 characters with half size letters. Input of comment it not neccessary at any time.
- Input file name and comment, and press (enter key) respectively. The screen changes to the input contents.
- Press "Exec." key, the module commences reading program in a Z-100LP2S user diskette.

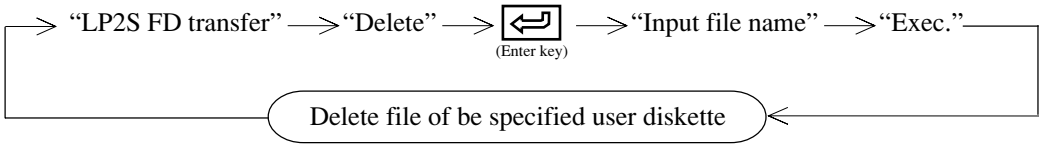
Note

- Be careful when using full size or half size of file names. The module does not read full (half) size letter file names with assignment of half (full) size letter names, and treats them as errors.
- There are cases where normal reading and writing is impossible depending on the type of drive used for reading out user disk. In such a case, try various countermeasures as shown below.
  ①Execute again with another personal computer.
  ②Have a user disk read by JW-30/32/40PG, and use the disk converted to the disk format of JW-30/32/40PG.

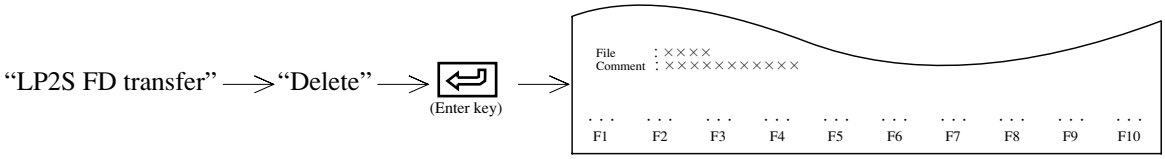
(4) Delete

Delete contents (program, data memory etc.) registered in the user diskette of Z-100LP2S.

Operation outline



Key operation 2



- Input file name up to 8 characters with half size letters.
- Display comment up to 15 characters with half size letters. Input of comment it not necessary at any time.
- Input file name and comment, and press ⏎ (enter key) respectively.
  The screen changes to the input contents.
- Press "Exec." key, the module commences deleting file in a Z-100LP2S user diskette.

Note

- Be careful when using full size or half size of file names. The module does not delete full (half) size letter file names with assignment of half (full) size letter names, and treats them as errors.

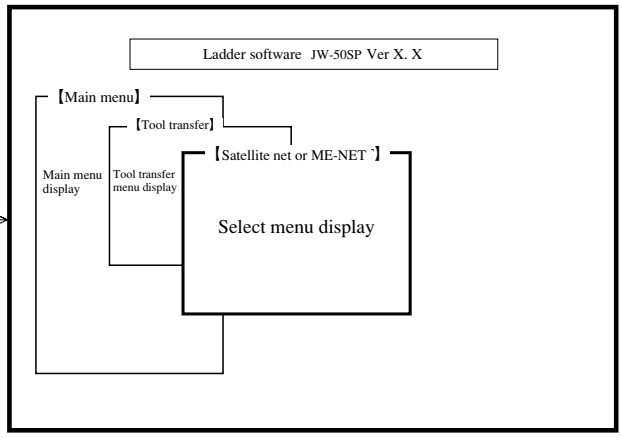
10-3 Satellite net & ME-NET parameter set, print

This function sets and prints parameters of network module: ZW-20CM, JW-20CM/22CM, ME-NET module: ZW-20CM2, JW-20MN/21MN, and remote I/O slave module: ZW/JW-20RS.

Key operation

"Tool transfer" → "Satellite net" or "ME-NET" → ⏎ (Enter key) →

Screen display



Function

• When "Satellite net" is selected

Name	Function	Reference page
R-I/O Slave stn. set	Set parameters of remote I/O slave module: ZW/JW-20RS	10-11
R-I/O Master stn. set	Set parameters when network module: ZW/JW-20CM is used as remote I/O master station.	10-13
DL Slave stn. set	Set parameters when network module: ZW/JW-20CM, JW-22CM is used as data link slave station.	10-21
DL Master stn. set	Set parameters when network module: ZW/JW-20CM, JW-22CM is used as data link master station.	10-23
Error check	Display error contents	10-26
Other parameters set	Set address and then set parameters	10-43
Parameter print	Print parameter set contents	10-27

• When "ME-NET" is selected

Name	Function	Reference page
ME-NET Slave stn. set	Set parameters when ME-NET module : ZW-20CM2, JW-20MN/21MN is used as data link slave station.	10-21
ME-NET Master stn. set	Set parameters when ME-NET module : ZW-20CM2, JW-20MN/21MN is used as data link master station.	10-23
Error check	Display error contents	10-26
Other parameters set	Set address and then set parameters	10-43
Parameter print	Print parameter set contents	10-27

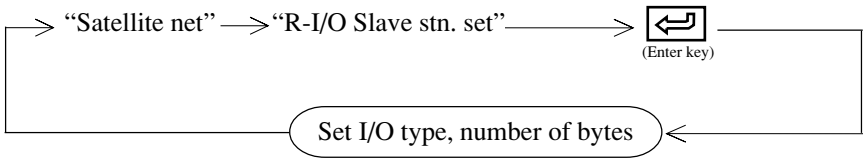
Notes

- Connect network module, ME-NET module, or remote I/O slave module with the module while referring to Chapter 3: System configuration.
- To select any item on the menu, use numerical key or cursor move keys.
- Press ESC key to return to the previous screen.

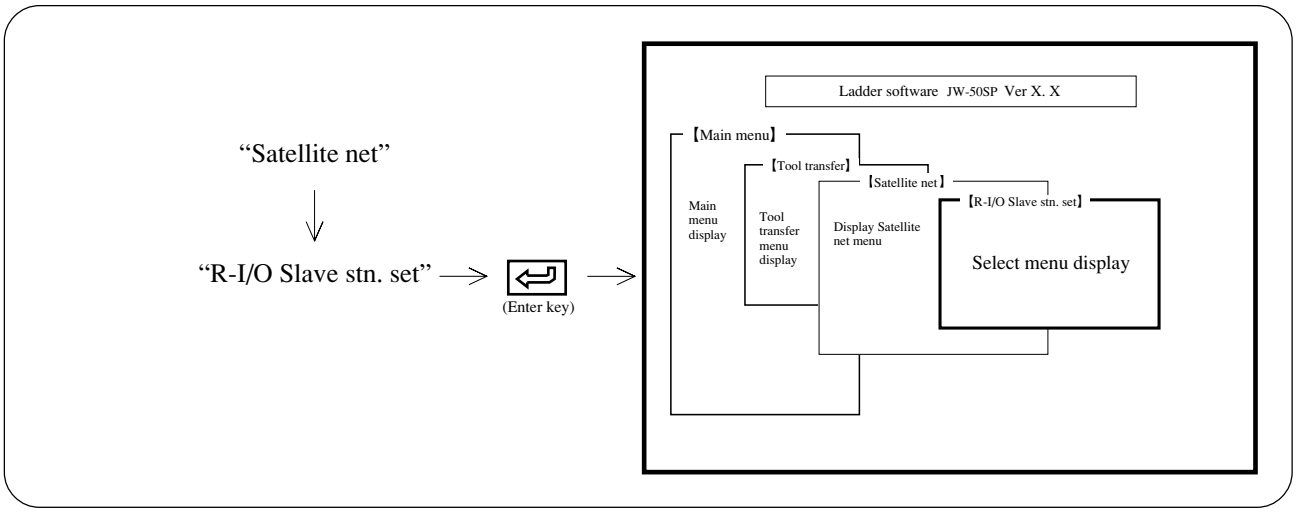
(1) Set remote I/O slave station

This function sets parameter of remote I/O slave module: ZW/JW-20RS.

Operation outline



Key operation



Operation example 1

- Set I/O type.
- Press numerical keys or cursor move keys (↑ ↓), and assign "JW" or "ZW." Then, press ⏎ (enter key).

Operation example 2

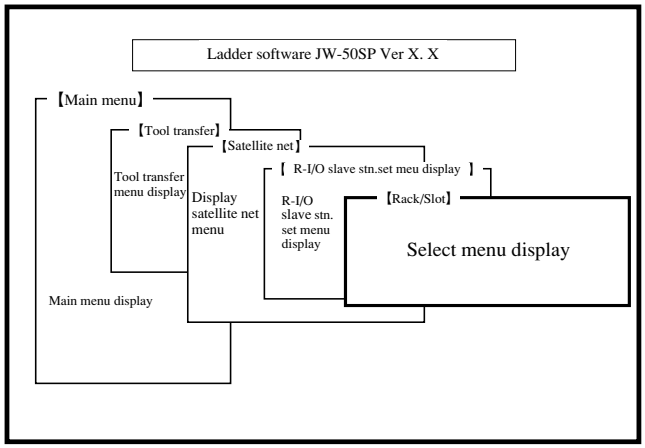
① In case of ZW-I/O

Set between "Yes" or "No" of checking the number of I/O bytes. → When "Yes" is assigned → Input number of bytes (001 to 128) with decimal with numerical keys →

→ ⏎ (enter key) → "Yes" ⏎ (enter key) → Setting is completed

② In case of JW-I/O

"Select JW-I/O" → [Enter key] →



• Maximum rack number

Input rack number from 0 to 7 with numerical keys.

• Maximum slot number

Input slot number from 0 to F with alphabetical and numerical keys.

• Remote I/O top address

Input top address with numerical keys

After input of above values, press [Enter key] (enter key). The setting is completed.

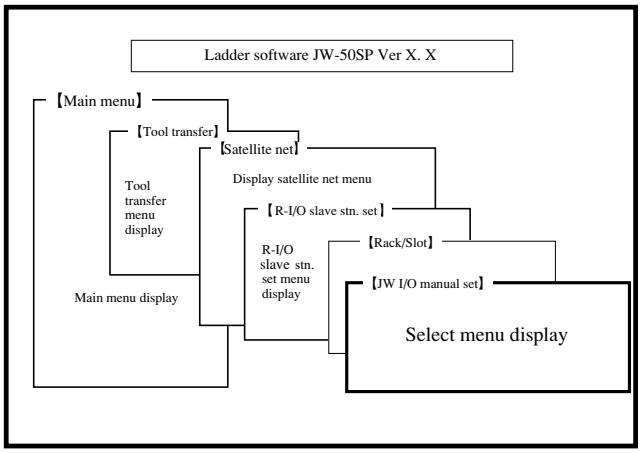
10

• Set JW-I/O

Select "Yes/No" for auto register at setting of power input.

Shown as above in case of select "No"

At setting of power input, select "No" → [Enter key] →



• Manual registration of dummy points only

"Dummy pt. manual set" → R(enter key) → Input dummy points (0 to 30 bytes) for each rack and slot by 2 bytes unit with numerical keys →

→ R(enter key) → Setting is completed

• Manual registration of dummy points and I/O type

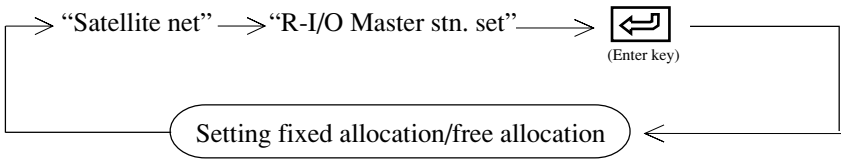
Dummy & I/O man. set → R(enter key) → Select type of dummy I/O of each rack and slot using 1 to 0 keys

→ Input dummy points → R(enter key) → Setting is completed

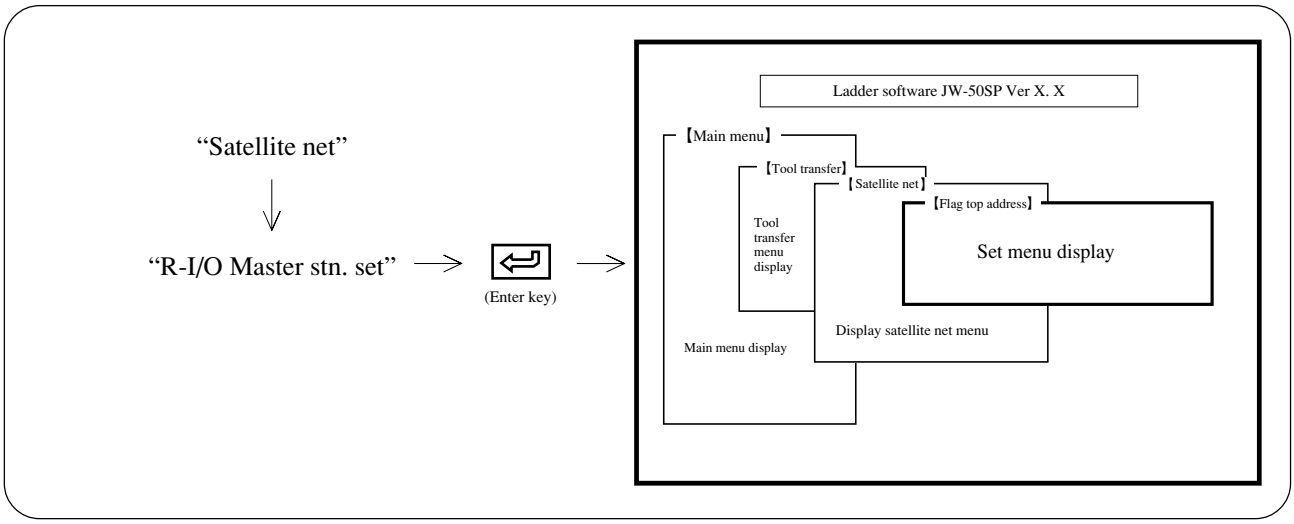
(2) Set remote I/O master station

This function sets parameter when the network module: ZW/JW-20CM is used as remote I/O master station.

Operation outline



Key operation 1



Operation example

① **Error flag out**

- Select whether or not output error flag
- Select between "Yes" or "No" using numerical keys or the cursor move keys (← →).

② **File number**

- Select file number (0 to 7)

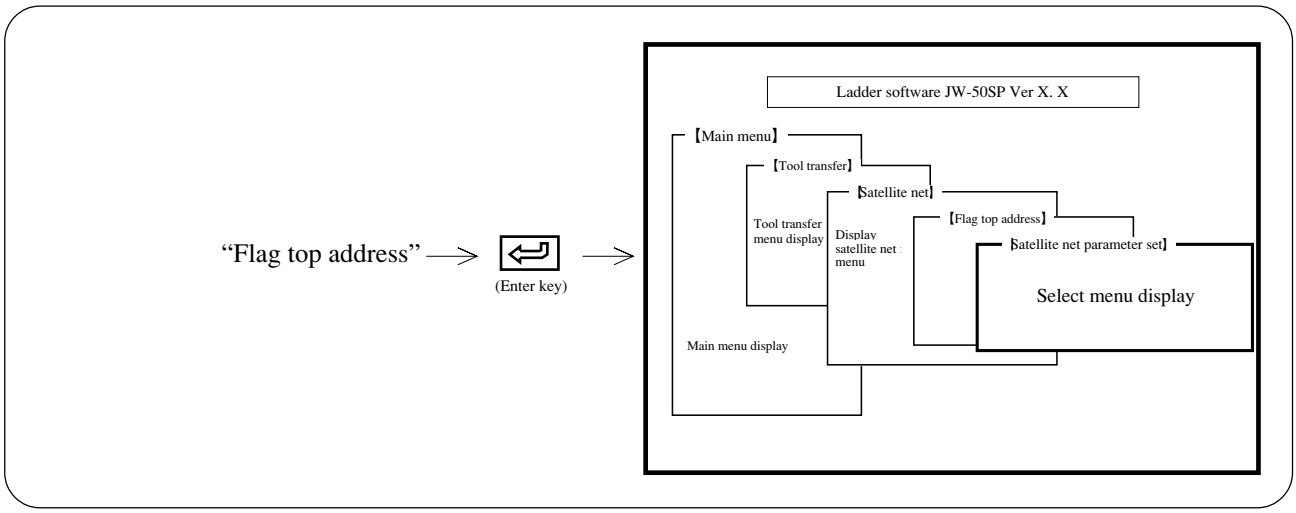
Move the cursor to file No. column with numerical keys or cursor move keys → Input between 0 to 7 with numerical keys

③ **Flag top address**

- Set flag top address with octal.

Move the cursor to flag top address column with numerical keys or cursor move keys → Input (octal) with numerical keys

Key operation 2



Function

① Remote I/O fixed allocation

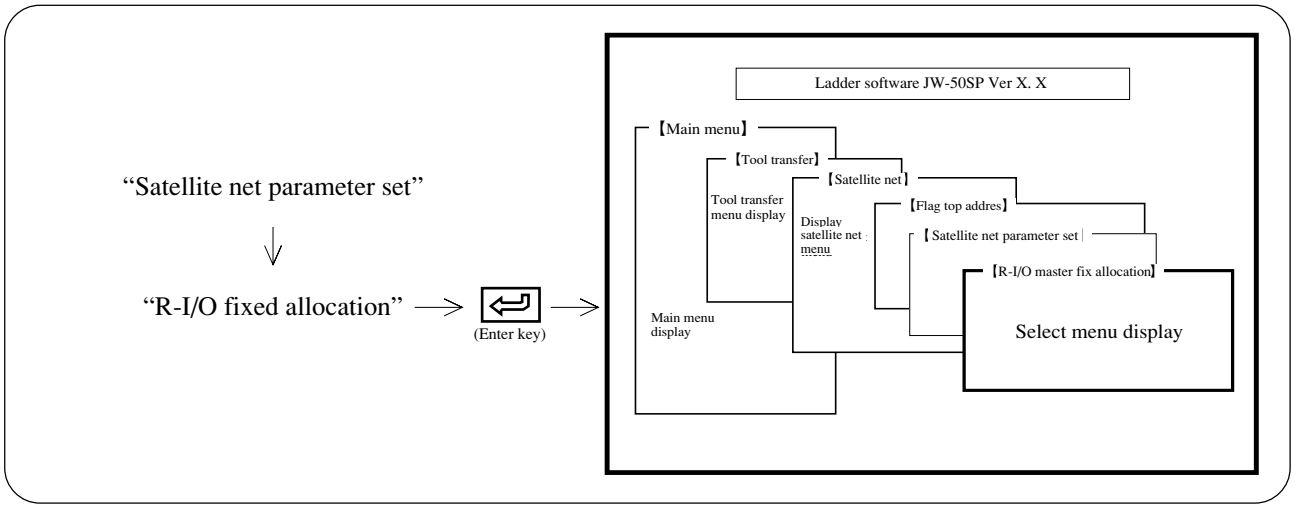
- This function allocates number of I/O points for remote I/O slave station; either of 64 points or 128 points per slave station.
- Number of connectable slave station varies with this allocated number of I/O points.

Number of I/O points per slave station	Number of connectable slave station	Total number of I/O points
64	63	4032 points (504 bytes)
128	32	4096 points (512 bytes)

② Remote I/O free allocation

- This function allocates any number of I/O points for remote I/O slave station between 8 to 1024 (by 8 points pitch) per slave station.
- Maximum total number of I/O points is 4096 and maximum number of connectable slave stations is 63.

Key operation 3-1 (Fixed allocation of remote I/O master station)



Operation example

① Execution synchronous

- Select whether to synchronous with PC processing.
- Select using numerical keys or the cursor move keys (← →).

② Operation mode at error

- Select operation mode at error occurrence.
- In case of synchronous operation with PC processing: Select from any of "Mode 0: PC Stop," "Mode 1: remote I/O Stop," "Mode 2: Keep com. Among Stns." by pressing numerical keys.
- In case of asynchronous operation with PC processing: Select from any of "Mode 0: PC Stop," or "Mode 2: Keep com. Among Stns." by pressing numerical keys.

Set mode	Mode	Operation condition of master station PC
Mode 0: PC Stop	Mode 0	• When even one station has an error such as parameter missetting or slave station error, the module stops remote I/O operation and PC operation.
Mode 1: Remote I/O Stop	Mode 1	• When even one station has an error, the module stops the remote I/O operation. However, it does not stop PC operation.
Mode 2: Keep com. Among Stns.	Mode 2	• When any of the slave station has an error, the remaining normal slave station executes communication, and the module does not stop PC operation.

③ Number of slave station

- Set amount of connected slave station with decimal.

Move the cursor to slave station column with numerical keys or cursor move keys → Input between 01 to 63 with numerical keys

④ Slave 01 top address

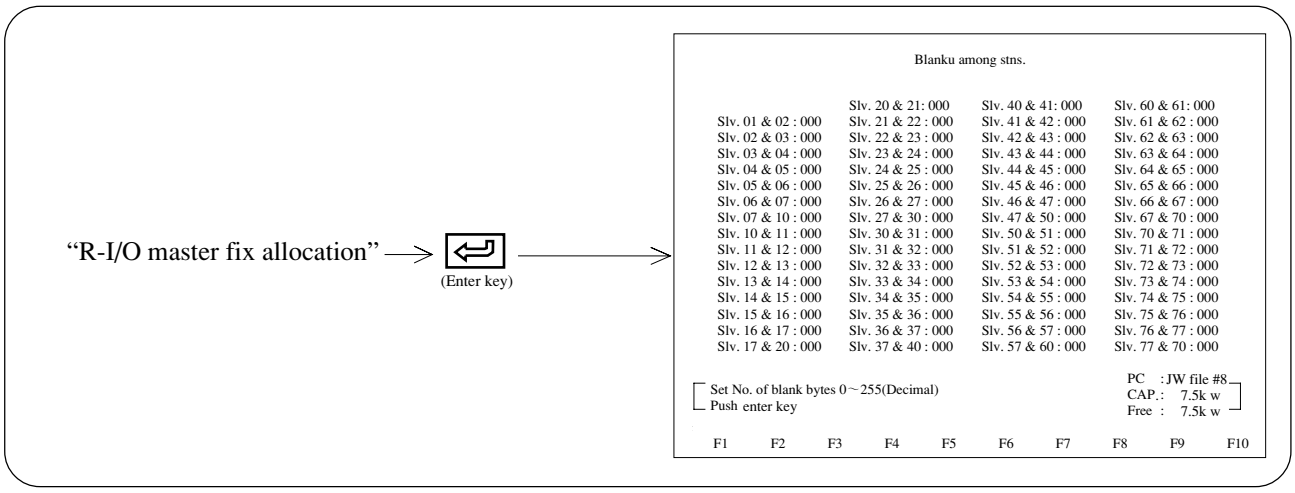
- Set remote I/O top address.

Move the cursor to remote I/O top address column with numerical keys or cursor move keys → Input (octal) with numerical keys

⑤ Number of slave station I/O

- Set amount of connected slave station and number of bytes per station.
- Select between "64 pt" or "128 pt" using numerical keys or the cursor move keys (← →).

Key operation 3-2 (Setting of blank among stations at remote I/O master station fixed allocation)



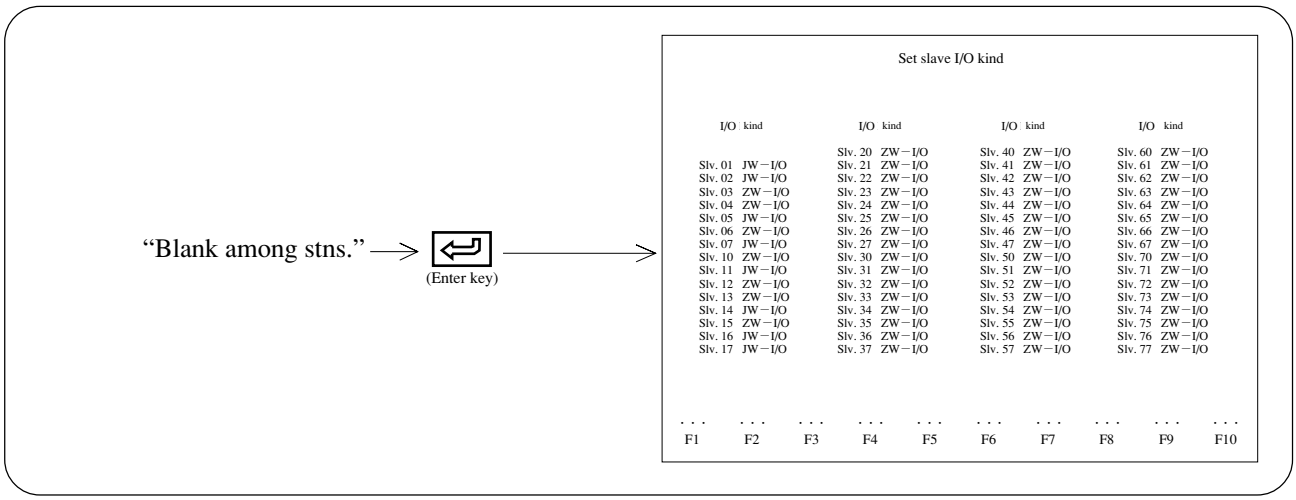
Operation example

• Set number of blank bytes for only blank required position among stations with decimal (000 to 225).

Move the cursor to blank required position between stations. → Input number of blank bytes using numerical keys

10

Key operation 3-3 (Setting of each slave station I/O type at remote I/O master station fixed allocation)

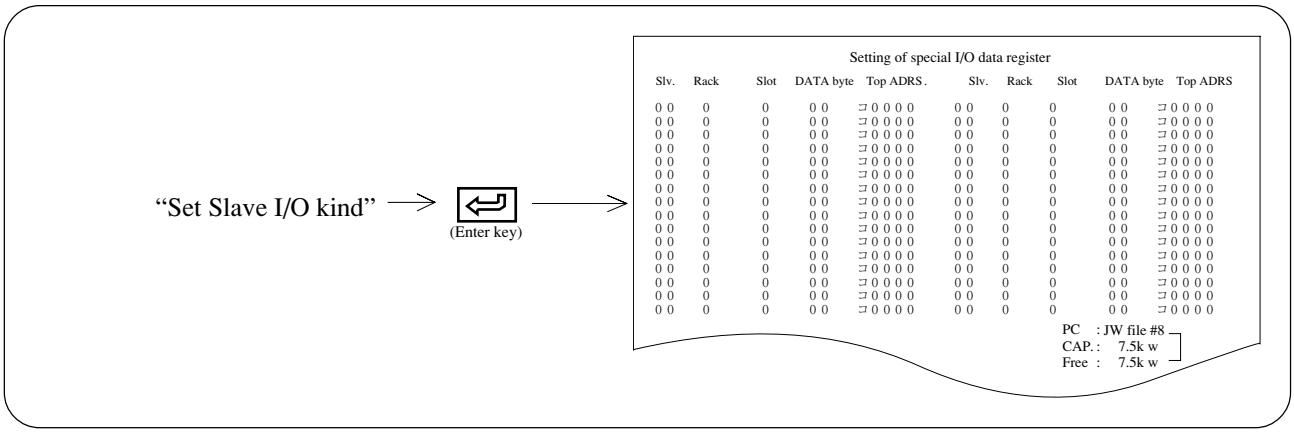


Operation example

• Set I/O type of each slave station

• In case I/O type is ZW-I/O, press "ZW-I/O" key. In case I/O type is JW-I/O, press "JW-I/O" key.

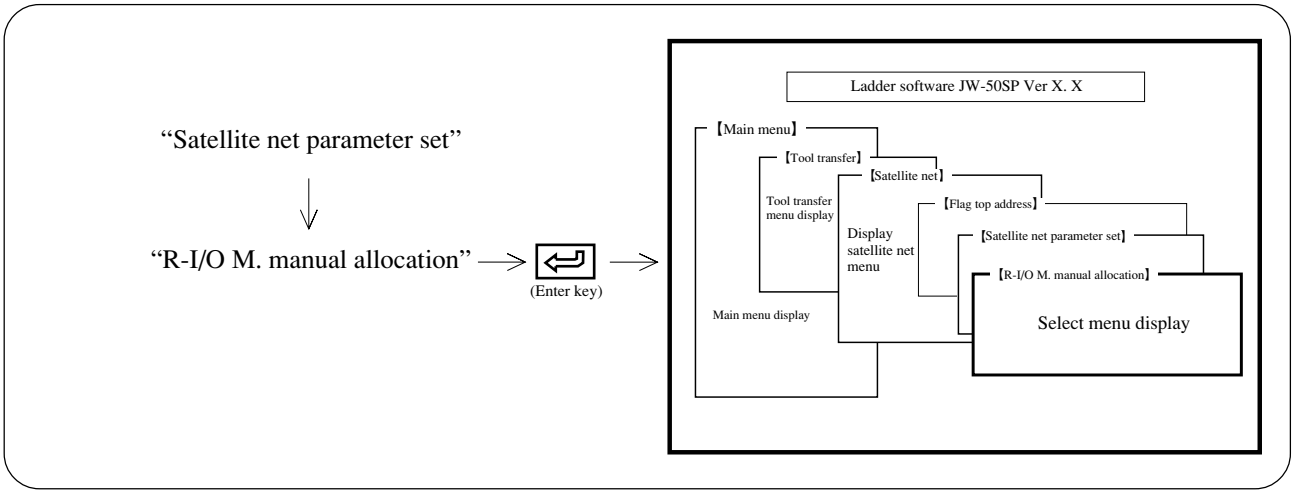
Key operation 3-4 **(Setting of special I/O data register at remote I/O master station fixed allocation)**



Operation example

- Set register area of special I/O which is installed on slave station.
- Set each slave station number, rack number, slot number, number of data bytes, top address number (set code with "Code" key), and press (enter key).

Key operation 4-1 **(Remote I/O master station free allocation)**



Operation example

① Execution synchronous

- Select whether to synchronous with PC processing.
- Select between "Sync" or "Async." using numerical keys or the cursor move keys (← →).

② Operation mode at error

- Select operation mode at error occurrence.
- In case of synchronous operation with PC processing: Select from any of "Mode 0: PC Stop," "Mode 1: Remote I/O Stop," "Mode 2: Keep com. Among Stns." by pressing numerical keys.
- In case of asynchronous operation with PC processing: Select from any of "Mode 0: PC Stop," or "Mode 2: Keep com. Among Stns." by pressing numerical keys.

Set mode	Mode	Operation condition of master station PC
Mode 0: PC Stop	Mode 0	• When even one station has an error such as parameter missetting or slave station error, the module stops remote I/O operation and PC operation.
Mode 1: Remote I/O Stop	Mode 1	• When even one station has an error, the module stops the remote I/O operation. However, it does not stop PC operation.
Mode 2: Keep com. Among Stns.	Mode 2	• When any of the slave station has an error, the remaining normal slave station executes communication, and the module does not stop PC operation.

③ Number of slave station

- Set amount of connected slave station with decimal.

Move the cursor to slave stations column with numerical keys or cursor move keys → Input between 01 to 63 with numerical keys

Key operation 4-2 **(Setting of each slave station top address etc. of remote I/O master station manual allocation)**

Set each items of
"R-I/O M. manual allocation" → (Enter key) →

Set each slave address

	I/O address	byte(s)			I/O address	byte(s)	
				Slv. 20 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 01 :	ㅋ0000～ㅋ0000	000		Slv. 21 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 02 :	ㅋ0000～ㅋ0000	000	CHN.	Slv. 22 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 03 :	ㅋ0000～ㅋ0000	000	CHN.	Slv. 23 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 04 :	ㅋ0000～ㅋ0000	000	CHN.	Slv. 24 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 05 :	ㅋ0000～ㅋ0000	000	CHN.	Slv. 25 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 06 :	ㅋ0000～ㅋ0000	000	CHN.	Slv. 26 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 07 :	ㅋ0000～ㅋ0000	000	CHN.	Slv. 27 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 10 :	ㅋ0000～ㅋ0000	000	CHN.	Slv. 30 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 11 :	ㅋ0000～ㅋ0000	000	CHN.	Slv. 31 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 12 :	ㅋ0000～ㅋ0000	000	CHN.	Slv. 32 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 13 :	ㅋ0000～ㅋ0000	000	CHN.	Slv. 33 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 14 :	ㅋ0000～ㅋ0000	000	CHN.	Slv. 34 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 15 :	ㅋ0000～ㅋ0000	000	CHN.	Slv. 35 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 16 :	ㅋ0000～ㅋ0000	000	CHN.	Slv. 36 :	ㅋ0000～ㅋ0000	000	CHN.
Slv. 17 :	ㅋ0000～ㅋ0000	000	CHN.	Slv. 37 :	ㅋ0000～ㅋ0000	000	CHN.

Set SV. top address & I/O bytes
Push enter key

PC : JW file #8
CAP. : 7.5k w
Free : 7.5k w

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10

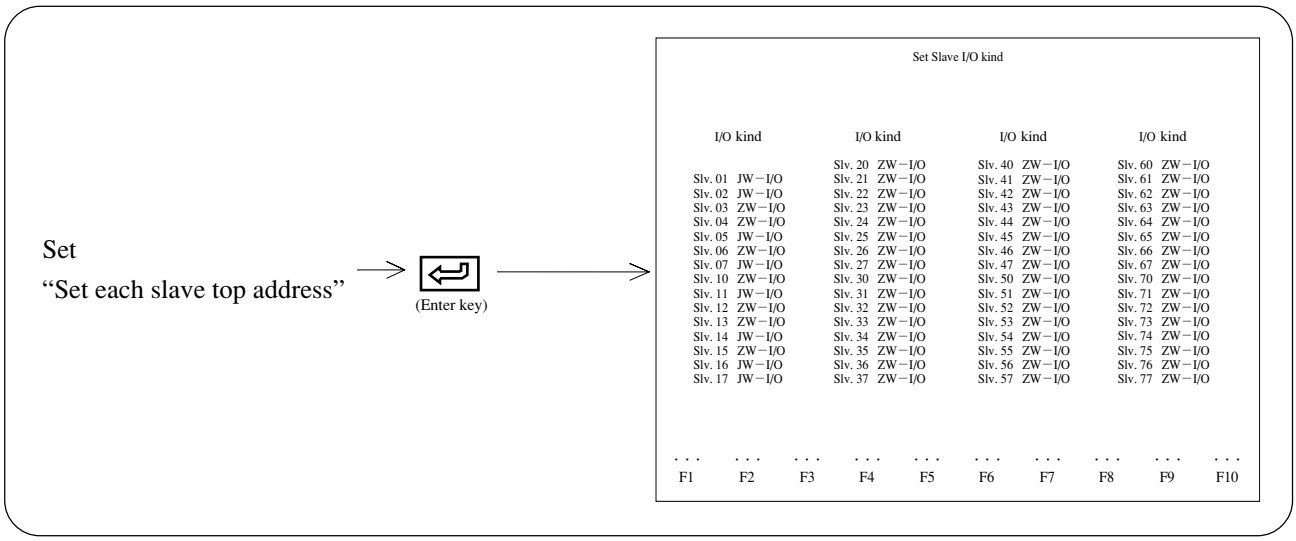
• Change display contents with Page UP (next screen) or Page DOWN (previous screen) key.

Operation example

• Set each I/O top address, end address, number of I/O bytes, chain/each of slave station 02 to 77OCT.
• When top address and end address are set, set value of number of I/O bytes appears automatically. When top address and number of I/O bytes are set, set value of end address appears automatically.
• Set top address and end address with octal, and number of I/O bytes (1 to 128 bytes) with decimal.
• Pressing any "Chain.," "Each" key can change between chain/each of I/O address setting.

Move the cursor to setting required slave station with cursor move keys. → Input top address using munerical keys → The cursor moves → Input end address or number of I/O bytes → Set "Chain" or "Each"

Key operation 4-3 (Set slave I/O kind at remote I/O master station manual allocation)

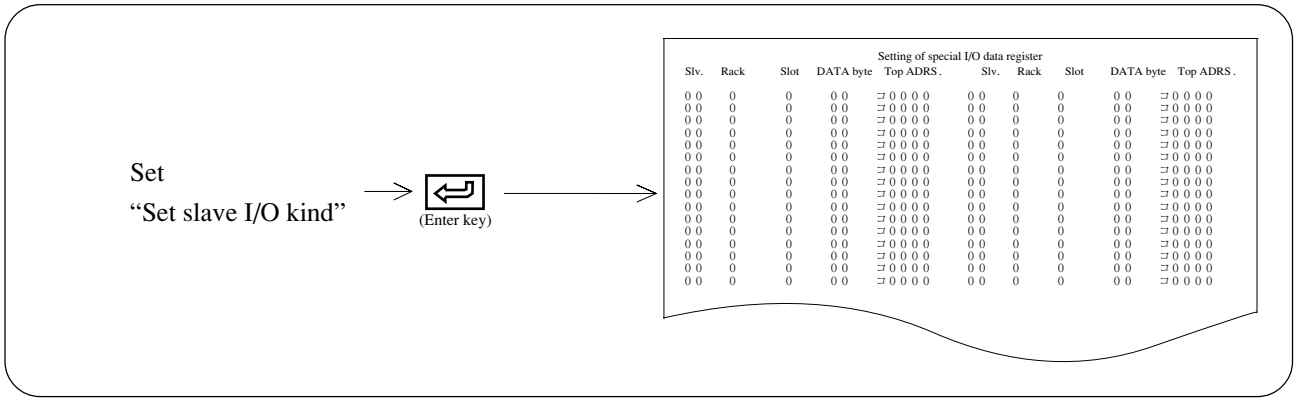


Operation example

- Set I/O type of each slave station
- In case I/O type is ZW-I/O, press "ZW-I/O" key. In case I/O type is JW-I/O, press "JW-I/O" key.

10

Key operation 4-4 (Setting of special I/O data register at remote I/O master station manual allocation)



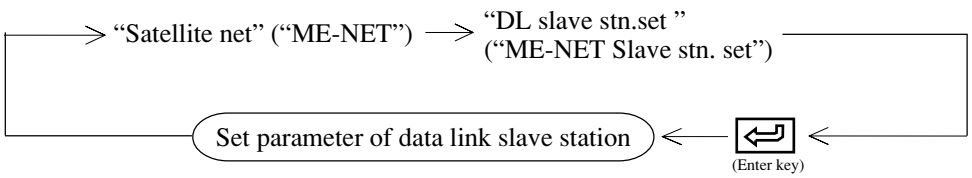
Operation example

- Set register area of special I/O which is installed on slave station.
- Set each slave station number, rack number, slot number, number of data bytes, top address number, and press (enter key).

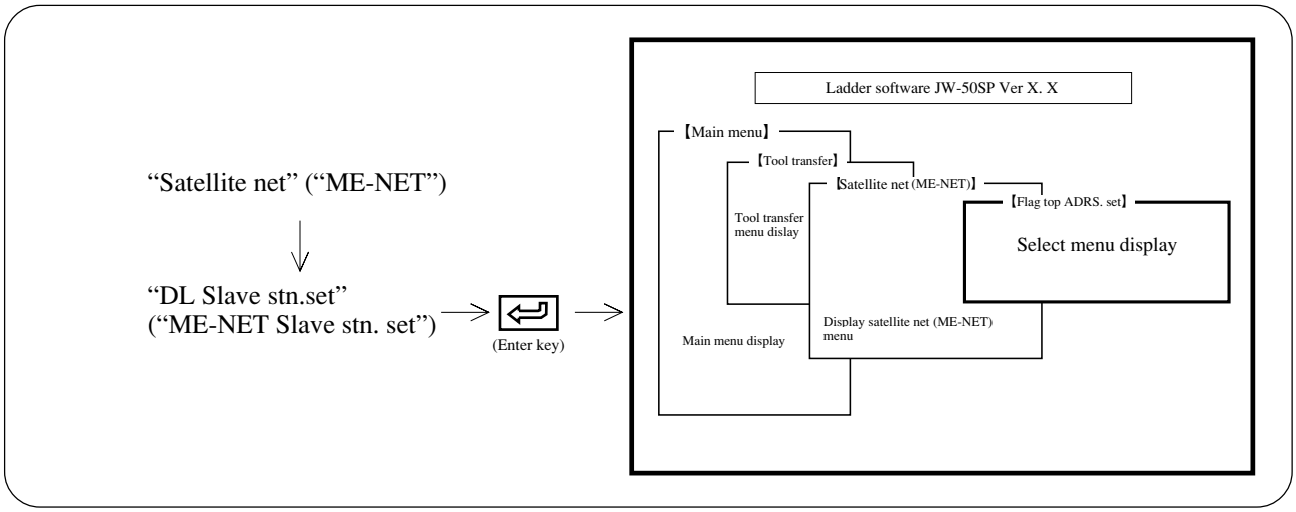
(3) Set data link slave station

This function sets parameter when network module: ZW-20CM, JW-20CM/22CM, or ME-NET module: ZW-20CM2, JW-20MN/21MN is used as data link slave station.

Operation outline



Key operation 1



Operation example

① Error flag out

- Select whether or not output error flag.
- Select between "Yes" or "No" using numerical keys or the cursor move keys (← →).

② File number

- Select file number (0 to 7)

Move the cursor to file No. column with numerical keys or cursor move keys	→	Input between 0 to 7 with numerical keys

③ Flag top address

• Set flag top address with octal.

Move the cursor to flag top address column with numerical keys or cursor move keys	→	Input (octal) with numerical keys

④ Addition of station number [JW-20CM/22CM (with 30H sign), JW-20MN/21MN (with 30H sign)]

• Select whether or not the station number is added in the event of an error.

• Select between "Yes" or "No" using the cursor move keys (← →).

⑤ Setting of SEND/RECEIVE instruction [ZW-20CM, JW-20CM, JW-22CM (with 30H sign)]

• Select whether to use SEND or RECEIVE.

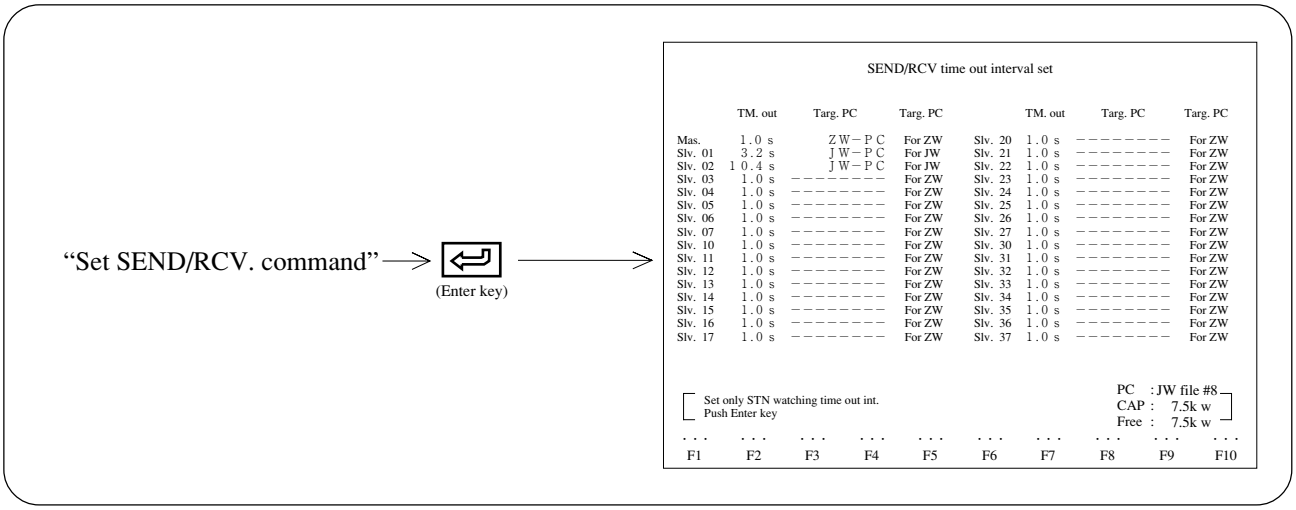
• Select between "Yes" or "No" using numerical keys or the cursor move keys (← →).

Pressing the enter key after setting the above items ① to ⑤ displays the "Save MEM.FUN.set" screen. If JW-20CM/22CM (with 30H sign) or JW-20MN/21MN (with 30H sign) is used for the memory save function, also set the relay link reception, the number of bytes of register link reception, the file number and the top address.

• Set these items using the numerical keys and cursor move keys.

10

Key operation 2



• Set time-out time between 0.1 to 25.5 second by 0.1 second pitch.

• Select target station PC with "ZW-PC" or "JW-PC" key.

• For target station CM, select target station 20CM applied condition with "For ZW" or "For JW" key.

• When target station CM is for ZW, the module displays "---"

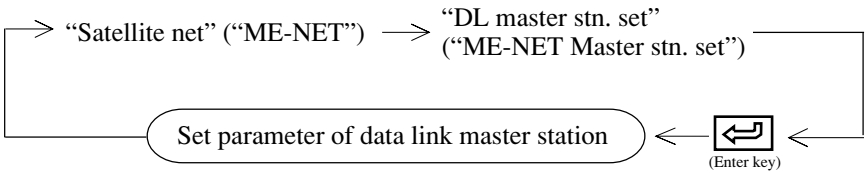
Pressing the ↵ (enter key) after setting the above items displays the "Select every channel system" screen.

• Select "INST.SYS." or "Data MEM. initiation SYS." for each channel using the cursor move keys. If you select "Data MEM. initiation SYS.", also set the link channel using the numerical keys. Press the ↵ (enter key) to complete the setting.

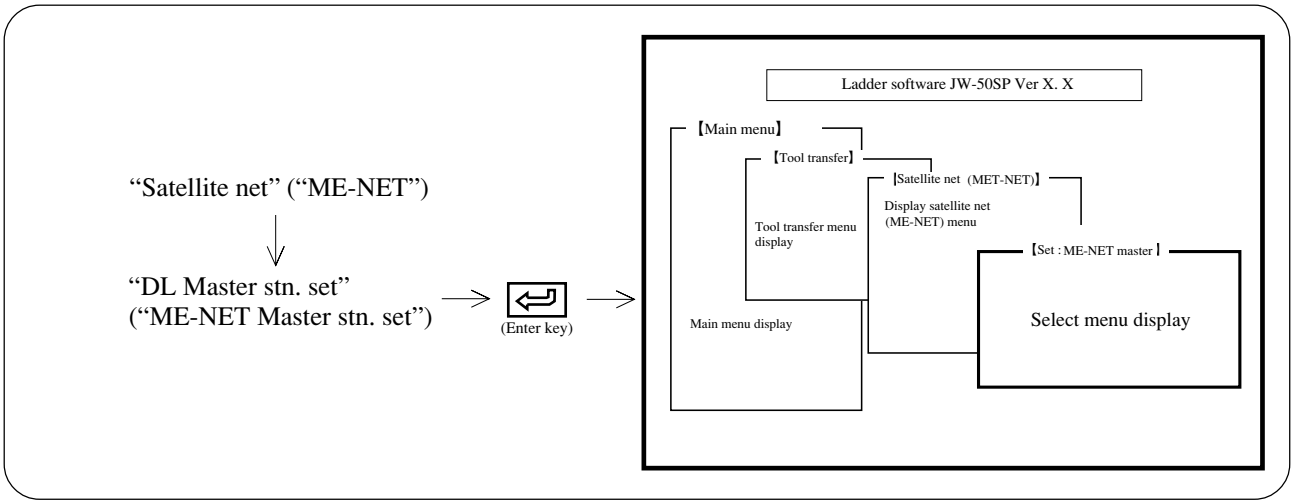
(4) Set data link master station

This function sets parameter when network module: ZW-20CM, JW-20CM/22CM, or ME-NET module: ZW-20CM2, JW-20MN/21MN is used as data link master station.

Operation outline



Key operation 1



Operation example

① Number of connected stations

- Set number of connected stations with decimal.

Move the cursor to number of connected stations column with numerical keys or cursor move keys → Input between 2 to 64 with numerical keys

② Error flag out

- Select whether or not output error flag
- Select between "Yes" or "No" using numerical keys or the cursor move keys (← →).

③ File number

- Select file number (0 to 7)

Move the cursor to file No. column with numerical keys or cursor move keys → Input between 0 to 7 with numerical keys

10

④ Flag top address

• Set flag top address with octal.

Move the cursor to flag top address column with numerical keys or cursor move keys → Input (octal) with numerical keys

⑤ Addition of station number [JW-20CM/22CM (with 30H sign), JW-20MN/21MN (with 30H sign)]

• Select whether or not the station number is added in the event of an error.

• Select between "Yes" or "No" using the cursor move keys (← →).

⑥ Setting of SEND/RECEIVE instruction [ZW-20CM, JW-20CM, JW-22CM (with 30H sign)]

• Select whether to use SEND or RECEIVE.

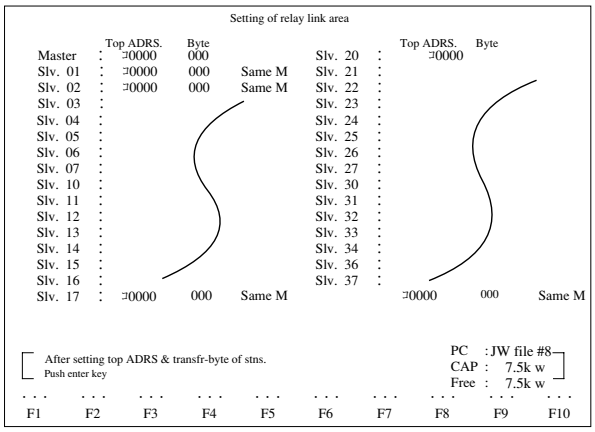
• Select between "Yes" or "No" using numerical keys or the cursor move keys (← →).

After setting above ① to ⑥ , press ↵ (enter key). The screen "Setting of relay link area" appears.

Key operation 2 **(Setting of relay link area)**

(When connected with satellite net)

"DL Master stn. set"
("ME-NET Master stn. set") → ↵ (Enter key) →



• Change display to "slave station 40 to 77" with Page UP (next screen) or Page DOWN (previous screen) key.

Operation example

① Set top address and number of bytes of master station relay link area

• Set top address with octal, and number of bytes with decimal.
In case of satellite net, set top address with incremental address (⊐×××etc.) after setting code with "Code" key. In case of ME-NET, set it with absolute address (××××××).

Move the cursor to master station setting column → Input with numerical keys

② Set top address and number of bytes of slave station relay link area

• Set top address with octal, and number of bytes with decimal.

• Set contents of top address is the same as item ① above.

• To match each slave station top address with one of master station, set "Same as M" with "Same M" key.
To set top address for each slave station, set "Slave" with "Slave" key.

Move the cursor to slave station setting column → Input with numerical keys → Set any of "Same as M"/"Slave"

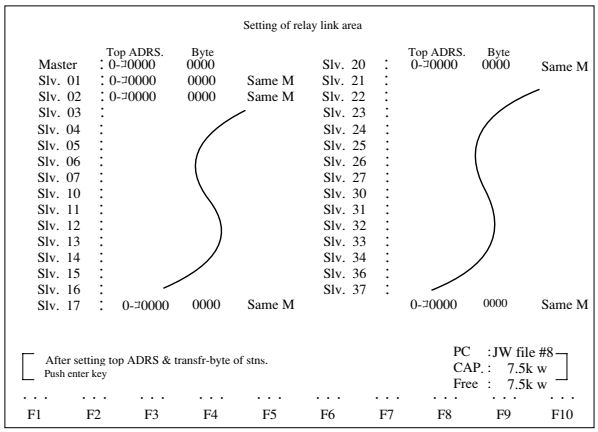
• Display “Sending relay link area list”/“Relay link area list at each station” screen of each station with “SND. list”/“DL. list” keys. Setting on this screen is unavailable.

After setting above ① and ②, press [↵] (enter key). The screen “Setting of relay link area” appears.

Key operation 3 **(Setting of register link area)**

(When connected with satellite net)

“Setting of relay link area” → [↵] (Enter key) →



• Change display to “slave station 40 to 77” with [Page UP] (next screen) or [Page DOWN] (previous screen) key.

Operation example

① Set top address and number of bytes of master station register link area

• Set top address with octal, and number of bytes with decimal.
Set contents of top address is the same as relay link area.

Move the cursor to master station setting column → Input with numerical keys

② Set top address and number of bytes of slave station register link area

• Set top address with octal, and number of bytes with decimal.
Set contents of top address is the same as setting of relay link area.

• To match each slave station top address with one of master station, set “Same as M” with “Same M” key.
To set top address for each slave station, set “Slave” with “Slave” key.

Move the cursor to slave station setting column → Input with numerical keys → Set any of “Same as M”/“Slave”

• Display “Sending relay link area list”/“Relay link area list at each station” screen of each station with “SND. list”/“DL. list” keys. Setting on this screen is unavailable.

After setting above ① and ②, press [↵] (enter key). Setting of data link: ME-NET master station parameter is completed.

Key operation 4

If you have selected “Yes” for “SEND/RECEIVE instruction setting” at key operation 1, pressing [↵] (enter key) after completing key operation 3 displays the “SEND/RCV time out interval set” screen. (See page 10-22 for setting items.)

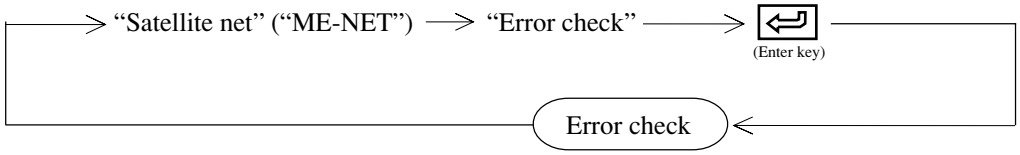
If you press [↵] (enter key) after completing the setting on this screen, “Select every channel system” will appear. (See page 10-22 for setting items.)

Press [↵] (enter key) to complete the setting.

(5) Error check

This function checks error information.

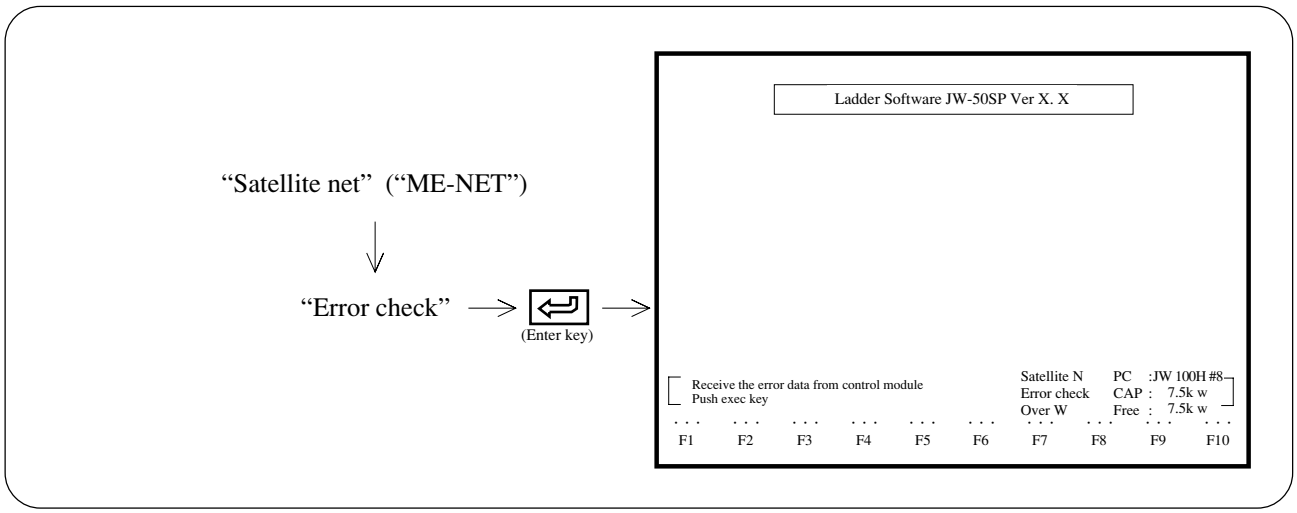
Operation outline



Key operation 1

• Connect the module with network module, ME-NET module, or remote I/O slave module.

Key operation 2



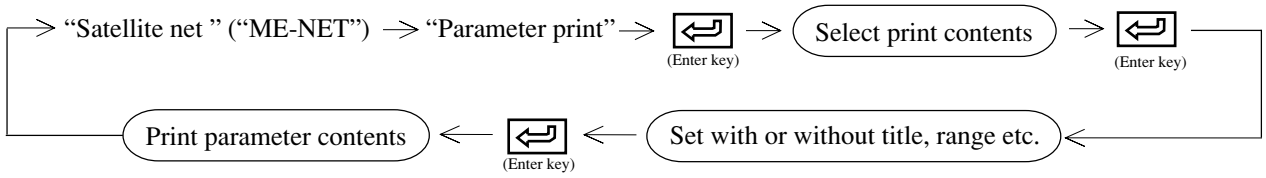
Operation example

Press "Exec." and (enter key) will display error information.

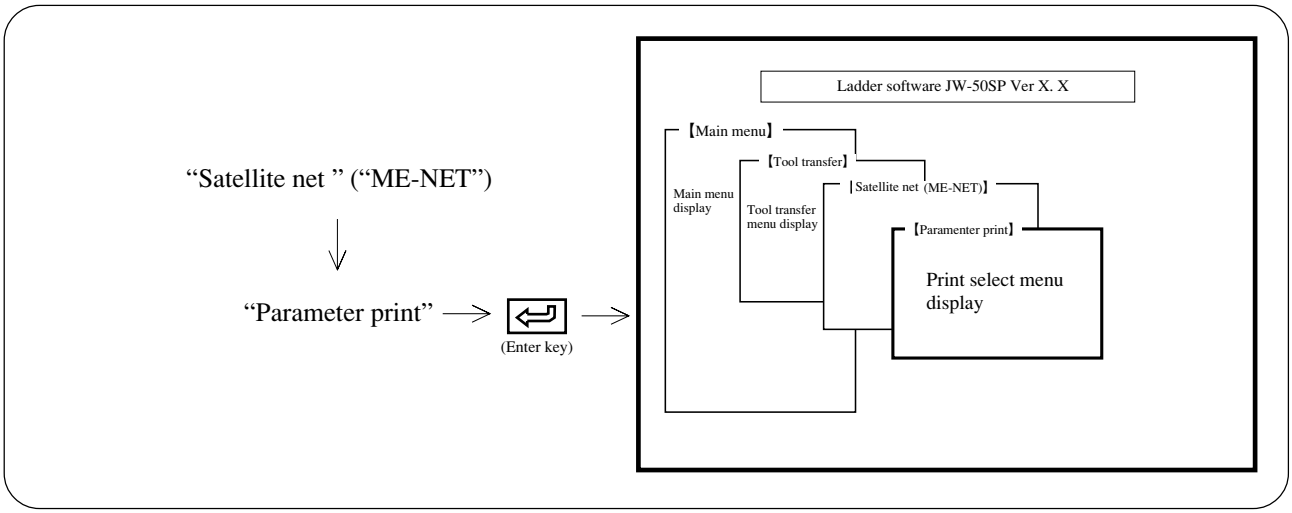
(6) Print parameter

This function prints parameter contents of network module: ZW-20CM, JW-20CM/22CM, ME-NET module: ZW-20CM2, JW-20MN/21MN, or remote I/O slave module: ZW/JW-20RS.

Operation outline



Key operation

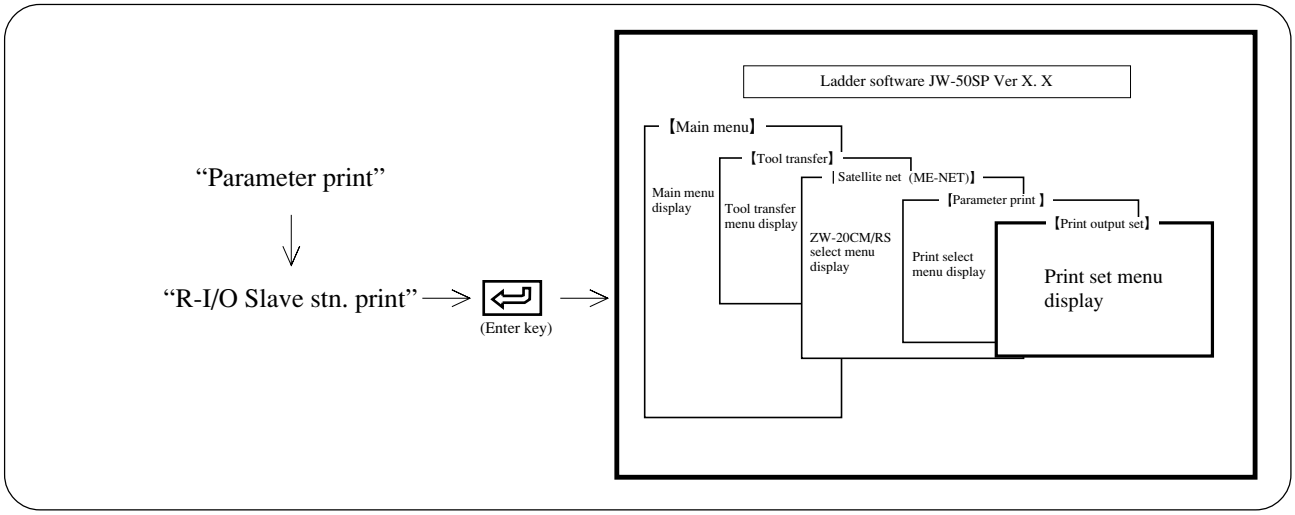


Notes

- When printing contents with title, executes "setting of title" while referring to page 9-20.
- Parameter can be printed with printer model PC-PR201F/H/V/B/J/X/G series (made by NEC) or LBP-B404/B406E (made by Canon) or LASER JET2 (made by HP).

① Print remote I/O slave station parameter (in case of “Satellite net”)

Key operation



Operation example

(1) Title

- When “With” is assigned, the printer prints contents which are input by “setting of title” at lower right of each page.
- Select between “With” or “None” using numerical key or cursor move keys (←) (→).

(2) Mode

- When “Draft” is assigned, printing speed becomes faster. However, the vertical lines of title may deviate 1 to 2 dots for left/right/up/down.
- Select between “Draft” or “Normal” using numerical key or cursor move keys (←) (→).

When printing all lists

- Press ⏎ (enter key) and “Yes” key at the “Exec. menu.” The module prints all of parameters of remote I/O slave module.
- After finished printing, the display returns to “Parameter print” menu.

When assigning printing area

(1) Move the cursor to “Start No.” column with ↑ ↓ keys, and input start address with numerical key.
(2) Move the cursor to “End No.” column with ↓ key, and input end address with numerical key.
(3) Press ⏎ (enter key) and press “Yes” at the “Exec. menu.” The module prints the program from start address to end address.
(4) After finished printing, the display returns to “Parameter print” menu.

When printer stops (end) at intermediate point in printing

(1) Press “Stop” key, the printer stops printing after completing currently displayed address printing.

(2) When “Quit” key is pressed while the printer has stopped printing, the module returns to “Parameter print” menu.

(3) When “Reset” key is pressed while the printer has stopped printing, the module starts “Parameter print” again.

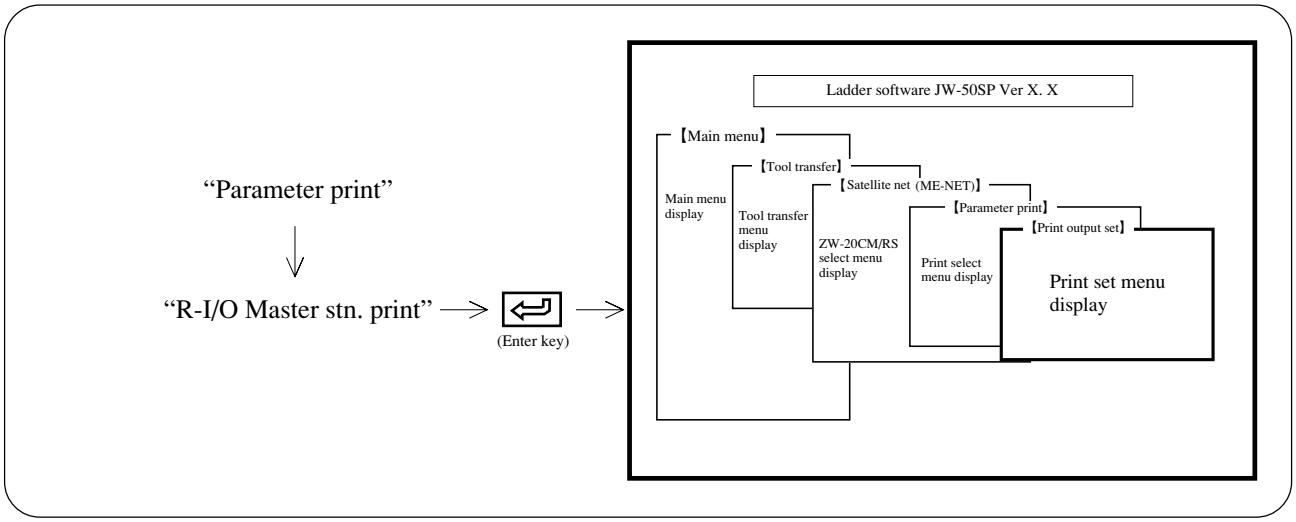
An example of printing

<The table of remote I/O slave module parameter>

Address	76543210	HEX	DCML	OCT	Contents
003750	01000101	45	069	105	Check no. of I/O bytes.
003751	00000000	00	000	000	
003752	01111011	7B	123	173	No. of using byte for I/O module. (123 bytes)
003753	00000000	00	000	000	
003754	00000000	00	000	000	
003755	00000000	00	000	000	
003756	00000000	00	000	000	
003757	00000000	00	000	000	
003760	00000000	00	000	000	
003761	00000000	00	000	000	
003762	00000000	00	000	000	
003763	00000000	00	000	000	
003764	00000000	00	000	000	
003765	00000000	00	000	000	
003766	00000000	00	000	000	
003767	00000000	00	000	000	
003770	00000000	00	000	000	
003771	00000000	00	000	000	
003772	00000000	00	000	000	
003773	00000000	00	000	000	
003774	00000000	00	000	000	
003775	00000000	00	000	000	
003776	00000000	00	000	000	Parameter BCC code
003777	00000000	00	000	000	Halt out the operation

② Print remote I/O master station parameter (in case of "Satellite net")

Key operation



Operation example

(1) Title

- When "With" is assigned, the printer prints contents which are input by "setting of title" at lower right of each page.
- Select between "With" or "None" using numerical key or cursor move keys (← →).

(2) Mode

- When "Draft" is assigned, printing speed becomes faster. However, the vertical lines of title may deviate 1 to 2 dots for left/right/up/down.
- Select between "Draft" or "Normal" using numerical key or cursor move keys (← →).

When printing all lists

- Press ↵ (enter key) and "Yes" key at the "Exec. menu." The module prints all of parameters of remote I/O master module.
- After finished printing, the display returns to "Parameter print" menu.

When assigning printing area

(1) Move the cursor to "Start No" column with ↑ ↓ keys, and input start address with numerical key.
(2) Move the cursor to "End No." column with ' key, and input end address with numerical key.
(3) Press ↵ (enter key) and press "Yes" at the "Exec. menu." The module prints the program from start address to end address.
(4) After finished printing, the display returns to "Parameter print" menu.

When printer stops (end) at intermediate point in printing

(1) Press “Stop” key, the printer stops printing after completing currently displayed address printing.

(2) When “Quit” key is pressed while the printer has stopped printing, the module returns to “Parameter print” menu.

(3) When “Reset” key is pressed while the printer has stopped printing, the module starts “Parameter print”

An example of printing

Parameter printing example of JW-20CM using as remote I/O master station (fixed allocation)

<Table of remote I/O master module parameter (fixed allocation)>

Address	76543210	HEX	DEM	OCT	Contents
000000	00000100	04	004	004	Fixed allocation･synchronization･mode 0
000001	00011110	1E	030	036	No. of slave module sets: 30 sets
000002	01111111	7F	127	177	(Lower) Remote I/O top address
000003	00000011	03	003	003	(Upper)]1577
000200	00000001	01	001	001	No. of slave station I/O points: 128 points
000301	00000000	00	000	000	Slave station between 01 and 02 blank 000 byte
000302	00000001	01	001	001	Slave station between 02 and 03 blank 001 byte
000303	00000010	02	002	002	Slave station between 03 and 04 blank 002 bytes
000304	00000011	03	003	003	Slave station between 04 and 05 blank 003 bytes
000305	00000100	04	004	004	Slave station between 05 and 06 blank 004 bytes
000306	00000101	05	005	005	Slave station between 06 and 07 blank 005 bytes
000307	00000110	06	006	006	Slave station between 07 and 10 blank 006 bytes
000310	00000111	07	007	007	Slave station between 10 and 11 blank 007 bytes
000311	00001000	08	008	010	Slave station between 11 and 12 blank 008 bytes
000312	00001001	09	009	011	Slave station between 12 and 13 blank 009 bytes
000313	00001010	0A	010	012	Slave station between 13 and 14 blank 010 bytes
000314	00001011	0B	011	013	Slave station between 14 and 15 blank 011 bytes
000315	00001100	0C	012	014	Slave station between 15 and 16 blank 012 bytes
000316	00001101	0D	013	015	Slave station between 16 and 17 blank 013 bytes
000317	00001110	0E	014	016	Slave station between 17 and 20 blank 014 bytes
000320	00001111	0F	015	017	Slave station between 20 and 21 blank 015 bytes
000321	00010000	10	016	020	Slave station between 21 and 22 blank 016 bytes
000322	00010001	11	017	021	Slave station between 22 and 23 blank 017 bytes
000323	00010010	12	018	022	Slave station between 23 and 24 blank 018 bytes
000324	00010011	13	019	023	Slave station between 24 and 25 blank 019 bytes
000325	00010100	14	020	024	Slave station between 25 and 26 blank 020 bytes
000326	00010101	15	021	025	Slave station between 26 and 27 blank 021 bytes
000327	00010110	16	022	026	Slave station between 27 and 30 blank 022 bytes
000330	00010111	17	023	027	Slave station between 30 and 31 blank 023 bytes
000331	00011000	18	024	030	Slave station between 31 and 32 blank 024 bytes
000332	00011001	19	025	031	Slave station between 32 and 33 blank 025 bytes
000333	00011010	1A	026	032	Slave station between 33 and 34 blank 026 bytes
000334	00011011	1B	027	033	Slave station between 34 and 35 blank 027 bytes
000335	00011100	1C	028	034	Slave station between 35 and 36 blank 028 bytes
000336	00011101	1D	029	035	Slave station between 36 and 37 blank 029 bytes
000337	00011110	1E	030	036	Slave station between 37 and 40 blank 030 bytes
000340	00011111	1F	031	037	Slave station between 40 and 41 blank 031 bytes
000341	00100000	20	032	040	Slave station between 41 and 42 blank 032 bytes
000342	00100001	21	033	041	Slave station between 42 and 43 blank 033 bytes
000343	00100010	22	034	042	Slave station between 43 and 44 blank 034 bytes
000344	00100011	23	035	043	Slave station between 44 and 45 blank 035 bytes
000345	00100100	24	036	044	Slave station between 45 and 46 blank 036 bytes
000346	00100101	25	037	045	Slave station between 46 and 47 blank 037 bytes
000347	00100110	26	038	046	Slave station between 47 and 50 blank 038 bytes
000350	00100111	27	039	047	Slave station between 50 and 51 blank 039 bytes
000351	00101000	28	040	050	Slave station between 51 and 52 blank 040 bytes
000352	00101001	29	041	051	Slave station between 52 and 53 blank 041 bytes
000353	00101010	2A	042	052	Slave station between 53 and 54 blank 042 bytes
000354	00101011	2B	043	053	Slave station between 54 and 55 blank 043 bytes
000355	00101100	2C	044	054	Slave station between 55 and 56 blank 044 bytes
000356	00101101	2D	045	055	Slave station between 56 and 57 blank 045 bytes
000357	00101110	2E	046	056	Slave station between 57 and 60 blank 046 bytes
000360	00101111	2F	047	057	Slave station between 60 and 61 blank 047 bytes
000361	00110000	30	048	060	Slave station between 61 and 62 blank 048 bytes
000362	00110001	31	049	061	Slave station between 62 and 63 blank 049 bytes
000363	00110010	32	050	062	Slave station between 63 and 64 blank 050 bytes
000364	00110011	33	051	063	Slave station between 64 and 65 blank 051 bytes
000365	00110100	34	052	064	Slave station between 65 and 66 blank 052 bytes
000366	00110101	35	053	065	Slave station between 66 and 67 blank 053 bytes
000367	00110110	36	054	066	Slave station between 67 and 70 blank 054 bytes
000370	00110111	37	055	067	Slave station between 70 and 71 blank 055 bytes
000371	00111000	38	056	070	Slave station between 71 and 72 blank 056 bytes
000372	00111001	39	057	071	Slave station between 72 and 73 blank 057 bytes
000373	00111010	3A	058	072	Slave station between 73 and 74 blank 058 bytes
000374	00111011	3B	059	073	Slave station between 74 and 75 blank 059 bytes
000375	00111100	3C	060	074	Slave station between 75 and 76 blank 060 bytes
000376	11111111	FF	255	377	Slave station between 76 and 77 blank 255 bytes
003764	01111111	7F	127	177	(Lower) Flag top address
003765	00000011	03	003	003	(Upper) 7-]1577
003766	00000111	07	007	007	Output the error flag
003767	10000000	80	128	200	
003770	00000000	00	000	000	
003771	00000000	00	000	000	
003772	00000000	00	000	000	
003773	00000000	00	000	000	
003774	00000000	00	000	000	
003775	00000000	00	000	000	
003776	00000000	00	000	000	Parameter BCC code
003777	00000000	00	000	000	Halt out operation

Parameter printing example of JW-20CM using as remote I/O master station (manual allocation, address in order)

<Table of remote I/O master module parameter (manual allocation>

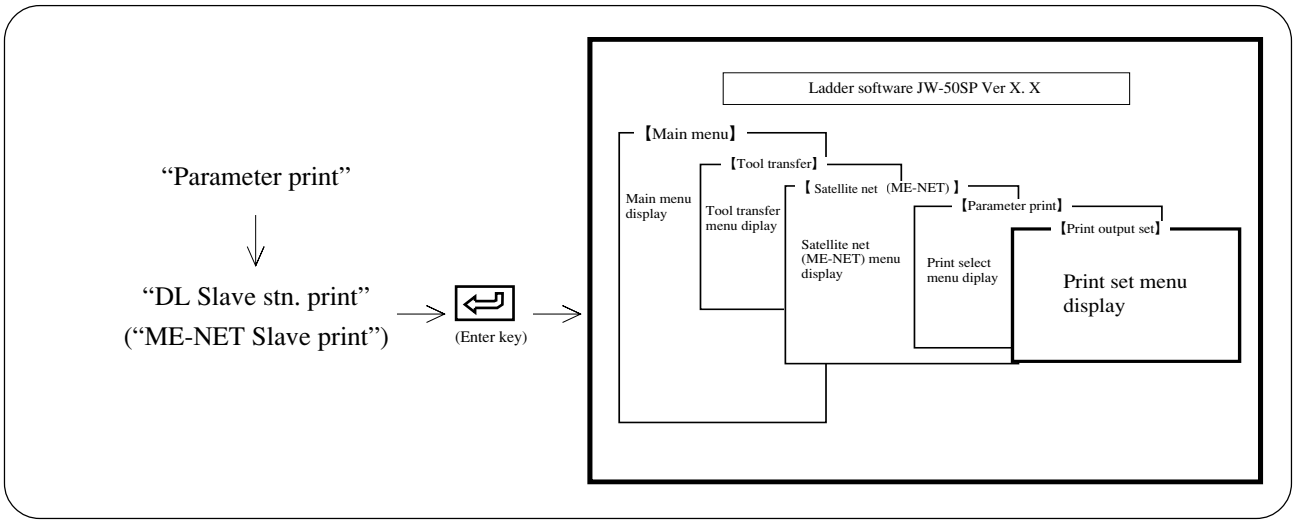
Address	76543210	HEX	DEM	OCT	Contents
000000	00001001	09	009	011	Manual allocation･asynchronous･mode 1
000001	00111111	3F	063	077	No. of slave station sets: 63
000002	01111111	7F	127	177	(Lower) Slave station 01I/O top address
000003	00000011	03	003	003	(Upper)]1577
000004	00000010	02	002	002	(Lower) Slave station 02I/O top address
000005	00000000	00	000	000	(Upper)]0002
000006	00000011	03	003	003	(Lower) Slave station 03I/O top address
000007	00000000	00	000	000	(Upper)]0003
000010	00000100	04	004	004	(Lower) Slave station 04I/O top address
000011	00000000	00	000	000	(Upper)]0004
000012	00000101	05	005	005	(Lower) Slave station 05I/O top address
000013	00000000	00	000	000	(Upper)]0005
000014	00000110	06	006	006	(Lower) Slave station 06I/O top address
000015	00000000	00	000	000	(Upper)]0006
000016	00000111	07	007	007	(Lower) Slave station 07I/O top address
000017	00000000	00	000	000	(Upper)]0007
000020	00001000	08	008	010	(Lower) Slave station 10I/O top address
000021	00000000	00	000	000	(Upper)]0010
000022	00001001	09	009	011	(Lower) Slave station 11I/O top address
000023	00000000	00	000	000	(Upper)]0011
000024	00001010	0A	010	012	(Lower) Slave station 12I/O top address
000025	00000000	00	000	000	(Upper)]0012
000026	00001011	0B	011	013	(Lower) Slave station 13I/O top address
000027	00000000	00	000	000	(Upper)]0013
000030	00001100	0C	012	014	(Lower) Slave station 14I/O top address
000031	00000000	00	000	000	(Upper)]0014
000032	00001101	0D	013	015	(Lower) Slave station 15I/O top address
000033	00000000	00	000	000	(Upper)]0015
000034	00001110	0E	014	016	(Lower) Slave station 16I/O top address
000035	00000000	00	000	000	(Upper)]0016
000036	00001111	0F	015	017	(Lower) Slave station 17I/O top address
000037	00000000	00	000	000	(Upper)]0017
000040	00010000	10	016	020	(Lower) Slave station 20I/O top address
000041	00000000	00	000	000	(Upper)]0020
000042	00010001	11	017	021	(Lower) Slave station 21I/O top address
000043	00000000	00	000	000	(Upper)]0021
000044	00010010	12	018	022	(Lower) Slave station 22I/O top address
000045	00000000	00	000	000	(Upper)]0022
000046	00010011	13	019	023	(Lower) Slave station 23I/O top address
000047	00000000	00	000	000	(Upper)]0023
000050	00010100	14	020	024	(Lower) Slave station 24I/O top address
000051	00000000	00	000	000	(Upper)]0024
000052	00010101	15	021	025	(Lower) Slave station 25I/O top address
000053	00000000	00	000	000	(Upper)]0025
000054	00010110	16	022	026	(Lower) Slave station 26I/O top address
000055	00000000	00	000	000	(Upper)]0026
000056	00010111	17	023	027	(Lower) Slave station 27I/O top address
000057	00000000	00	000	000	(Upper)]0027
000060	00011000	18	024	030	(Lower) Slave station 30I/O top address
000061	00000000	00	000	000	(Upper)]0030
000062	00011001	19	025	031	(Lower) Slave station 31I/O top address
000063	00000000	00	000	000	(Upper)]0031
000064	00011010	1A	026	032	(Lower) Slave station 32I/O top address
000065	00000000	00	000	000	(Upper)]0032
000066	00011011	1B	027	033	(Lower) Slave station 33I/O top address
000067	00000000	00	000	000	(Upper)]0033
000070	00011100	1C	028	034	(Lower) Slave station 34I/O top address
000071	00000000	00	000	000	(Upper)]0034
000072	00011101	1D	029	035	(Lower) Slave station 35I/O top address
000073	00000000	00	000	000	(Upper)]0035
000074	00011110	1E	030	036	(Lower) Slave station 36I/O top address
000075	00000000	00	000	000	(Upper)]0036
000076	00011111	1F	031	037	(Lower) Slave station 37I/O top address
000077	00000000	00	000	000	(Upper)]0037
000100	00100000	20	032	040	(Lower) Slave station 40I/O top address
000101	10000000	80	128	200	(Upper)]0040
000102	00100001	21	033	041	(Lower) Slave station 41I/O top address
000103	10000000	80	128	200	(Upper)]0041
000104	00100010	22	034	042	(Lower) Slave station 42I/O top address
000105	10000000	80	128	200	(Upper)]0042
000106	00100011	23	035	043	(Lower) Slave station 43I/O top address
000107	10000000	80	128	200	(Upper)]0043
000110	00100100	24	036	044	(Lower) Slave station 44I/O top address
000111	10000000	80	128	200	(Upper)]0044
000112	00100101	25	037	045	(Lower) Slave station 45I/O top address
000113	10000000	80	128	200	(Upper)]0045
000114	00100110	26	038	046	(Lower) Slave station 46I/O top address
000115	10000000	80	128	200	(Upper)]0046
000116	00100111	27	039	047	(Lower) Slave station 47I/O top address
000117	10000000	80	128	200	(Upper)]0047
000120	00101000	28	040	050	(Lower) Slave station 50I/O top address
000121	10000000	80	128	200	(Upper)]0050
000122	00101001	29	041	051	(Lower) Slave station 51I/O top address
000123	10000000	80	128	200	(Upper)]0051
000124	00101010	2A	042	052	(Lower) Slave station 52I/O top address
000125	10000000	80	128	200	(Upper)]0052
000126	00101011	2B	043	053	(Lower) Slave station 53I/O top address
000127	10000000	80	128	200	(Upper)]0053
000130	00101100	2C	044	054	(Lower) Slave station 54I/O top address
000131	10000000	80	128	200	(Upper)]0054
000132	00101101	2D	045	055	(Lower) Slave station 55I/O top address
000133	10000000	80	128	200	(Upper)]0055
000134	00101110	2E	046	056	(Lower) Slave station 56I/O top address
000135	10000000	80	128	200	(Upper)]0056
000136	00101111	2F	047	057	(Lower) Slave station 57I/O top address
000137	10000000	80	128	200	(Upper)]0057
000140	00110000	30	048	060	(Lower) Slave station 60I/O top address
000141	10000000	80	128	200	(Upper)]0060
000142	00110001	31	049	061	(Lower) Slave station 61I/O top address
000143	10000000	80	128	200	(Upper)]0061
000144	00110010	32	050	062	(Lower) Slave station 62I/O top address
000145	10000000	80	128	200	(Upper)]0062
000146	00110011	33	051	063	(Lower) Slave station 63I/O top address
000147	10000000	80	128	200	(Upper)]0063
000150	00110100	34	052	064	(Lower) Slave station 64I/O top address
000151	10000000	80	128	200	(Upper)]0064
000152	00110101	35	053	065	(Lower) Slave station 65I/O top address
000153	10000000	80	128	200	(Upper)]0065
000154	00110110	36	054	066	(Lower) Slave station 66I/O top address
000155	10000000	80	128	200	(Upper)]0066
000156	00110111	37	055	067	(Lower) Slave station 67I/O top address
000157	10000000	80	128	200	(Upper)]0067

Parameter printing example of JW-20CM using as remote I/O master station (manual allocation, station No. in order)

Station No.	I/O address	Byte
PC01	]1577~]1577	0 0 0
PC02	]0002~]0003	0 0 1
PC03	]0003~]0005	0 0 2
PC04	]0004~]0007	0 0 3
PC05	]0005~]0011	0 0 4
PC06	]0006~]0013	0 0 5
PC07	]0007~]0015	0 0 6
PC10	]0010~]0017	0 0 7
PC11	]0011~]0021	0 0 8
PC12	]0012~]0023	0 0 9
PC13	]0013~]0025	0 1 0
PC14	]0014~]0027	0 1 1
PC15	]0015~]0031	0 1 2
PC16	]0016~]0033	0 1 3
PC17	]0017~]0035	0 1 4
PC20	]0020~]0037	0 1 5
PC21	]0021~]0041	0 1 6
PC22	]0022~]0043	0 1 7
PC23	]0023~]0045	0 1 8
PC24	]0024~]0047	0 1 9
PC25	]0025~]0051	0 2 0
PC26	]0026~]0053	0 2 1
PC27	]0027~]0055	0 2 2
PC30	]0030~]0057	0 2 3
PC31	]0031~]0061	0 2 4
PC32	]0032~]0063	0 2 5
PC33	]0033~]0065	0 2 6
PC34	]0034~]0067	0 2 7
PC35	]0035~]0071	0 2 8
PC36	]0036~]0073	0 2 9
PC37	]0037~]0075	0 3 0
PC40	]0040~]0077	0 3 1
PC41	]0041~]0101	0 3 2
PC42	]0042~]0103	0 3 3
PC43	]0043~]0105	0 3 4
PC44	]0044~]0107	0 3 5
PC45	]0045~]0111	0 3 6
PC46	]0046~]0113	0 3 7
PC47	]0047~]0115	0 3 8
PC50	]0050~]0117	0 3 9
PC51	]0051~]0121	0 4 0
PC52	]0052~]0123	0 4 1
PC53	]0053~]0125	0 4 2
PC54	]0054~]0127	0 4 3
PC55	]0055~]0131	0 4 4
PC56	]0056~]0133	0 4 5
PC57	]0057~]0135	0 4 6
PC60	]0060~]0137	0 4 7
PC61	]0061~]0071	0 0 8
PC62	]0062~]0143	0 4 9
PC63	]0063~]0145	0 5 0
PC64	]0064~]0147	0 5 1
PC65	]0065~]0116	0 2 5
PC66	]0066~]0131	0 3 5
PC67	]0067~]0155	0 5 4
PC70	]0070~]0157	0 5 5
PC71	]0071~]0161	0 5 6
PC72	]0072~]0163	0 5 7
PC73	]0073~]0165	0 5 8
PC74	]0074~]0167	0 5 9
PC75	]0075~]0171	0 6 0
PC76	]0076~]0173	0 6 1
PC77	]1577~]1577	0 0 0

③ Print data link slave station (ME-NET slave station print)

Key operation



Operation example

(1) Title

- When "With" is assigned, the printer prints contents which are input by "setting of title" at lower right of each page.
- Select between "With" or "None" using numerical key or cursor move keys (← →).

(2) Mode

- When "Draft" is assigned, printing speed becomes faster. However, the vertical lines of title may deviate 1 to 2 dots for left/right/up/down.
- Select between "Draft" or "Normal" using numerical key or cursor move keys (← →).

When printing all lists

- Press [↵] (enter key) and "Yes" key at the "Exec. menu." The module prints all of parameters of data link slave module.
- After finished printing, the display returns to "Parameter print" menu.

When assigning printing area

(1) Move the cursor to "Start No" column with [↑] [↓] keys, and input start address with numerical key.
(2) Move the cursor to "End No." column with [↓] key, and input end address with numerical key.
(3) Press [↵] (enter key) and press "Yes" at the "Exec. menu." The module prints the program from start address to end address.
(4) After finished printing, the display returns to "Parameter print" menu.

When printer stops (end) at intermediate point in printing

(1) Press “Stop” key, the printer stops printing after completing currently displayed address printing.

(2) When “Quit” key is pressed while the printer has stopped printing, the module returns to “Parameter print” menu.

(3) When “Reset” key is pressed while the printer has stopped printing, the module starts “Parameter print” again.

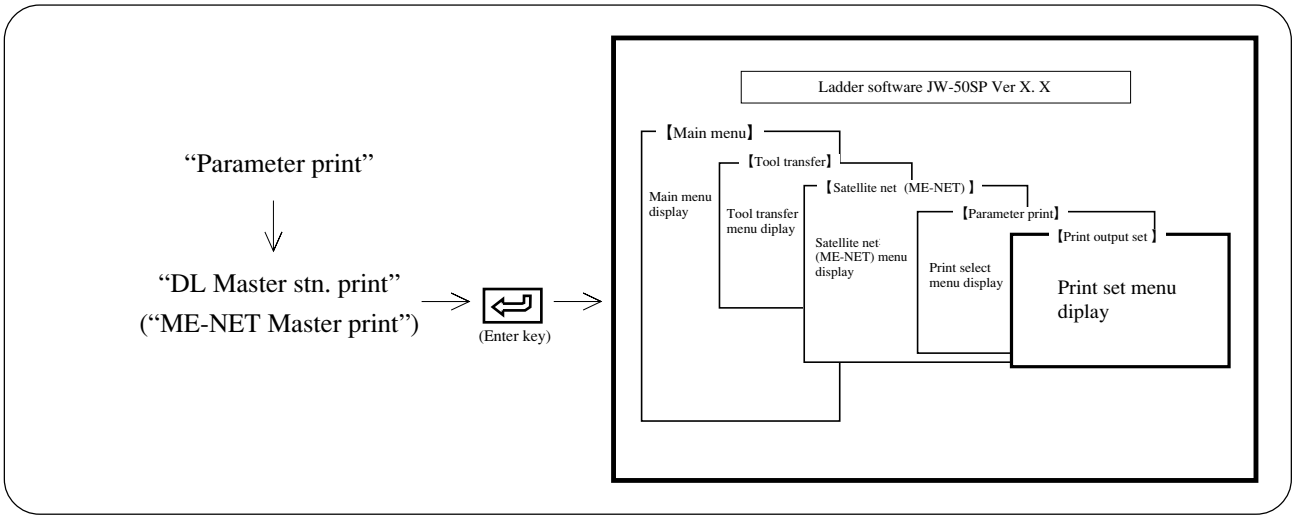
An example of printing

<Table of data link slave module parameter>

Address	76543210	HEX	DEM	OCT	Contents
007760	00000000	00	000	000	
007761	00000000	00	000	000	
007762	00000000	00	000	000	
007763	00000000	00	000	000	
007764	01111111	7F	127	177	Slave flag top address
007765	00000011	03	003	003	File no.: 7
007766	00000111	07	007	007	File address:001577
007767	10000000	80	128	200	Output flag: yes
007770	00000000	00	000	000	
007771	00000000	00	000	000	
007772	00000000	00	000	000	
007773	00000000	00	000	000	
007774	00000000	00	000	000	
007775	00000000	00	000	000	
007776	00000000	00	000	000	Parameter BCC code
007777	00000000	00	000	000	Halt out operation

④ Print data link master station (ME-NET master station print)

Key operation



Operation example

(1) Title

- When "With" is assigned, the printer prints contents which are input by "setting of title" at lower right of each page.
- Select between "With" or "None" using numerical key or cursor move keys (← →).

(2) Mode

- When "Draft" is assigned, printing speed becomes faster. However, the vertical lines of title may deviate 1 to 2 dots for left/right/up/down.
- Select between "Draft" or "Normal" using numerical key or cursor move keys (← →).

(3) Order

- Set "in ADRS" or "Stn. No."
- Press numerical key or cursor move key, and select between "in ADRS" or "Stn. No."

When printing all lists

- Press ↵ (enter key) and "Yes" key at the "Exec. menu." The module prints all of parameters of data link master module.
- After finished printing, the display returns to "Parameter print" menu.

When assigning printing area

(1) Move the cursor to "Start No" column with ↑ ↓ keys, and input start address with numerical key.
(2) Move the cursor to "End No." column with ↓ key, and input end address with numerical key.
(3) Press ↵ (enter key) and press "Yes" at the "Exec. menu." The module prints the program from start address to end address.
(4) After finished printing, the display returns to "Parameter print" menu.

When printer stops (end) at intermediate point in printing

(1) Press “Stop” key, the printer stops printing after completing currently displayed address printing.

(2) When “Quit” key is pressed while the printer has stopped printing, the module returns to “Parameter print” menu.

(3) When “Reset” key is pressed while the printer has stopped printing, the module starts “Parameter print” again.

An example of printing

In order of address number

<Data link master module parameter list>

Address	76543210	HEX	DCM	OCT	Contents	Address	76543210	HEX	DEM	OCT	Contents
004000	00000001	01	001	001	(Lowr.) At M/RLY. link area	004070	00001111	0F	015	017	(Lowr.) At S16RLY. link area
004001	00000000	00	000	000	(Uppr.) Top ADRS 000001	004071	00000000	00	000	000	(Uppr.) Top ADRS)0000
004002	00000001	01	001	001	Relay & Register link	004072	00000000	00	000	000	Master Preset V
004003	00001100	0C	012	014	Con. stns: 12	004073	10000000	80	128	200	
004004	00000010	02	002	002	(Lowr.) At SO1RLY. link area	004074	00010000	10	015	020	(Lowr.) At S17RLY. link area
004005	00000000	00	000	000	(Uppr.) Top ADRS)0002	004075	00000000	00	000	000	(Uppr.) Top ADRS)0000
004006	00000000	00	000	000	Master Preset V	004076	00000000	00	000	000	Master Preset V
004007	00000000	80	128	200		004077	10000000	80	128	200	
004010	00000011	03	003	003	(Lowr.) At SO2RLY. link area	004100	00010000	10	015	020	(Lowr.) At S20RLY. link area
004011	00000000	00	000	000	(Uppr.) Top ADRS)0003	004101	00000000	00	000	000	(Uppr.) Top ADRS)0000
004012	00000000	00	000	000	Master Preset V	004102	00000001	01	001	001	Master Preset V
004013	00000000	80	128	200		004103	00000000	00	000	000	
004014	00000100	04	004	004	(Lowr.) At SO3RLY. link area	004104	00010001	11	017	021	(Lowr.) At S21RLY. link area
004015	00000000	00	000	000	(Uppr.) Top ADRS)0004	004105	00000000	00	000	000	(Uppr.) Top ADRS)0000
004016	00000000	00	000	000	Master Preset V	004106	00000001	01	001	001	Master Preset V
004017	00000000	80	128	200		004107	00000000	00	000	000	
004020	00000101	05	005	005	(Lowr.) At SO4RLY. link area	004110	00010010	12	018	022	(Lowr.) At S22RLY. link area
004021	00000000	00	000	000	(Uppr.) Top ADRS)0005	004111	00000000	00	000	000	(Uppr.) Top ADRS)0000
004022	00000000	00	000	000	Master Preset V	004112	00000001	01	001	001	Master Preset V
004023	00000000	80	128	200		004113	00000000	00	000	000	
004024	00000110	06	006	006	(Lowr.) At SO5RLY. link area	004114	00010011	13	019	023	(Lowr.) At S23RLY. link area
004025	00000000	00	000	000	(Uppr.) Top ADRS)0006	004115	00000000	00	000	000	(Uppr.) Top ADRS)0000
004026	00000000	00	000	000	Slave Preset V	004116	00000001	01	001	001	Master Preset V
004027	10000000	80	128	200		004117	00000000	00	000	000	
004030	00000111	07	007	007	(Lowr.) At SO6RLY. link area	004120	00010100	14	020	024	(Lowr.) At S24RLY. link area
004031	00000000	00	000	000	(Uppr.) Top ADRS)0007	004121	00000000	00	000	000	(Uppr.) Top ADRS)0000
004032	00000000	00	000	000	Slave Preset V	004122	00000001	01	001	001	Master Preset V
004033	10000000	80	128	200		004123	00000000	00	000	000	
004034	00001000	08	008	010	(Lowr.) At SO7RLY. link area	004124	00010101	15	021	025	(Lowr.) At S25RLY. link area
004035	00000000	00	000	000	(Uppr.) Top ADRS)0010	004125	00000000	00	000	000	(Uppr.) Top ADRS)0000
004036	00000000	00	000	000	Slave Preset V	004126	00000001	01	001	001	Master Preset V
004037	10000000	80	128	200		004127	00000000	00	000	000	
004040	00001001	09	009	011	(Lowr.) At S10RLY. link area	004130	00010110	16	022	026	(Lowr.) At S26RLY. link area
004041	00000000	00	000	000	(Uppr.) Top ADRS)0011	004131	00000000	00	000	000	(Uppr.) Top ADRS)0000
004042	00000000	00	000	000	Slave Preset V	004132	00000001	01	001	001	Master Preset V
004043	10000000	80	128	200		004133	00000000	00	000	000	
004044	00001010	0A	010	012	(Lowr.) At S11RLY. link area	004134	00010111	17	023	027	(Lowr.) At S27RLY. link area
004045	00000000	00	000	000	(Uppr.) Top ADRS)0012	004135	00000000	00	000	000	(Uppr.) Top ADRS)0000
004046	00000000	00	000	000	Slave Preset V	004136	00000001	01	001	001	Master Preset V
004047	10000000	80	128	200		004137	00000000	00	000	000	
004050	00001011	0B	011	013	(Lowr.) At S12RLY. link area	004140	00011000	18	024	030	(Lowr.) At S30RLY. link area
004051	00000000	00	000	000	(Uppr.) Top ADRS)0013	004141	00000000	00	000	000	(Uppr.) Top ADRS)0000
004052	00000000	00	000	000	Slave Preset V	004142	00000001	01	001	001	Master Preset V
004053	10000000	80	128	200		004143	00000000	00	000	000	
004054	00001100	0C	012	014	(Lowr.) At S13RLY. link area	004144	00011001	19	025	031	(Lowr.) At S31RLY. link area
004055	00000000	00	000	000	(Uppr.) Top ADRS)0014	004145	00000000	00	000	000	(Uppr.) Top ADRS)0000
004056	00000000	00	000	000	Slave Preset V	004146	00000001	01	001	001	Master Preset V
004057	10000000	80	128	200		004147	00000000	00	000	000	
004060	00000000	0D	013	015	(Lowr.) At S14RLY. link area	004150	00011010	1A	026	032	(Lowr.) At S32RLY. link area
004061	00000000	00	000	000	(Uppr.) Top ADRS)0000	004151	00000000	00	000	000	(Uppr.) Top ADRS)0000
004062	00000000	00	000	000	Slave Preset V	004152	00000001	01	001	001	Master Preset V
004063	10000000	80	128	200		004153	00000000	00	000	000	
004064	00000000	0E	014	016	(Lowr.) At S15RLY. link area	004154	00011011	1B	027	033	(Lowr.) At S33RLY. link area
004065	00000000	00	000	000	(Uppr.) Top ADRS)0000	004155	00000000	00	000	000	(Uppr.) Top ADRS)0000
004066	00000000	00	000	000	Master Preset V	004156	00000001	01	001	001	Master Preset V
004067	00000000	80	128	200		004157	00000000	00	000	000	

In order of station number

Data link master station <Station No. PC 00>

STN.	Relay link	Register link		STN.	Relay link	Register link	
PC00	)0001 – 001 byte(s)	09001 – 256 byte(s)	Send	PC40	)0040 – 096 byte(s)	19001 – 256 byte(s)	RCV.
PC01	)0002 – 002 byte(s)	09002 – 002 byte(s)	RCV.	PC41	)0041 – 096 byte(s)	19002 – 256 byte(s)	RCV.
PC02	)0003 – 003 byte(s)	09003 – 003 byte(s)	RCV.	PC42	)0042 – 096 byte(s)	19003 – 256 byte(s)	RCV.
PC03	)0004 – 004 byte(s)	09004 – 004 byte(s)	RCV.	PC43	)0043 – 096 byte(s)	19004 – 256 byte(s)	RCV.
PC04	)0005 – 005 byte(s)	09005 – 005 byte(s)	RCV.	PC44	)0044 – 096 byte(s)	19005 – 256 byte(s)	RCV.
PC05	)0006 – 006 byte(s)	09006 – 006 byte(s)	RCV.	PC45	)0045 – 096 byte(s)	19006 – 256 byte(s)	RCV.
PC06	)0007 – 007 byte(s)	09007 – 007 byte(s)	RCV.	PC46	)0046 – 096 byte(s)	19007 – 256 byte(s)	RCV.
PC07	)0010 – 008 byte(s)	09010 – 001 byte(s)	RCV.	PC47	)0047 – 096 byte(s)	19010 – 256 byte(s)	RCV.
PC10	)0011 – 009 byte(s)	09011 – 002 byte(s)	RCV.	PC50	)0050 – 096 byte(s)	19011 – 256 byte(s)	RCV.
PC11	)0012 – 010 byte(s)	09012 – 003 byte(s)	RCV.	PC51	)0051 – 096 byte(s)	19012 – 256 byte(s)	RCV.
PC12	)0013 – 011 byte(s)	09013 – 004 byte(s)	RCV.	PC52	)0052 – 096 byte(s)	19013 – 256 byte(s)	RCV.
PC13	)0014 – 012 byte(s)	09014 – 005 byte(s)	RCV.	PC53	)0035 – 110 byte(s)	19014 – 256 byte(s)	RCV.
PC14	)0015 – 013 byte(s)	09015 – 006 byte(s)	RCV.	PC54	)0054 – 096 byte(s)	19015 – 256 byte(s)	RCV.
PC15	)0016 – 014 byte(s)	09016 – 007 byte(s)	RCV.	PC55	)0055 – 096 byte(s)	19016 – 256 byte(s)	RCV.
PC16	)0017 – 015 byte(s)	09017 – 008 byte(s)	RCV.	PC56	)0056 – 096 byte(s)	19017 – 256 byte(s)	RCV.
PC17	)0020 – 016 byte(s)	09020 – 009 byte(s)	RCV.	PC57	)0057 – 096 byte(s)	19020 – 256 byte(s)	RCV.
PC20	)0020 – 017 byte(s)	09300 – 100 byte(s)	RCV.	PC60	)0060 – 256 byte(s)	19777 – 000 byte(s)	RCV.
PC21	)0021 – 018 byte(s)	09301 – 101 byte(s)	RCV.	PC61	)0061 – 256 byte(s)	19177 – 001 byte(s)	RCV.
PC22	)0022 – 019 byte(s)	09301 – 102 byte(s)	RCV.	PC62	)0062 – 256 byte(s)	19200 – 002 byte(s)	RCV.
PC23	)0023 – 020 byte(s)	09303 – 103 byte(s)	RCV.	PC63	)0063 – 256 byte(s)	19201 – 003 byte(s)	RCV.
PC24	)0024 – 021 byte(s)	09304 – 104 byte(s)	RCV.	PC64	)0064 – 256 byte(s)	19202 – 004 byte(s)	RCV.
PC25	)0025 – 022 byte(s)	09305 – 105 byte(s)	RCV.	PC65	)0065 – 256 byte(s)	19203 – 006 byte(s)	RCV.
PC26	)0026 – 023 byte(s)	09306 – 106 byte(s)	RCV.	PC66	)0066 – 256 byte(s)	19204 – 007 byte(s)	RCV.
PC27	)0027 – 024 byte(s)	09307 – 107 byte(s)	RCV.	PC67	)0067 – 256 byte(s)	19205 – 008 byte(s)	RCV.
PC30	)0030 – 025 byte(s)	09770 – 001 byte(s)	RCV.	PC70	)0070 – 256 byte(s)	19206 – 009 byte(s)	RCV.
PC31	)0031 – 026 byte(s)	09771 – 002 byte(s)	RCV.	PC71	)0071 – 256 byte(s)	19207 – 010 byte(s)	RCV.
PC32	)0032 – 027 byte(s)	09772 – 003 byte(s)	RCV.	PC72	)0072 – 256 byte(s)	19210 – 011 byte(s)	RCV.
PC33	)0033 – 028 byte(s)	09773 – 004 byte(s)	RCV.	PC73	)0073 – 256 byte(s)	19211 – 012 byte(s)	RCV.
PC34	)0034 – 029 byte(s)	09774 – 005 byte(s)	RCV.	PC74	)0074 – 256 byte(s)	19300 – 013 byte(s)	RCV.
PC35	)0035 – 030 byte(s)	09775 – 006 byte(s)	RCV.	PC75	)0075 – 256 byte(s)	19301 – 014 byte(s)	RCV.
PC36	)0036 – 031 byte(s)	09776 – 007 byte(s)	RCV.	PC76	)0076 – 256 byte(s)	19302 – 015 byte(s)	RCV.
PC37	)0037 – 032 byte(s)	09777 – 256 byte(s)	RCV.	PC77	)0077 – 256 byte(s)	19400 – 015 byte(s)	RCV.

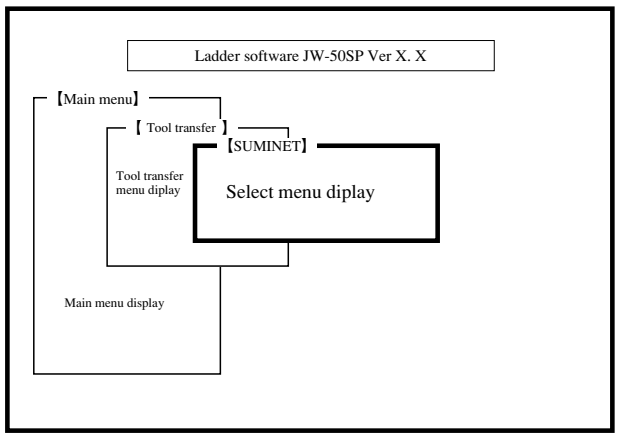
10-4 SUMINET parameter set, print

This function sets and prints parameter of network module: ZW-30CM.

Key operation

"Tool transfer" → "SUMINET" → (Enter key) →

Screen display



Function

Name	Function	Reference page
PARAM. set	• Set parameter of network module: ZW-30CM	10-38
Parameter print	• Print parameter contents	10-40

10

Notes

- Connect network module with the module while referring to Chapter 3: System configuration.
- To select any item on the menu, use numerical key or cursor move keys.
- Press ESC key to return to the previous screen.

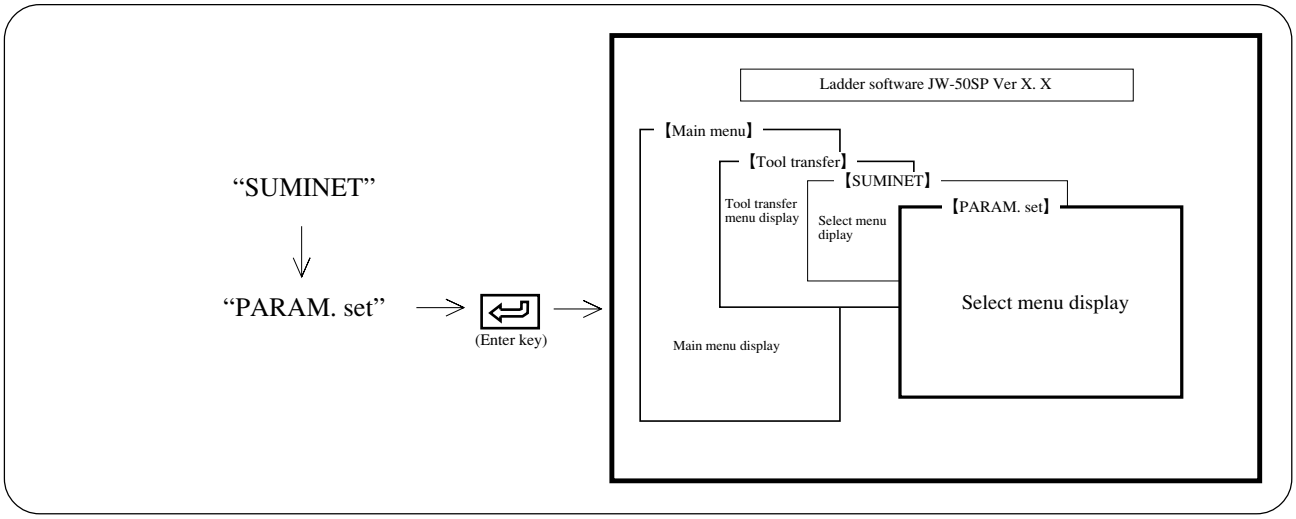
(1) SUMINET parameter set

This function sets parameter of network module: ZW-30CM such as refresh area top file number or top address.

Operation outline

"SUMINET" → "PARAM. set" → (Enter key) → Set parameter

Key operation 1



Operation example

① Refresh area top file No.

• Set top file number of refresh area between 0 to 7.

Move the cursor to file No. column with numerical keys or cursor move keys → Input file number

② Refresh area top address

• Set top file number of refresh area with octal.

Move the cursor to top address column with numerical keys or cursor move keys → Input address

③ Execute refresh

• Select whether or not execute refresh.

Move the cursor to execution column with numerical keys or cursor move keys → Select between "Yes" or "No" using numerical keys or the cursor move keys (← →).

④ Number of refresh bytes

• Set number of refresh bytes with decimal (0 to 255).

Move the cursor to number of refresh bytes column with numerical keys or cursor move keys → Input number of byte

⑤ Loading finish flag top file

• Set number of loading finish flag top file between 0 to 7.

Move the cursor to top file column with numerical keys or cursor move keys → Input file number

⑥ Loading finish flag top address

• Set top file address of loading finish flag with octal.

Move the cursor to top address column with numerical keys or cursor move keys → Input address

⑦ Loading finish flag ON

• Select whether to use or not loading finish flag ON.

Move the cursor to use condition column with numerical keys or cursor move keys → Select between “Use” or “No” using numerical keys or the cursor move keys (←) (→).

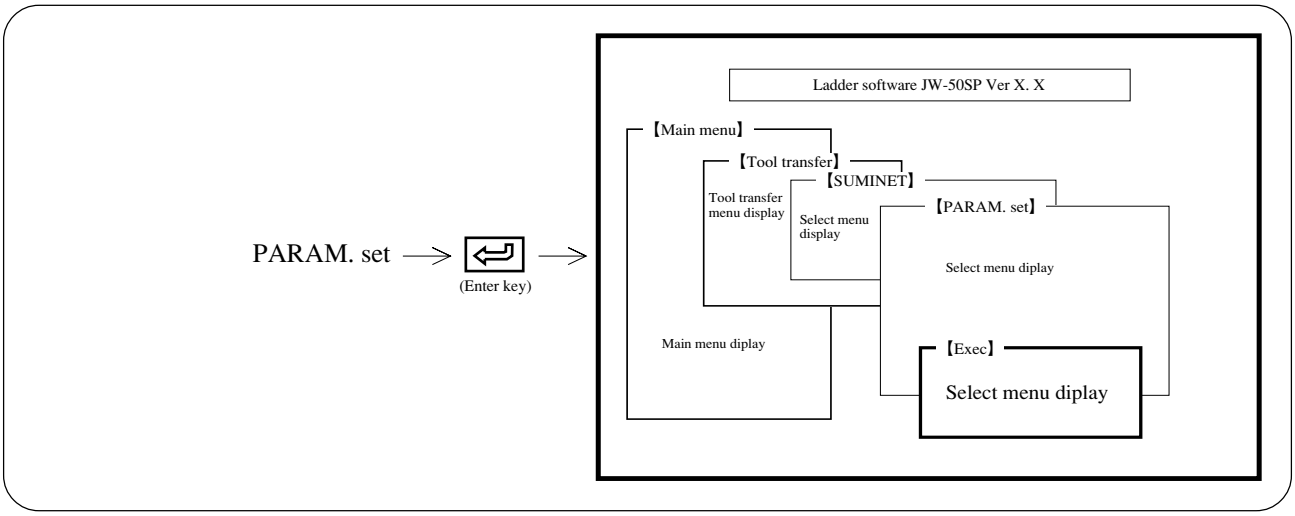
⑧ Setting of SEND/RECEIVE instruction

• Select whether to use SEND or RECEIVE.

• Select between "Yes" or "No" using cursor move keys (←) (→).

• If you select “Yes” and then press ↵ (enter key), the “SEND/RCV time out interval set” screen will appear. Set the timeout time for stations you wish to monitor and then press ↵ (enter key).

Key operation 2



Operation example

① When registering (writing) the input parameter

“Yes” → ↵ (enter key) → Register the input parameter in the memory of the module and write in the network module: ZW-30CM.

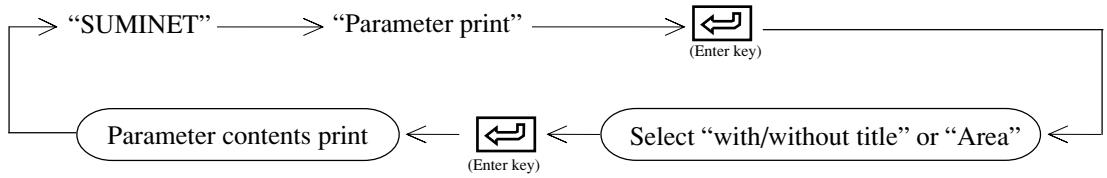
② When not registering (writing) the input parameter

“No” → ↵ (enter key)

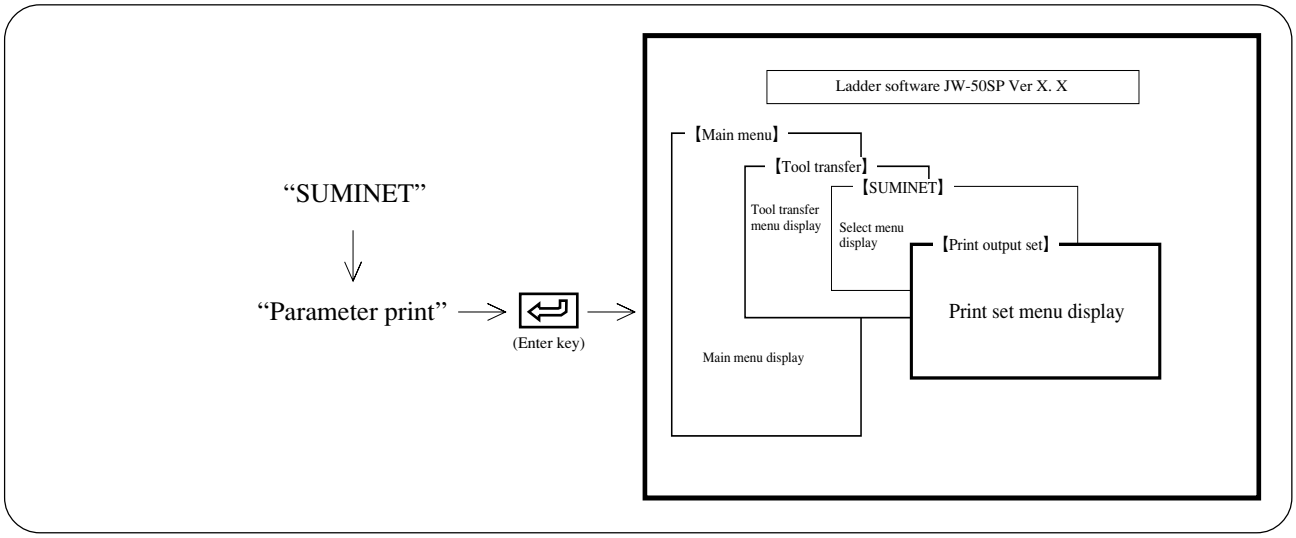
(2) SUMINET parameter print

This function prints parameter contents of network module: ZW-30CM

Operation outline



Key operation 1



10

Operation example

(1) Title

- When "With" is assigned, the printer prints contents which are input by "setting of title" at lower right of each page.
- Select between "With" or "None" using numerical key or cursor move keys (← →).

(2) Mode

- When "Draft" is assigned, printing speed becomes faster. However, the vertical lines of title may deviate 1 to 2 dots for left/right/up/down.
- Select between "Draft" or "Normal" using numerical key or cursor move keys (← →).

When printing all lists

- Press ↵ (enter key) and "Yes" key at the "Exec. menu." The module prints all of parameters of ZW-30CM.
- After finished printing, the display returns to "SUMINET" menu.

When assigning printing area

(1) Move the cursor to “Start No.” column with [↑] [↓] keys, and input start address with numerical key.
(2) Move the cursor to “End No.” column with [↓] key, and input end address with numerical key.
(3) Press [⏎] (enter key) and press “Yes” at the “Exec. menu.” The module prints the program from start address to end address.
(4) After finished printing, the display returns to “SUMINET” menu.

When printer stops (end) at intermediate point in printing

(1) Press “Stop” key, the printer stops printing after completing currently displayed address printing.
(2) When “Quit” key is pressed while the printer has stopped printing, the module returns to “SUMINET” menu.
(3) When “Reset” key is pressed while the printer has stopped printing, the module starts “Parameter print” again.

Notes

- When printing contents with title, executes “setting of title” while referring to page 9-20.
- Parameter can be printed with printer model PC-PR201F/H/V/B/J/X/G series (made by NEC) or LBP-B404/B406E (made by Canon) or LASER JET2 (made by HP) or ESC/P (made by EPSON).

An example of printing

<Table of ZW-30CM parameter>

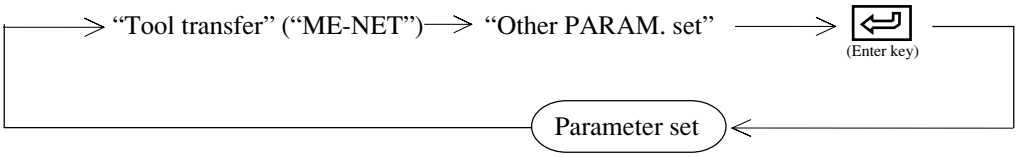
Address	76543210	HEX	DCML	OCT	Contents
000000	00110100	34	052	064	(Lower) Refresh area relay link and register link
000001	00010010	12	018	022	(Upper) (1234)
000002	00000001	01	001	001	Refresh area file number: 1
000003	00000000	00	000	000	
000004	00000000	00	000	000	Not refresh
000005	00000000	00	000	000	
000006	01101111	6F	111	157	No. of refresh bytes: 111
000007	00000000	00	000	000	
000010	11111111	FF	255	377	(Lower) Reading completed flag top address
000011	11111111	FF	255	377	(Upper) (FFFF)
000012	10000111	87	135	207	File no.: 7 Using flag ON
000013	00000000	00	000	000	
000014	00000000	00	000	000	
000015	00000000	00	000	000	
000016	00000000	00	000	000	
000017	00000000	00	000	000	

Address	76543210	HEX	DEM	OCT	Contents
003770	00000000	00	000	000	
003771	00000000	00	000	000	
003772	00000000	00	000	000	
003773	00000000	00	000	000	
003774	00000000	00	000	000	
003775	00000000	00	000	000	
003776	00000000	00	000	000	Parameter BCC code
003777	00000001	01	001	001	Start operation

10-5 Other parameters set

This is a setting method while referring to parameter address.

Operation outline

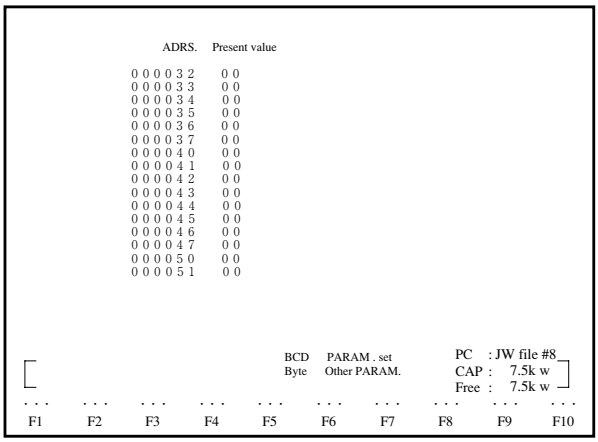


Key operation

"Tool transfer" ("ME-NET")

↓

"Other PARAM. set" → (Enter key) →



• Display content can be changed by pressing Page UP (next screen) or Page DOWN (previous screen) key.

Operation example

① Press "Address" key and input address.

② Press ↵ (enter key) and confirm address.

③ Input set value. (Set value is changeable between HEX → octal → decimal → binary → JIS by pressing "Code CNV" key.)

④ After input set value, write in the memory with "Write" key.

Notes

- "Word" key can change as byte → word → double words.
- "Write" is also possible with Shift + ↵ key.
- Press "Quit" key to return to "Tool transfer".

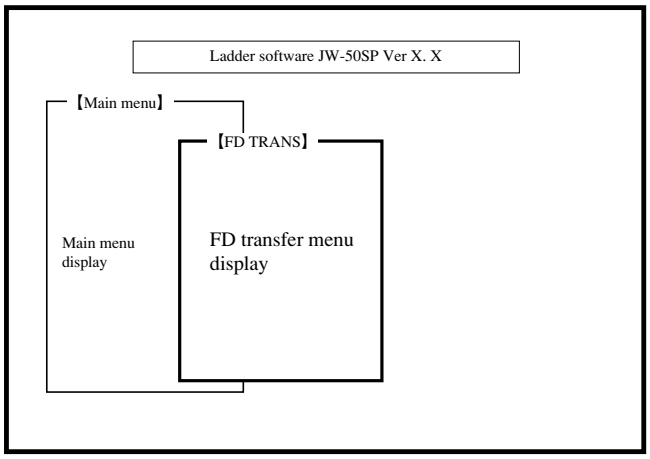
Chapter 11 Transfer to FD

- **This mode is used to write program or system memory etc. in a user diskette (FD), and read, or verify it.**
- Be sure to store created data (program, system memory etc.) using this personal computer into a floppy diskette.

Key operation

"Main menu" → "FD TRANS" → ⏎ (Enter key) →

Screen display



※"FD transfer" is accessible from any of the main menu, program edit, monitor, print, tool transfer, or initial set modes.

11

Function

Name	Function	Reference page
Save	• Write data such as program, or system memory created by the module in a user diskette.	11-3
Load	• Read registered files (program, system memory etc.) from a user diskette.	11-5
Verify	• Verify data (program, system memory etc.) inside the module with data registered in the user diskette.	11-6
Delete	• Delete files registered in the floppy diskette by file name unit.	11-7
Copy	• Copy data registered in the user diskette to another user diskette.	11-8
Rename	• Change file name.	11-10
Initial	• Initialize (format) a user diskette	11-2

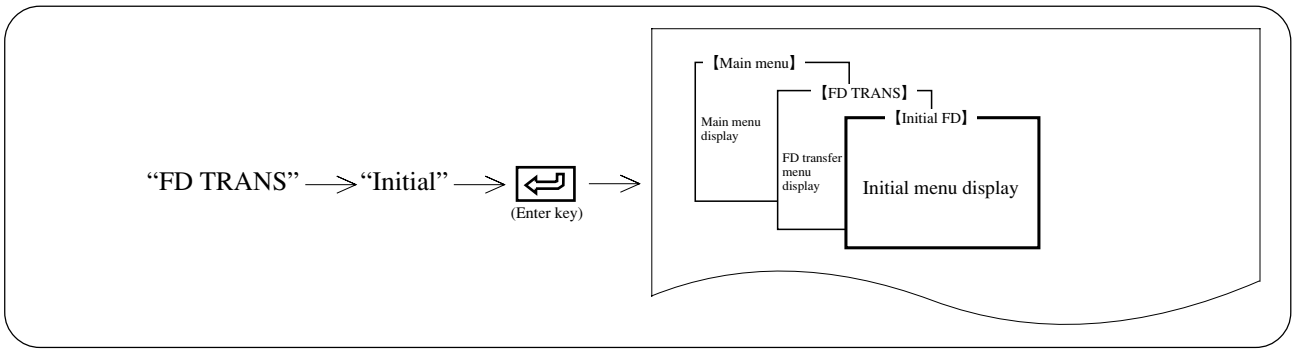
Notes

- Press ESC key to return to the menu display of each mode.
- To select any item on the menu, use numerical key or cursor move keys.

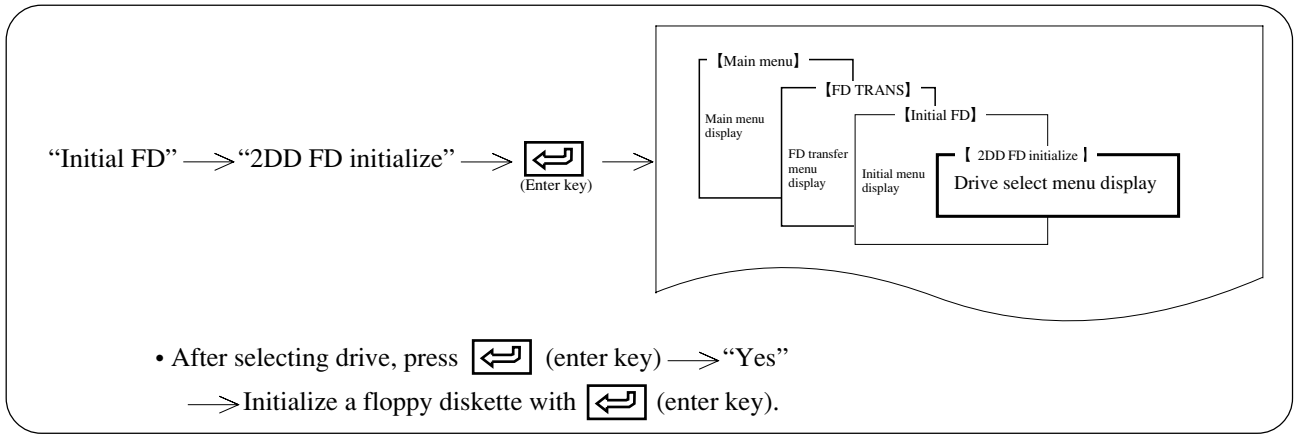
(1) Formatting FD

Be sure to initialize floppy diskettes to be used as user diskette by following procedure below.

Key operation 1

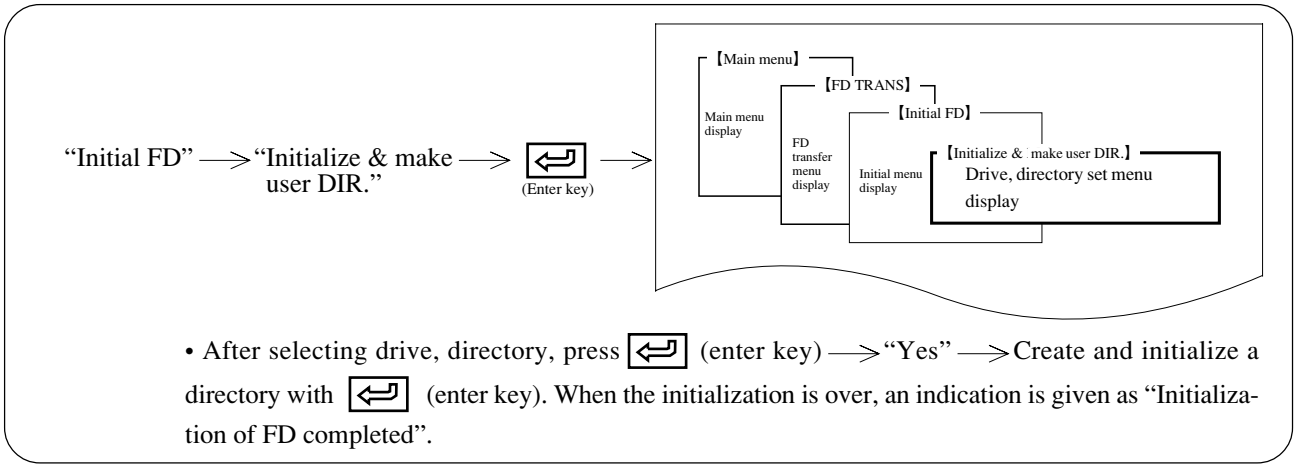


Key operation 2



• After selecting drive, press [↵] (enter key) → "Yes" → Initialize a floppy diskette with [↵] (enter key).

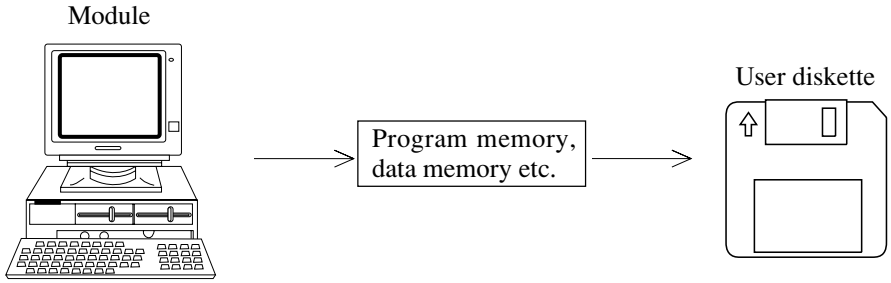
Key operation 3 **(When select "Initialize & make user DIR." of formatting menu)**



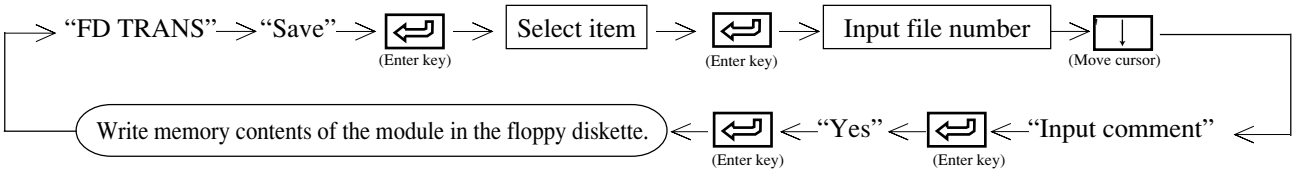
• After selecting drive, directory, press [↵] (enter key) → "Yes" → Create and initialize a directory with [↵] (enter key). When the initialization is over, an indication is given as "Initialization of FD completed".

(2) Writing

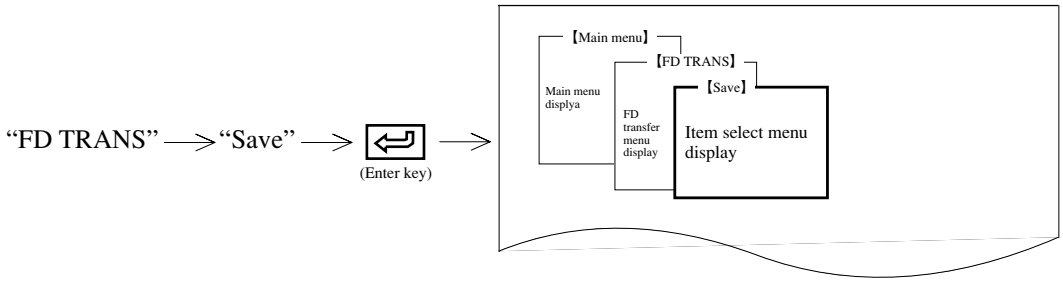
This function writes memory contents of the module in a user diskette.



Operation outline

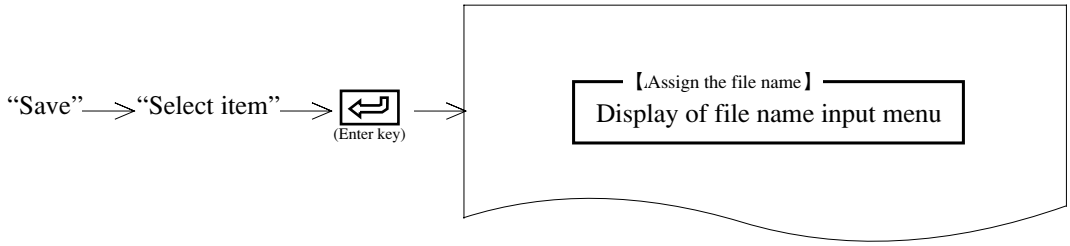


Key operation 1



Name	Contents
Program memory	Writes program memory in the user diskette.
System memory	Writes system memory in the user diskette.
Data memory	Writes data memory in the user diskette.
Comment memory	Writes comment memory in the user diskette.
Cross reference	Writes cross reference in the user diskette.
Parameter	Writes parameter memory in the user diskette
File memory	Writes file memory in the user diskette
Cover	Writes contents of the printing cover page in the user diskette.
Title	Writes contents of the printing title in the user diskette.
R-I/O M. PARAM.	Writes data link master parameter in the user diskette.
R-I/O S. PARAM.	Writes data link slave parameter in the user diskette.
DL. M. PARAM.	Writes data link master parameter in the user diskette.
DL. S. PARAM.	Writes data link slave parameter in the user diskette.
ME-NET M. PARAM.	Writes ME-NET master parameter in the user diskette.
ME-NET S. PARAM.	Writes ME-NET slave parameter in the user diskette.
SUMINET PARAM.	Writes network module ZW-30CM parameter in the user diskette.
Comment (Ver. 4.0 form)	Writes the comment in the format used with the software version 4.0 or earlier.
Quit	Press ESC key to return to "FD TRANS" menu.

Key operation 2



- Display file name and contents registered in the floppy diskette. To renew registration, select renewing item with cursor move key (↑ ↓) and space key.
- Input file name up to 4 characters with full size letters (8 characters with half size letters)
- Input comment up to 15 characters with full size letters (30 characters with half size letters)
- Input file name and comment, and press ⏎ (enter key) respectively. The screen changes to the input contents.
- After selecting "Exec.," press ⏎ (enter key). The module commences writing the input contents in the user diskette.
- When writing is finished, the screen displays "saving is completed".
- In case of changing drive & directory of user diskette, change by F1 "drive" key.
- Writing using "Comment (Ver.4.0 form)" causes the symbols to become 6 characters and comments to become 24 characters in length.

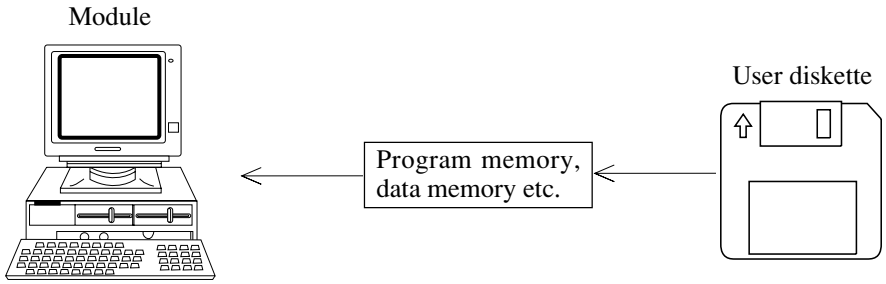
Note

- Comments created using the software version 5.0I or later cannot be used with version 4.0A or earlier. If you need to use comments created using the software version 5.0I or later with the version 4.0A or earlier, write them to the diskette using "Comment (Ver.4.0 form)". Writing using "Comment (Ver. 4.0 form)" causes the symbols to become 6 characters and comments to become 24 characters in length. When "Comment (Ver. 4.0 form)" causes the symbols to become 6 characters and comments to become 24 characters in length. When "Comment (Ver. 4.0 form)" is used for writing, though with version 5.0I or later symbols and comments can have up to 16 characters and 28 characters, respectively, the 7th or later characters of the symbols and the 25th or later characters of the comments are erased.

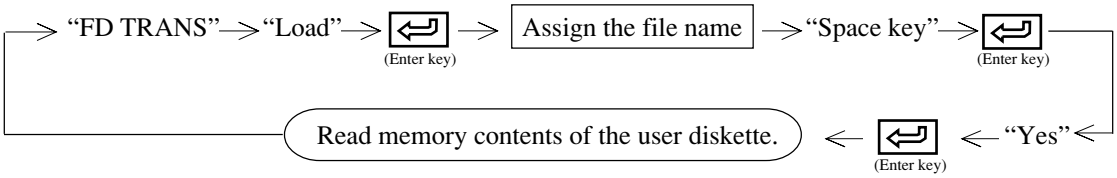
- Be sure to write and store program memory and parameter memory into a user diskette.

(3) Reading

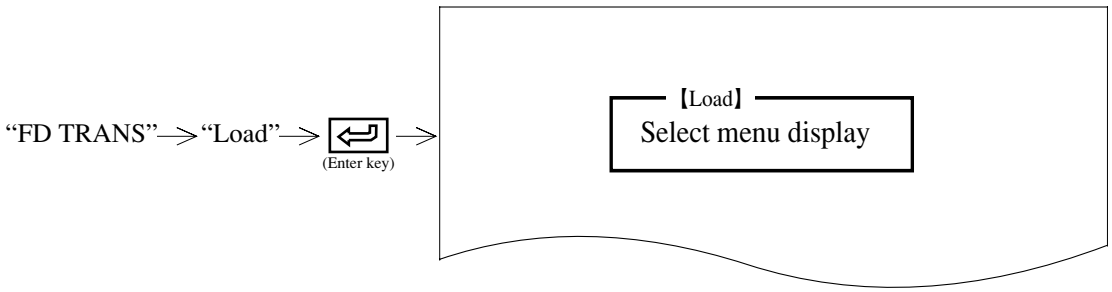
This function reads contents (program memory, system memory etc.) registered in a user diskette to the memory of the module.



Operation outline



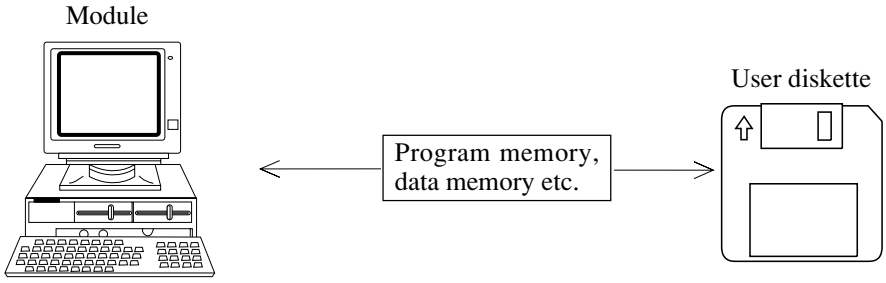
Key operation



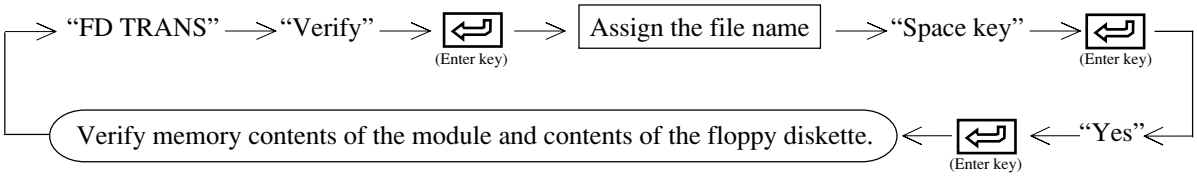
- The module displays file name and contents etc. registered in the floppy diskette. Select file name to read with cursor move keys (↓ ↑) and space key.
- When multiple contents like "program" and "data" are registered under same file name, they can be selected at once and read.
- After selecting file name, press "Yes" and (enter key). The module reads the contents to the memory of the module.
- When reading is finished, the screen displays "loading is completed".
- In case of changing drive & directory of user diskette, change by F1 "drive" key.

(4) Verify

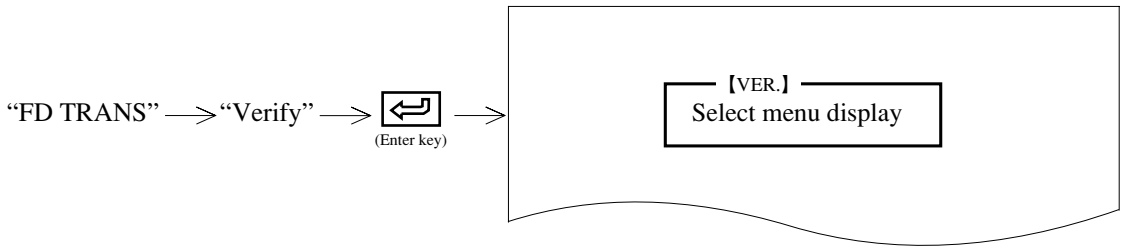
This function verifies memory contents of the module and registered contents of user diskette.



Operation outline



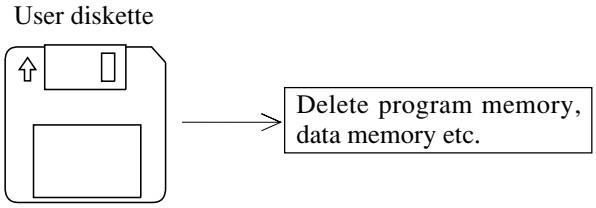
Key operation



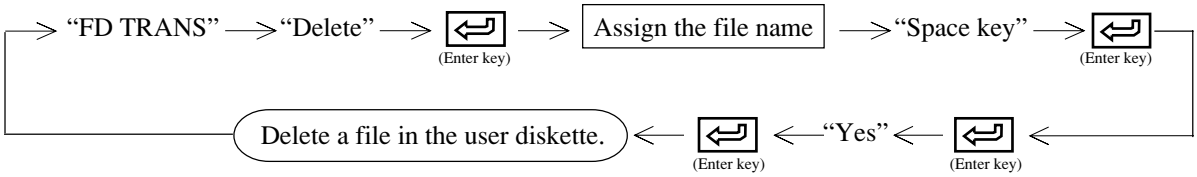
- The module displays file name and contents etc. registered in the floppy diskette. Select file name to verify with cursor move keys (↓ ↑) and space key.
- When multiple contents like "program" and "data" are registered under same file name, they can be selected at once and verify.
- After selecting file name, press "Yes" and (enter key). The module verifies the contents to the memory of the module.
- When varify is finished, the screen displays "varifying is completed".
- In case of changing drive & directory of user diskette, change by F1 "drive" key.

(5) Delete

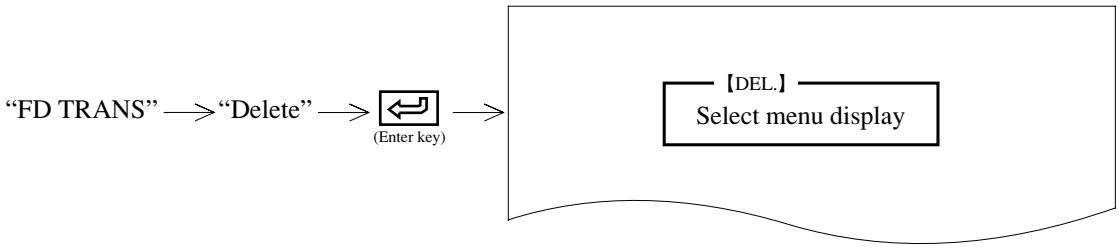
This function deletes files which are registered (stored) in a user diskette.



Operation outline



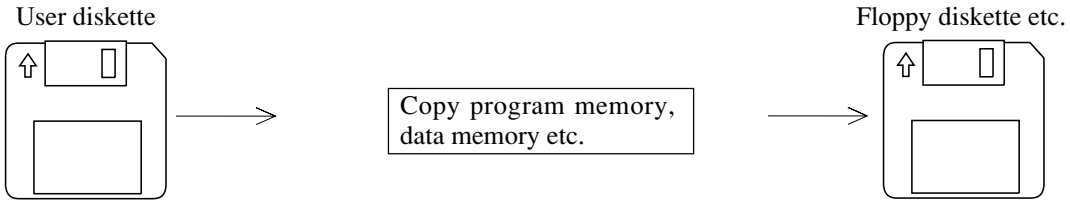
Key operation



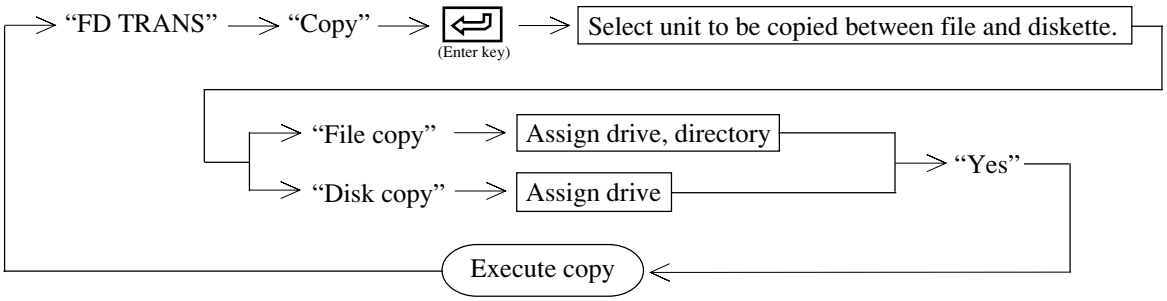
- The module displays file name and contents etc. registered in the floppy diskette. Select file name to delete with cursor move keys (↓ ↑) and space key.
- When multiple contents like "program" and "data" are registered under same file name, they can be selected at once and delete.
- After selecting file name, press "Yes" and (enter key). The module deletes the contents to the memory of the module.
- When delete is finished, the screen displays "deleting is completed".
- In case of changing drive & directory of user diskette, change by F1 "drive" key.

(6) Copy

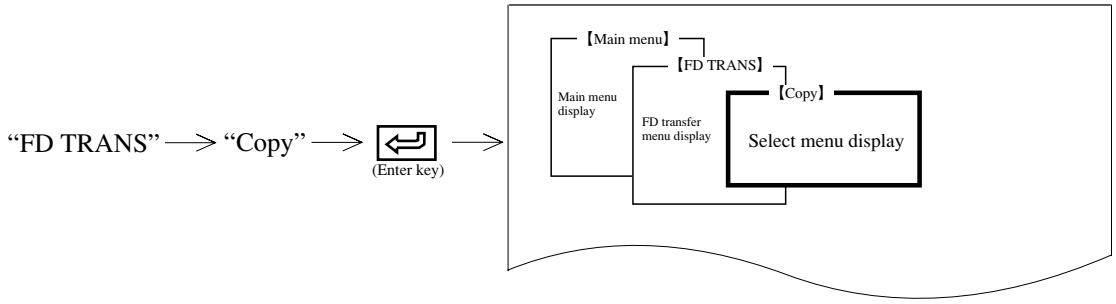
This function copies contents of a user diskette to an assigned directory by file unit or diskette unit. It also automatically verifies contents at copying.



Operation outline



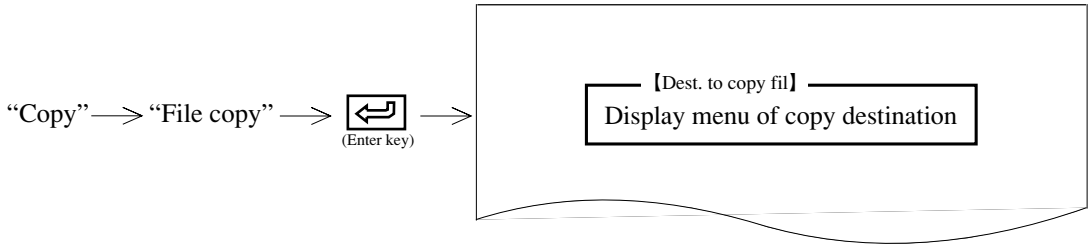
Key operation 1



• After selecting module to be copied from "File copy" or "Disk copy," press [↵] (enter key).

Key operation 2

(When copying a file)

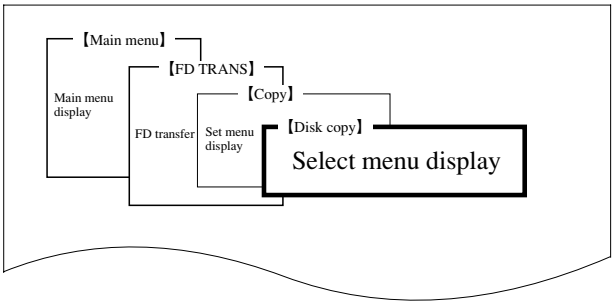


- The module displays file name and contents etc. registered in the floppy diskette. Select file name to copy with cursor move keys ([↓] [↑]) and space key.
- More than one set of contents is available to be copied at once.
- After selecting file name, assign "Copy to DRV." and "Copy to DIR." and press [↵] (enter key). The module commences copying by pressing "Yes" key and [↵] (enter key).
- When copy is finished, the screen displays "copying is completed".
- In case of changing drive & directory of user diskette, change by F1 "drive" key.

Key operation 3

(In case of disk copy)

"Copy" → "Disk copy" → [Enter] (Enter key) →

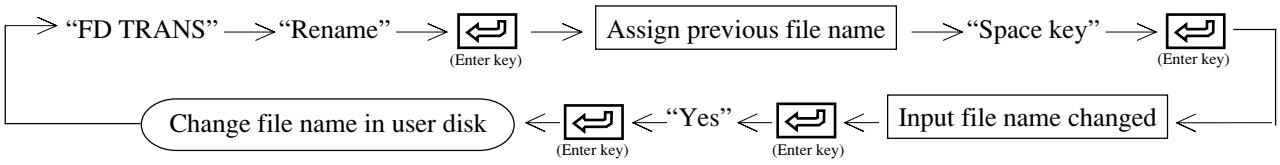


- Select drive number of transfer (copy) original diskette and transfer (copy) destination with cursor move key ([←] [→]).
- After selecting both drive numbers, press [Enter] (enter key). Then press the "Yes" key and [Enter] (enter key) to commence copying.
- When copy is finished, the screen displays "copying is completed".

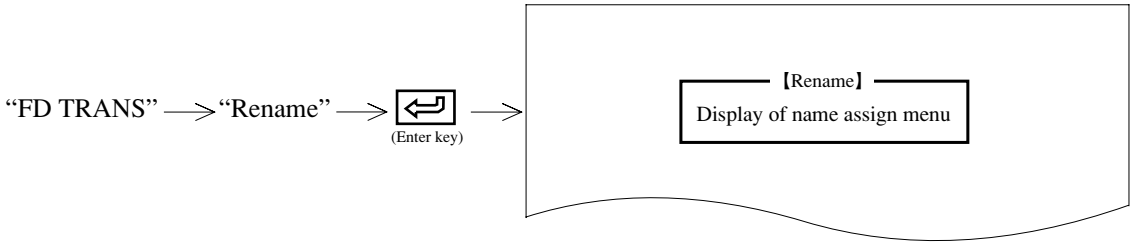
(7) Change file name

This function changes file name which is registered in a user diskette.

Operation outline



Key operation

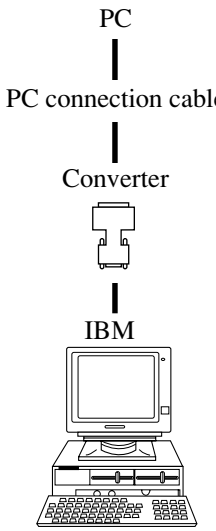


- The module displays file name and contents etc. registered in the floppy diskette. Select file name to change with cursor move keys (↓ ↑) and space key.
- Input new file name up to 4 characters with full size letters (8 characters with half size letters).
- After inputting a new file name, press ↵ (enter key). Then press the "Yes" and ↵ (enter key) to change file name.
- When change is finished, the screen displays "changing is completed".
- In case of changing drive & directory of user diskette, change by F1 "drive" key.

Chapter 12 Transfer to PC

This mode is used to transfer program and data between PC and the module as well as instruct start and stop of PC operation.
Prior to transferring data to PC, connect PC with the module.

Connection



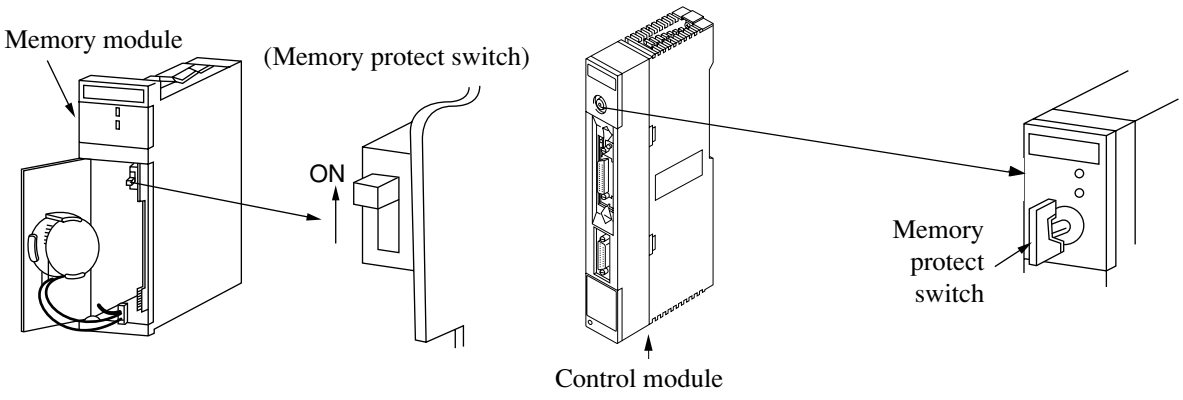
- Connect the proper side of the converter to the RS-232C port of the personal computer and the other side of the converter to the PC connection cable. (See page 3-1.)

Note

- When connecting or disconnecting the PC connection cable with the PC power source ON, turn on the memory protect switch.

(JW-21CU/22CU)

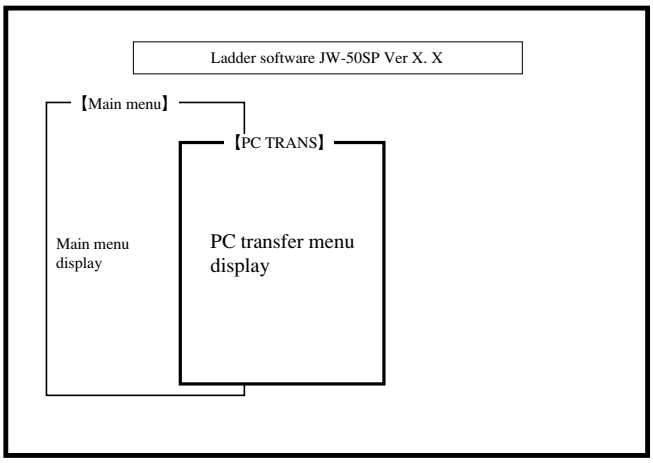
(JW-50CU/70CU/100CU
JW-50CUH/70CUH/100CUH)



Key operation

"Main menu" → "PC TRANS" → (Enter key) →

Screen display



※"PC transfer" is accessible from any of main menu, program edit, monitor, print, tool transfer, or initial set modes.

Function

Name	Contents	Reference page
Parity	• Parity check of PC	12-3
Write	• Write data such as program, or system memory created by the module in PC.	12-5
Read	• Read memory contents (program, system memory etc.) of PC.	12-7
Verify	• Verify data (program, system memory etc.) inside the module with the memory contents of PC.	12-10
Time DISP	• Display PC set time (year, month, day, day of week, hour, minute, second)	12-12
PC Run	• Set PC to operation condition	12-14
PC Stop	• Set PC to operation stopped condition	12-15
PC Opr.	• Read/write EEPROM	12-16

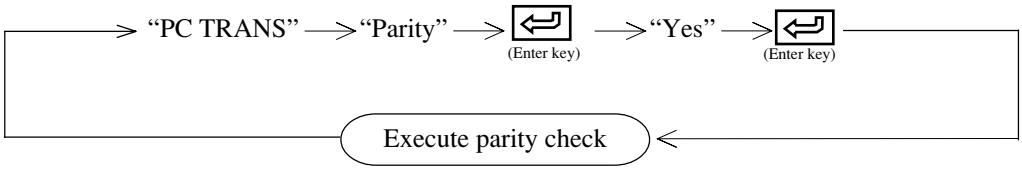
Notes

- PC operation function is ineffective when PC model is set as W series.
- Connect the module with the device (PC, network module etc.) set by communication setting of "Initial set."
- Press ESC key to return to the menu display of each mode.
- To select any item on the menu, use numerical key or cursor move keys.

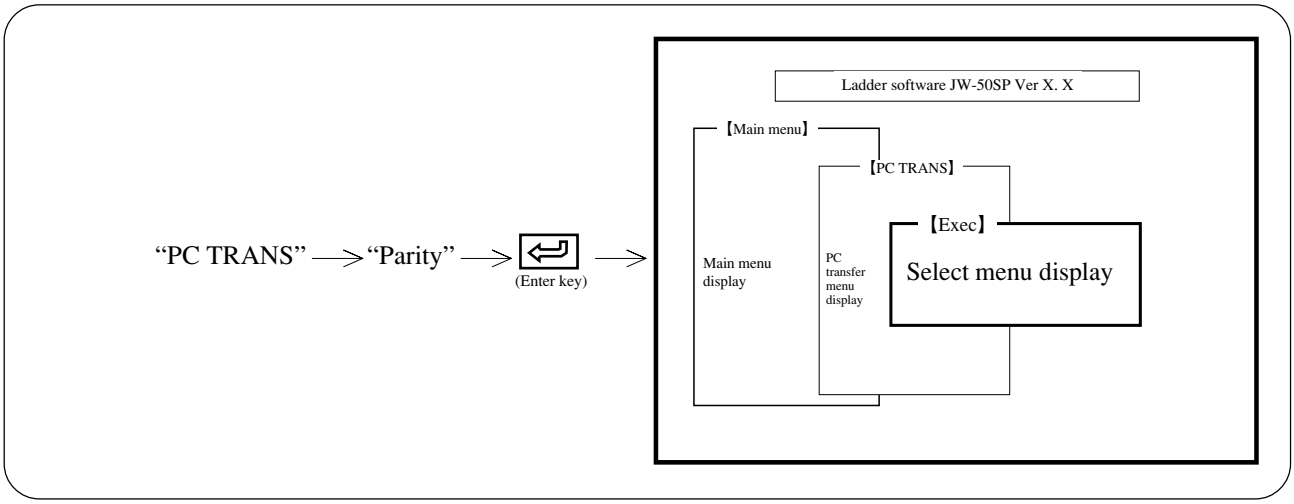
(1) Parity (the model except for W10, JW10, JW-31/32/33CUH)

This function checks parity of programs

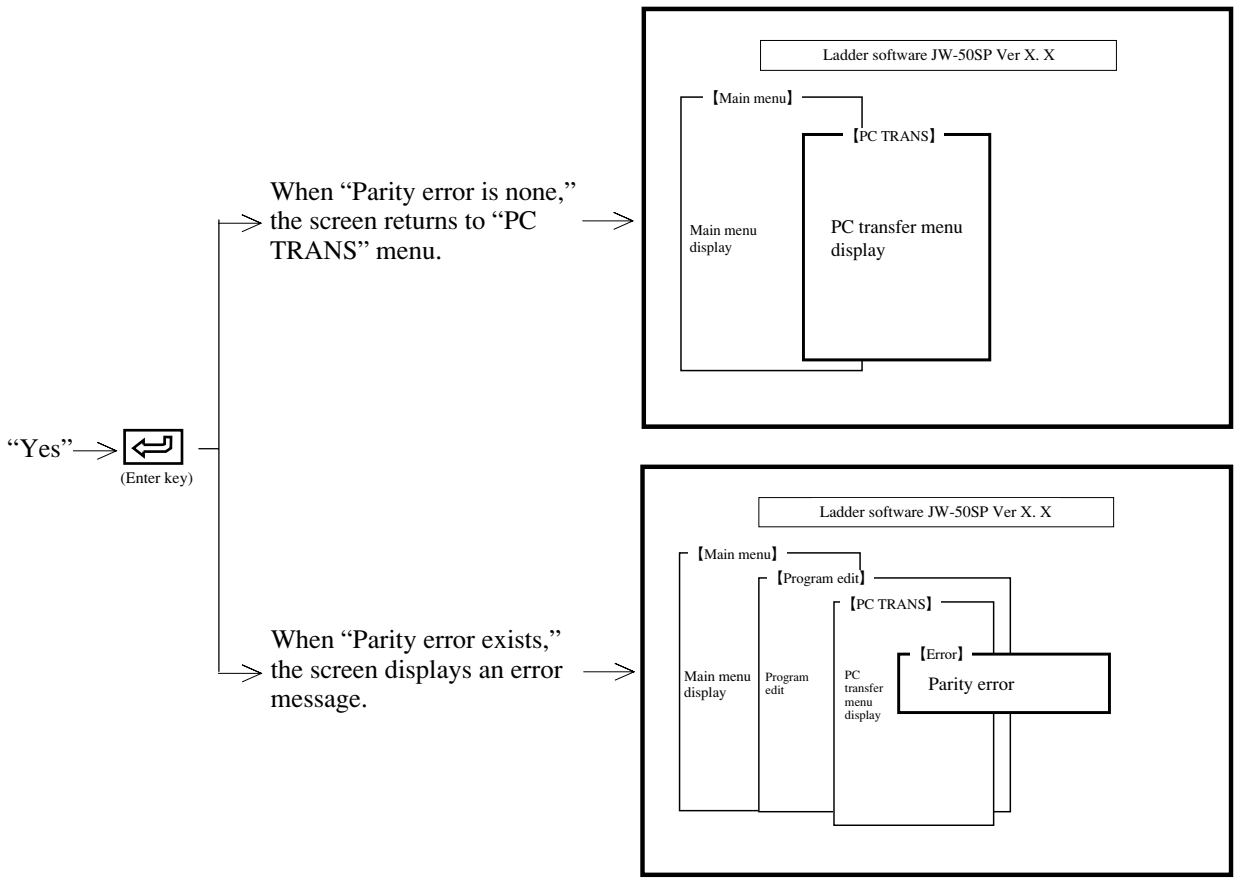
Operation outline



Key operation 1



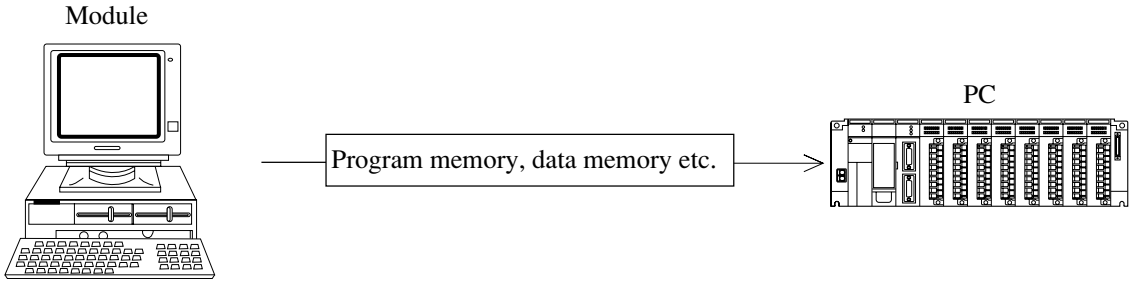
Key operation 2



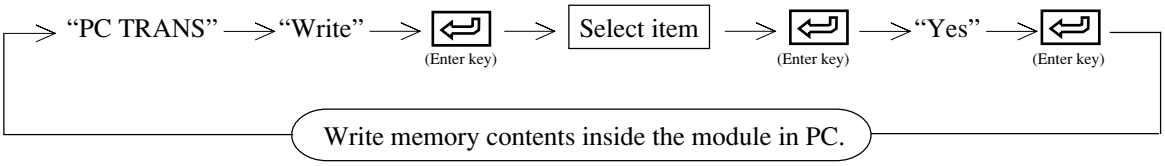
• When an error exists, the module displays "Parity error." In this case, press the ESC key to return to the menu screen and execute "Save END instruction in end address" or "Retransfer of program."

(2) Writing

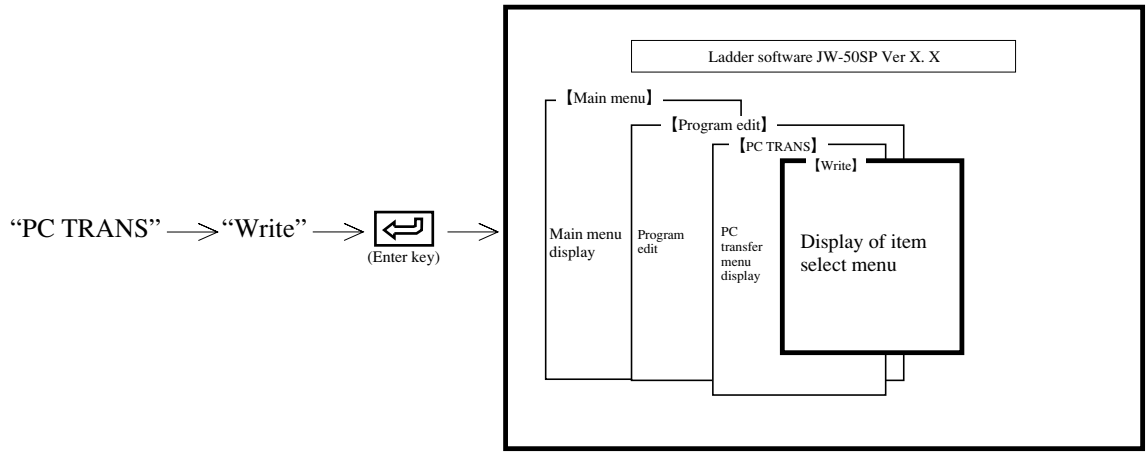
This function writes memory contents (program, data etc.) of the module in PC memory.



Operation outline



Key operation 1

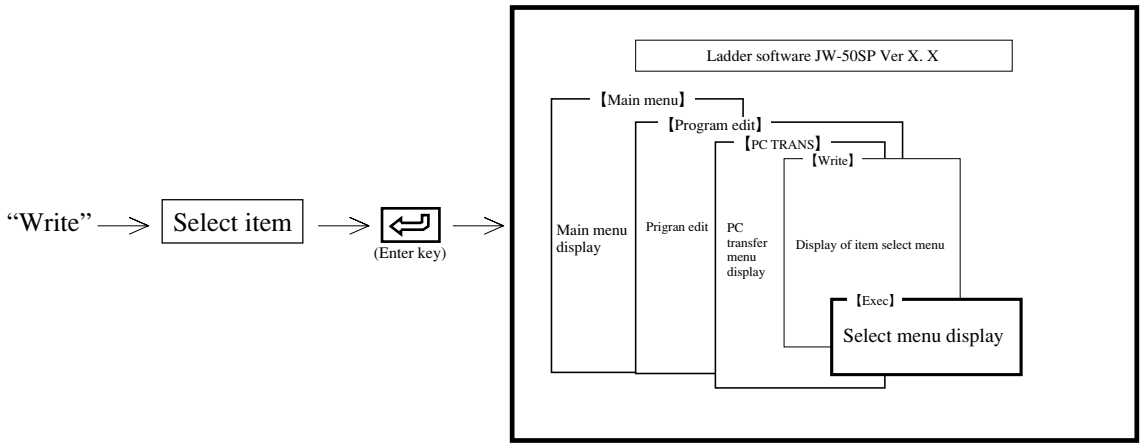


Name	Contents
Program memory※	• Write program memory inside the module in PC.
System memory	• Write system memory inside the module in PC.
Data memory	• Write data memory inside the module in PC.
Comment memory	• Write comment memory inside the module in PC.
Parameter memory	• Write parameter memory inside the module in PC memory.
File memory	• Write file memory inside the module in PC memory.

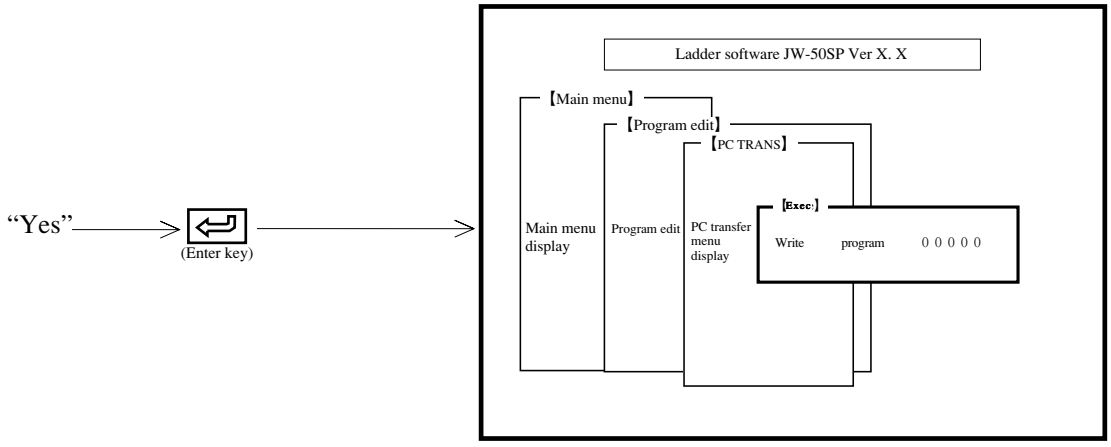
※When PC is set as JW70H/100H, writing of program using ROM operation of system memory #255=11HEX is unavailable. (Display as "On ROM operation")

R-I/O M. PARAM.	• Write the parameter (remote master station) of ZW/JW-20CM inside the module in PC memory.
R-I/O S. PARAM.	• Write the parameter (remote slave station) of ZW/JW-20CM inside the module in PC memory.
DL. M. stn. PARAM	• Write the parameter (data link master station) of ZW-20CM, JW-20CM/22CM inside the module in PC memory.
DL S. stn. PARAM.	• Write the parameter (data link slave station) of ZW-20CM, JW-20CM/22CM inside the module in PC memory.
ME-NET M. PARAM.	• Write the parameter (NET-MET master station) of ZW-20CM2, JW-20MN/21MN inside the module in PC memory.
ME-NET S. PARAM.	• Write the parameter (NET-MET slave station) of ZW-20CM2, JW-20MN/21MN inside the module in PC memory.
SUMINET parameter	• Write the parameter of ZW-30CM inside the module in PC memory.
Other parameters	• Write the parameter of master station inside the module in PC memory.

Key operation 2



Key operation 3



• During writing, the screen displays program address, symbol, comment etc.

• After writing is finished, the screen displays "Writing is completed."

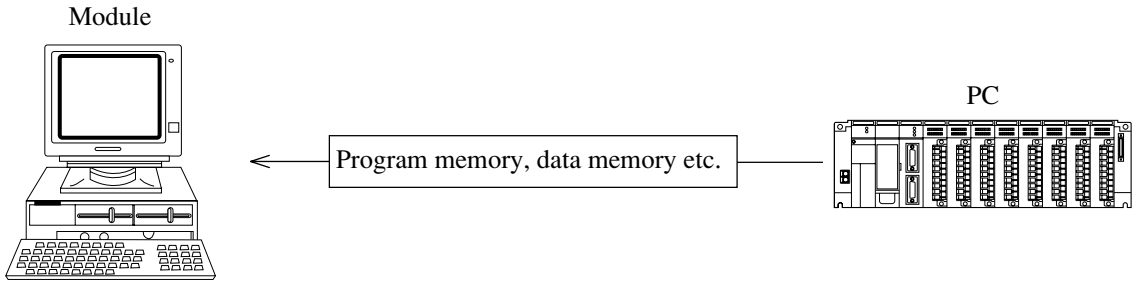
Notes

• Start writing in PC after "PC Stop."

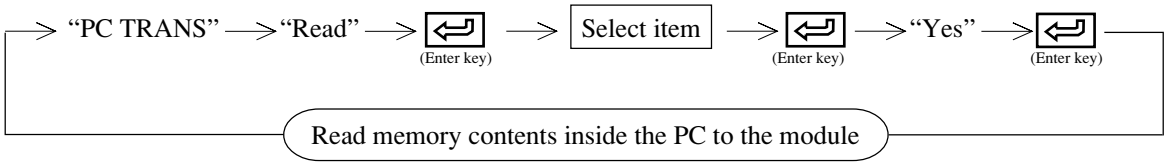
• File number "0" is unusable.

(3) Reading

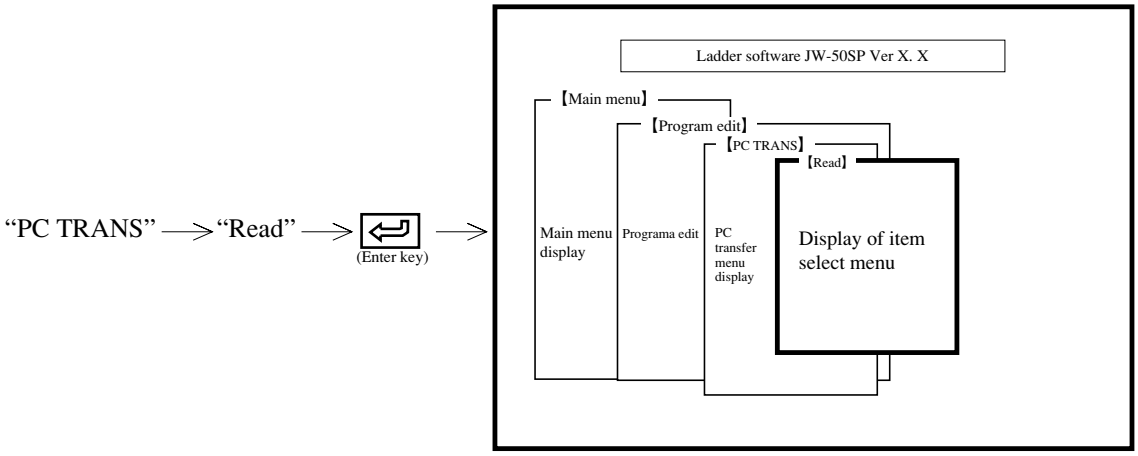
This function reads PC memory contents (program, data etc.) to the module memory.



Operation outline



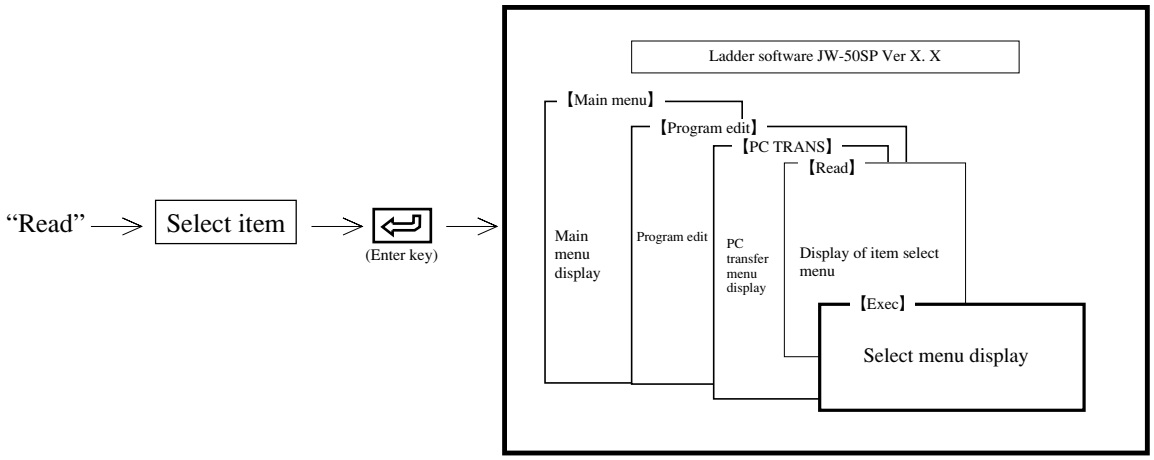
Key operation 1



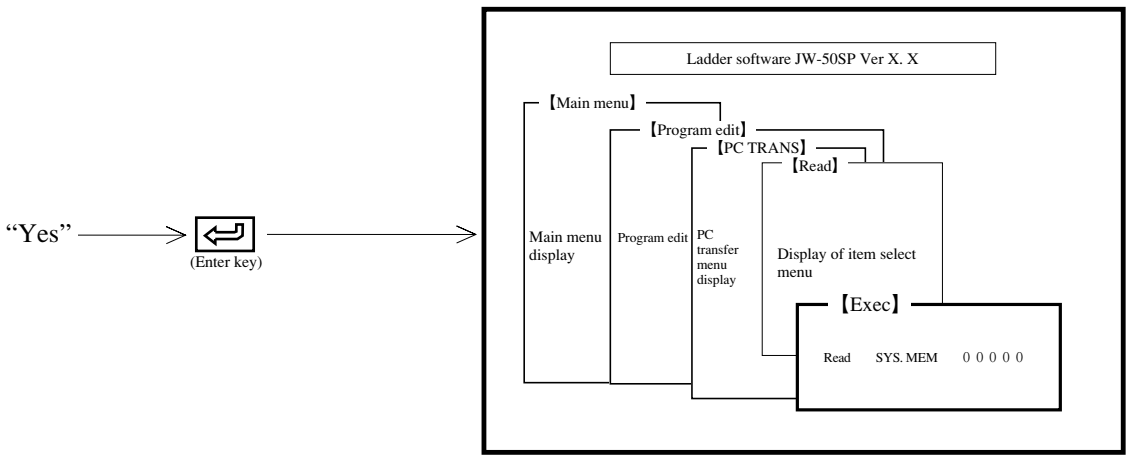
Name	Contents
Program memory	• Read program memory inside the module from PC.
System memory	• Read system memory inside the module from PC.
Data memory	• Read data memory inside the module from PC.
Comment memory	• Read comment memory inside the module from PC.
Parameter memory	• Read parameter memory inside the module from PC.
File memory	• Read file memory inside the module from PC.

R-I/O M. PARAM.	• Read remote master station parameter inside the module.
R-I/O S. PARAM.	• Read remote slave station parameter inside the module.
DL. M. stn. PARAM	• Read data link master station parameter inside the module.
DL S. stn. PARAM.	• Read data link slave station parameter inside the module.
ME-NET M. PARAM.	• Read ME-NET master station parameter inside the module.
ME-NET S. PARAM.	• Read ME-NET slave station parameter inside the module.
SUMINET parameter	• Read parameter of ZW-30CM inside the module.
Other parameters	• Read parameter of master station inside the module.

Key operation 2



Key operation 3



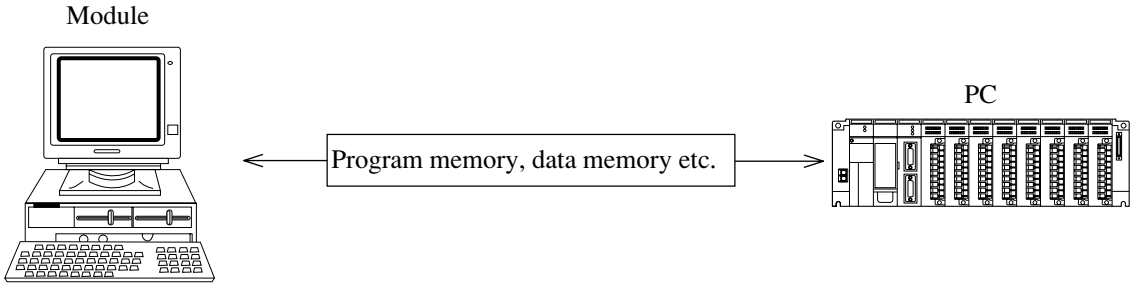
- During reading, the screen displays program address, symbol, comment etc.
- After reading is finished, the screen displays "Reading is completed."

Notes

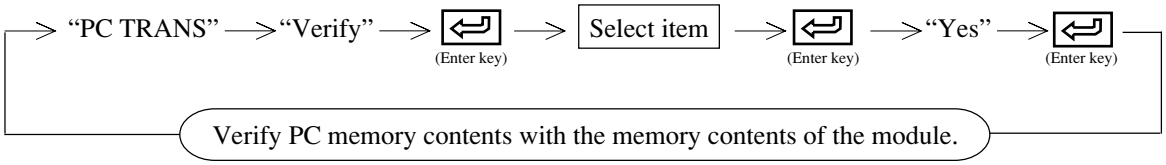
- Prior to reading contents with PC transfer, store memory contents of the module in a user diskette using "FD TRANS" (See page 11-1). (When "Read" is executed with PC transfer, memory contents of the module is overwritten to newly read contents.
- File number "0" is unusable.

(4) Verify

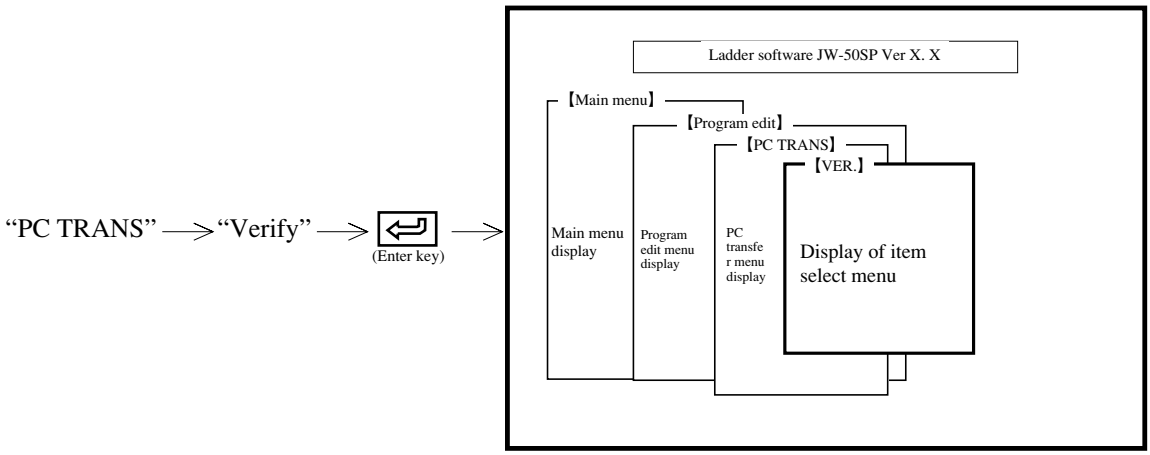
This function verifies PC memory contents (program, data etc.) with memory contents of the module.



Operation outline

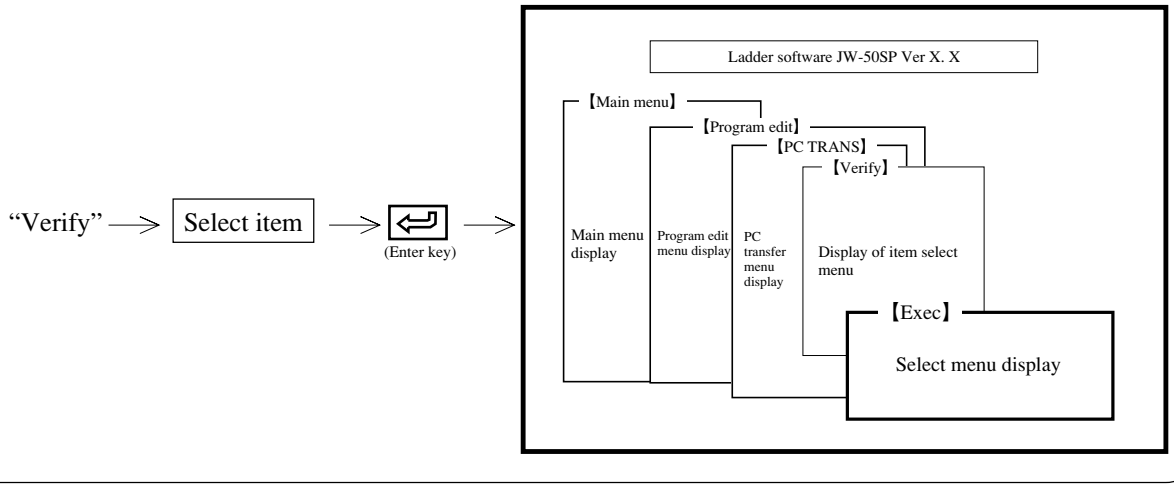


Key operation 1

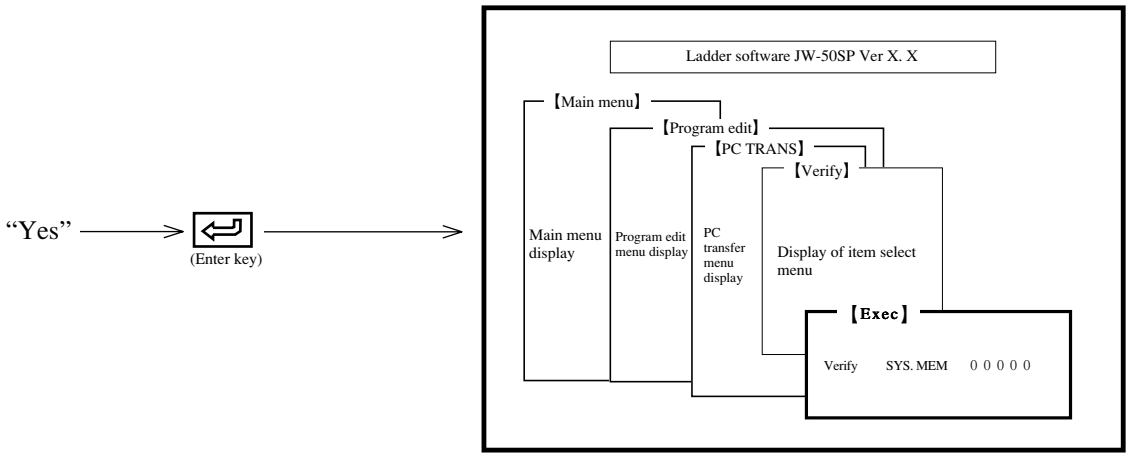


Name	Contents
Program memory	• Verify PC program memory with the program memory of the module.
System memory	• Verify PC system memory with the system memory of the module.
Data memory	• Verify PC data memory with the data memory of the module.
Comment memory	• Verify PC comment memory with the comment memory of the module.
Parameter memory	• Verify PC parameter memory with the parameter memory of the module.
File memory	• Verify PC file memory with the file memory of the module.

Key operation 2



Key operation 3



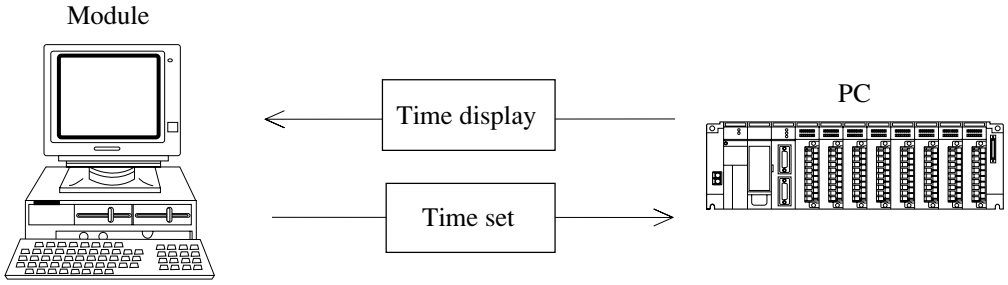
- During verifying, the screen displays program address, symbol, comment etc.
- After verifying is finished, the screen displays "Verifying is completed."

Note

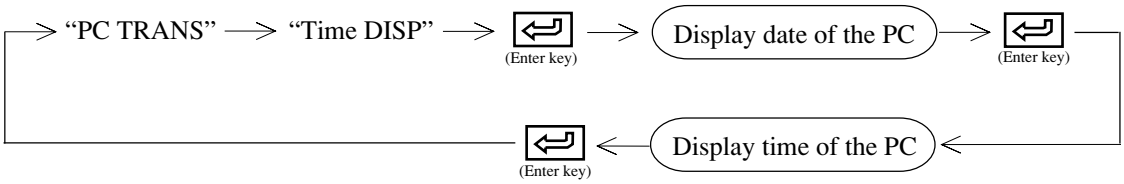
- File number "0" is unusable.

(5) Clock display (JW50/70/100, JW50H/70H/100H, JW10, JW-22CU, JW-32/33CUH)

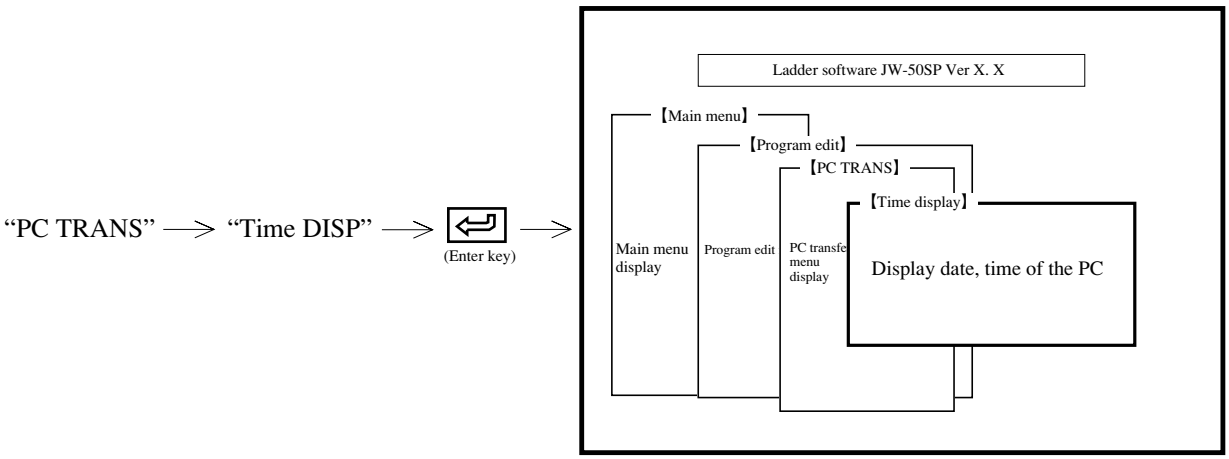
This function displays time set in a PC.



Operation outline

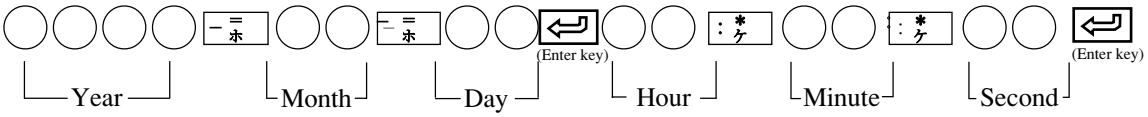


Key operation 1

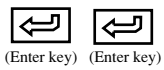


• Display "Time" set in the PC.

① When changing display:

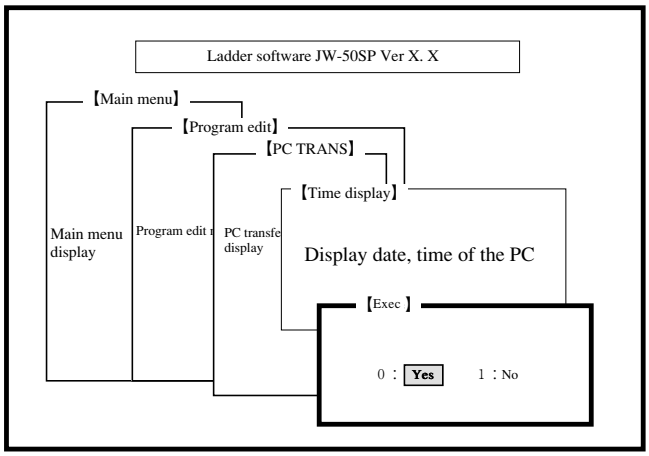


② When not changing display:



Key operation 2

"Time DISP" → (Enter key) →



• When resetting time of the PC:

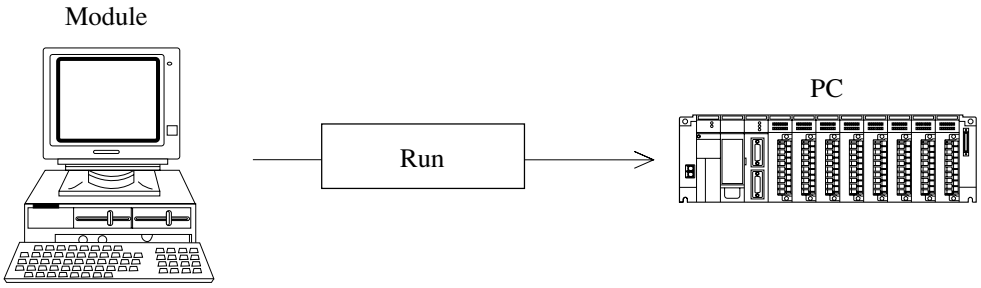
"Yes" → (Enter key) → Set time and return to "PC transfer" menu display.

Note

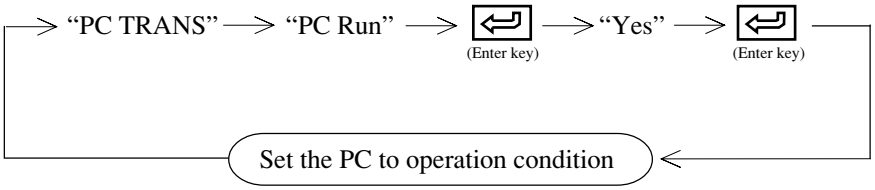
• When PC model don't have clock function is unavailable.

(6) Start PC operation

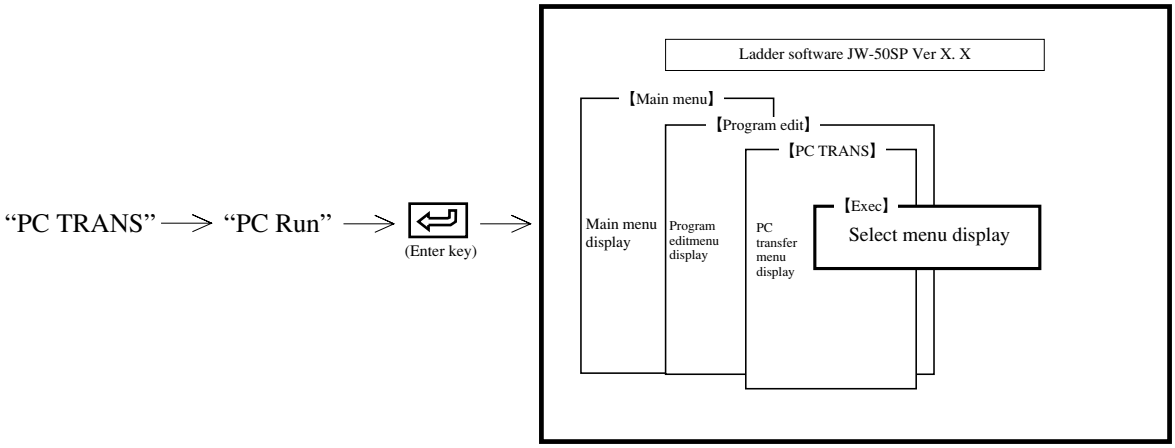
This function switches the PC to operation condition.



Operation outline



Key operation



• When PC "Run":

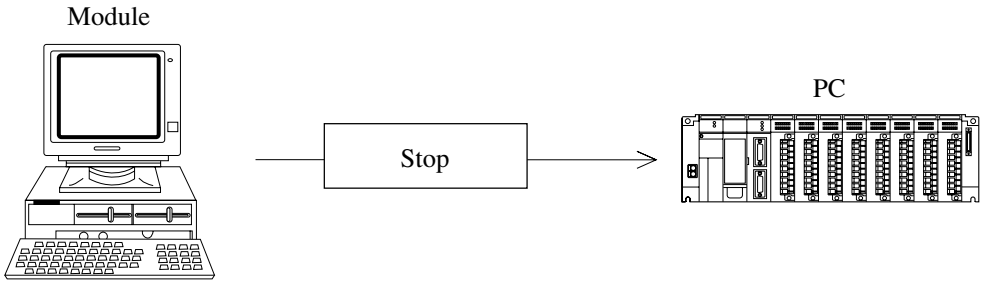
"Yes" → (Enter key) → Switches to "PC Run" condition and the screen returns to "PC transfer" menu.

Note

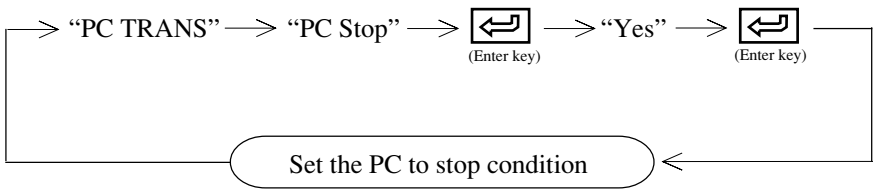
• When the PC model is "JW50H/70H/100H", an indication of "CU protection" is given and it becomes impossible to change the operation/stop state of the PC body in the state where the memory protect switch of the control module is "ON".

(7) Stop PC operation

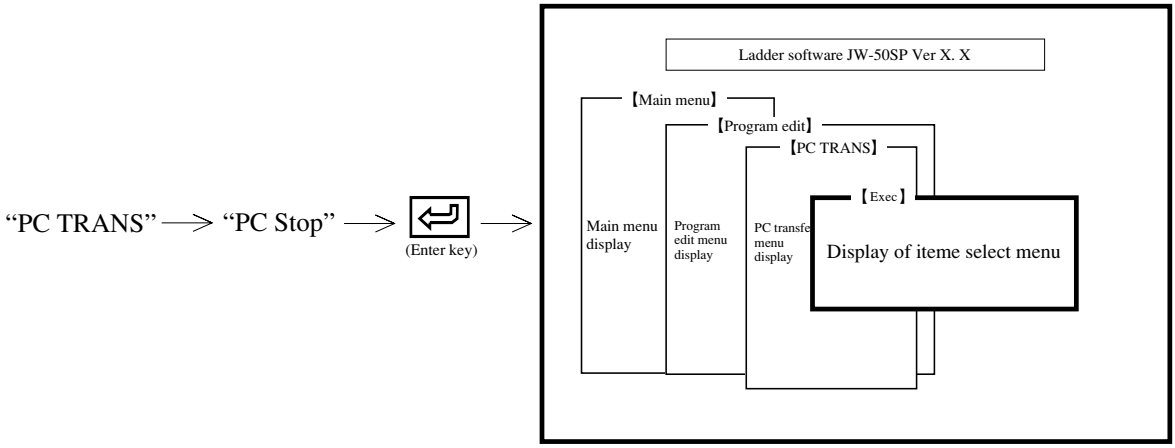
This function switches the PC to stop condition.



Operation outline



Key operation



• When PC "Stop":

"Yes" → (Enter key) → Switches to "PC Stop" condition and the screen returns to "PC TRANS" menu.

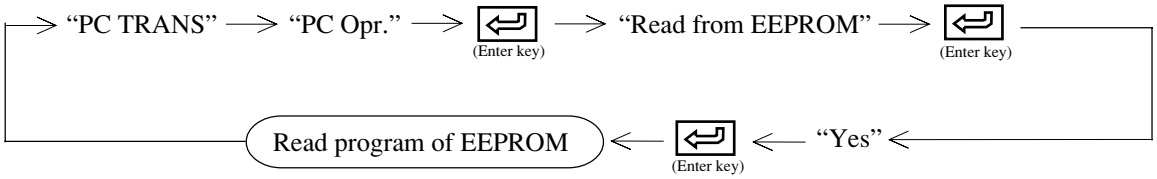
Note

• When the PC model is "JW50H/70H/100H", an indication of "CU protection" is given and it becomes impossible to change the operation/stop state of the PC body in the state where the memory protect switch of the control module is "ON".

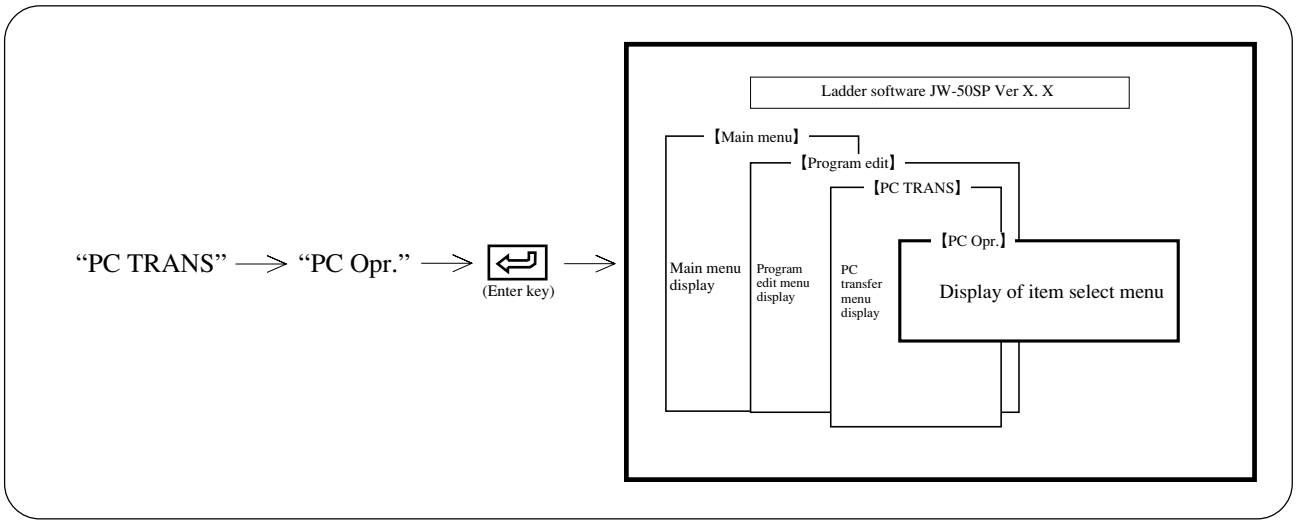
(8) PC operation

This function reads/writes EEPROM, clears CU memory, and creates/reads I/O table.

Operation outline



Key operation



Operation example

① Read/write EEPROM (Flash ROM)

Connect the PC with the module → Select "Read from EEPROM (Flash ROM)" or "Write to EEPROM (Flash ROM)" → (Enter key) → "Yes" → (Enter key) → Read program from EEPROM (Flash ROM) of the PC to RAM, or write program of PC's RAM in EEPROM (Flash ROM).

In case of JW-31/32/33CUH, it's Flash ROM.

② Memory clear at CU

Connect the PC with the module → Select "Memory clear at CU" → [Enter key] →

→ "Yes" → [Enter key] → Memory clear at CU

Program memory	Clear
Data memory	All 00_{HEX}
File memory	All 00_{HEX}
System memory	Initial value
I/O registration	Registered

③ Preparation or read I/O table (JW-21/22CU, JW-31/32/33CUH only)

Connect the PC with the module

In case of JW-21/22CU → "Design of I/O table"
→ "Read the I/O table"

In case of JW-31/32/33CUH → "Design of I/O table"
→ "Auto registration"
→ "Rack top address manual setting" (Setting the top address of rack 1 to 3)

→ [Enter key] → "Yes" → [Enter key] → Design or read of I/O table

④ Transfer to PROM programmer from PC (JW-22CU only)

Connect the PC with the module → Connect PC's communication port with PROM programmer → "PROM PROG." →

→ [Enter key] → "Yes" → [Enter key] → Transfer program contents of the PC to a PROM programmer

※For connection of the communication port with a PROM programmer, see instruction manual for each PC.

⑤ Secret (JW10, JW-31/32/33CUH only)

The PC body can be made secret when the PC model is JW10, JW-31/32/33CUH. If you set for "Secret ON", you cannot see the contents of PC (program, system memory, etc.) thereafter unless a password is input for it.

Conversely, the contents of PC can be seen after releasing of secret ("Secret OFF").

After "Secret OFF" and end of processing with PC, the state of "Secret OFF" continues unless you set for "Secret ON" again. Be careful.

If you forget the password, no reference to PC program can be made. Take note of the password without fail.

1. Registration of password

Register a password in the PC body. After registering a password in the PC, a "Secret OFF" operation is necessary to perform processing with PC.

Connect personal computer and PC body → "Secret" → "Enter" key →
→ "REG./CHG. password" → "Enter" key → Input password → "Yes" →
→ "Enter" key → Registration of password completed

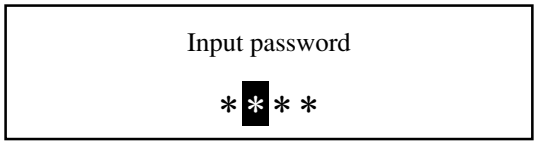
The password can be registered in a 4 digits Roman characters and numerals. However, register in the range of 0 to 9 and A to F when using a hand-held programmer (JW-13PG, etc.). A change of password is also possible in this mode.

2. Secret OFF

To perform processing with the PC body when the PC body is in the "Secret ON" state, it must be turned to "Secret OFF". Input the password before starting communication with PC (when PC transfer/monitor, etc. are selected). The setting of "Secret OFF" remains effective until you make a "Secret ON" operation. Therefore, be sure to turn to "Secret ON" after the end of any processing with PC.

Select processing with PC → Input password → Start processing with PC
(PC transfer/monitor, etc.)

Picture for inputting password



Push −(minus) key before clear memory.
If you select F3 "Clear memory" in the picture for inputting password, all the memories in the PC body will be cleared.

3. Secret ON

This operation turns the once released "Secret OFF" to "ON" again.

Connect personal computer and PC body → "Secret" → "Enter" key →
→ "Secret ON" → "Enter" key → "ON" → "Enter" key →
→ Secret ON completed

If you set for "Secret ON", processing with PC becomes impossible until a "Secret OFF" operation is made (input of password) next time. The password will be of the previously set content.

4. Erasure of password

This operation erases the set password.

Connect personal computer and PC body → "Secret" → "Enter" key →
→ "DEL. password" → "Enter" key → "DEL" → "Enter" key →
→ Delete password completed

A "Secret OFF" operation is necessary also for erasing password.

Appendix Message list

[A]

• Address
Condition : Displaying address or setting address.

• After the area assignment, push “Exec.”key
Condition : Setting print area.

• AND-OUT circuit is incorrect.
Cause : Incorrect connection between AND instruction and OUT instruction.

• Area Assigning
Condition : Completed area assignment of copy, move, delete, or print.

• Area Assigning
Condition : Assigning area of move, copy, delete, or print.

[B]

• Break
Condition : Executing break monitor.

[C]

• Checking
Condition : Checking program.

• Checking = Completed checking, Number of error =
Condition : Displaying program checked result.

• Checking = Push “Enter” key
Condition : When number of errors is more than 16, display 16 errors on 1 screen.

• Comment (Overflowed the Input area)
Condition : Inputting data memory comment
Cause : Input comment exceeds 24 digits.
Remedy : Reinput within the area.

• Comment MEM setting at CU is not set.
Cause : System memory #224 and #225 are not set.
Remedy : Set comment memory used area at system memory #224 and #225.

• Comment memory size is not enough.
Cause : Comment memory capacity set at system memory #224 and #225 is shorted.
Remedy : Change set value of system memory #224 and #225.

• Completed the memory clear.
Condition : Competed partial memory clear.

• Connection error
Cause : Connected PC model or communication system is different. Or, connection cable is disconnected.
Remedy : Check PC model, communication system, and connection.

• Converting to ladder diagram.
Condition : Converting to ladder diagram.

[E]

• Editing coil list
Condition : Editing coil list

• Editing PASS
Condition : Editing cross reference file.

• Editing the data list
Condition : Editing data list.

• Enter the correct file name.
Condition : Misinput file name.
Remedy : Input file name correctly.

• Error was detected at MS-DOS. Model is mismatch. Push the function key.
Remedy : Read set PC model in the module and match PC model.

• Error was detected at MS-DOS. Overflowed the Input area. Push the function key.
Remedy : Re-input File name or comment within input area.

• Error was detected at MS-DOS. Ready the drive. (Saving) Drive "＊" Push the function key.
Remedy : Insert and set write enable floppy diskette into the drive "＊."

• Error was detected at MS-DOS. Ready the drive. Push the function key.
Remedy : Insert user diskette to required drive.

• Error was detected at MS-DOS. Same file name exist. Push the function key.
Remedy : Change file name and register.

• Error was detected at MS-DOS. Write protected (Saving) Drive "＊" Push the function key.
Remedy : Enable writing of floppy diskette in the drive "＊."

• Error was detected MS-DOS. Disk error (Loading) Drive "＊" Push the function key.
Remedy : Replace floppy diskette in the drive "＊."

• Error was detected MS-DOS. Disk error (Saving) Drive "＊" Push the function key.
Remedy : Insert floppy diskette initialized on MS-DOS into the drive "＊."
• Error was detected MS-DOS. Enter the correct file name. Push the function key.
Remedy : Input File name correctly.

• Error was detected MS-DOS. Other than DOS disk. (Loading) Drive "＊" Push the function key.
Remedy : Insert floppy diskette initialized on MS-DOS into the drive "＊."

• Error was detected MS-DOS. Ready the drive. (Loading) Drive "＊" Push the function key.
Remedy : Set user's disk to the drive "＊."

• Error was detected MS-DOS. Short of disk capacity. Push the function key.
Remedy : Register in another user diskette.

• Error was detected MS-DOS. The file can not be found. Push the function key.
Remedy : Change file name or FD.

[F]

• FILE No. = 00 Push "Exec." key after setting the file No.
Remedy : Set floppy diskette drive number to write, read, or verify.

• Finalizing execution, please wait.
Condition : Finalizing execution.

• Finished : Compile cross reference.
Condition : Edit of cross reference file is finished.

• Flaming error
Cause : Flaming error of receive data

• Format error
Cause : Format error of receive data

[I]

• Incorrect device connected
Cause : Input model: 20CM/20RS/30CM is different from actually connected model.
Remedy : Match input model with the connected model.

• Incorrect OR circuit
Cause : Unable to OR connection.

• Incorrect setting of time
Cause : Time setting is incorrect.
Remedy : Set time correctly.

• Incorrect the area assignment

Cause : Mis-assigned area of move, copy, delete, memory clear, or print. At setting print area, end number is smaller than start number.

Remedy : Set larger number for last number than start number.

• Insert the new disk "＊" to drive.

Remedy : Set a user diskette to be initialized into the drive "＊."

• Install user's disk to the drive and push enter key.

Remedy : Insert user diskette into the drive "＊."

[L]

• Load

Condition : Reading program, system memory etc. from PC or user diskette.

• Loading the system

Condition : Reading JW-50SP system software.

• Loading the system　Loading system program, please wait for a moment.

Condition : Reading JW-50SP system software.

[M]

• Model is mismatch.

Cause : PC model set in the module is different from actually connected PC model. Or, PC model of read file from the user diskette is different from actually connected PC model.

Remedy : Match with PC model set in the module.

• Model is mismatch. Change model

Cause : PC model set in the module is different from actually connected PC model. Or, PC model of read file from the user diskette is different from actually connected PC model.

Remedy : Match setting of PC model.

• Move the cursor to instruction position.

Cause : As the cursor is at other than instruction word, the module cannot confirm address.

Remedy : Move the cursor to instruction word allocated position.

[N]

• No space for the program area.

Cause : Not enough program area to write converted instructions.

• Not enough the input circuit

Cause : Lack of input circuit at CNT, F-60 instruction etc.

• Not ready error reading drive A Abort, Retry Ignore ?

Cause : Floppy diskette is not inserted into the drive "＊."

Remedy : Insert and set "JW40SP system diskette" or "User diskette" into the drive "＊."

[O]

• Output terminal short

Cause : Short circuit between set and reset of CNT.

• Overflowed the Input area

Cause : Exceed input area of File name, symbol, or comment.

Remedy : Re-input within the area.

[P]

• Parity error

Condition : Parity error occurred at transfer to PC.

• PC is stopping

Condition : Stopping PC operation.

• PC run. Stop DL or remote I/O

Cause : Attempted to write during PC operation.

Remedy : Stop PC and write.

• PC running

Condition : Operating PC.

• PC running Address

Condition : Setting address at monitor mode.

• PC running F-No.

Condition : Setting application instruction (F number) at monitor mode.

• PC running Search+ (or Search-)

Condition : Searching at monitor mode.

• PC running Symbol (or Comment)

Condition : Setting symbol or comment at monitor mode.

• PC write protected error

Condition : PC is in writing prohibited condition.

• Printing

Condition : Printing.

• Printing
Condition : Printing ladder diagram, instruction words etc.

• Printing Area Assi
Condition : Assigning print area

• Push Exec. key. PC Run (PC Stop)
Condition : Waiting for PC operation or stop of PC operation.

[R]

• Reg MNTR
Condition : Registering any ladder monitor.

• Return to MS-DOS. Push enter key.
Condition : Press "Exec." key to return to MS-DOS (A>).

[S]

• Same file name exist.
Cause : Identical name file exists in the user diskette.
Remedy : Change file name and register.

• Set relay at the start line.
Cause : No relay contact (STR instruction) in line open position.

• Set the relay at start portion of the block
Cause : No relay contact at OR start position.

• Setting data is incorrect.
Cause : Mis-set date.
Remedy : Set date correctly.

• Short of disk capacity
Cause : User diskette does not have enough remaining capacity to register.
Remedy : Register in another user diskette.

• Short on file capacity
Remedy : Set file capacity correctly on system memory #205.

• Short the circuit
Cause : A circuit which attempted to write was shorted.

• Stop
Cause : Attempted to write parameter during network operation.
Remedy : Stop network operation and write parameter.

• Symbol (Overflowed the Input area)

Cause : Input symbol exceeding 6 digits.

Remedy : Re-input within input area.

• Symbol

Condition : Inputting symbol (comment) at symbol, comment settings.

• System Error

Cause : For unknown reason, “NAK” is returned from PC during monitoring.

• System program can not be found

Cause : Necessary programs do not exist in floppy diskette or hard disk.

Remedy : Again copy from master floppy diskette.

[T]

• The circuit is disconnected, please connect it.

Cause : STR instruction and OUT instruction are not appropriately connected.

• The file can not be found.

Cause : Assigned file name does not exist in user diskette.

Remedy : Change file name or user diskette.

• The mnemonic is incorrect.

Cause : Attempted to write, insert, or search after setting incorrect instruction (such as setting non-existing number of application instruction).

• Too large circuit

Cause : Element total in one line exceeds 252.

Remedy : Use auxiliary relay and divide these elements into two or more lines.

• Transfer time out

Condition : Unable to communicate with time out error.

• Trigger

Condition : Keeping display with trigger condition.

• Trigger OFF → ON

Condition : Monitoring trigger in trigger condition “OFF → ON.”

[U]

• Unable to delete the mnemonic.

Cause : Deleted address's instruction is located at other than first word position.

Remedy : To delete application instruction, timer, counter etc., move the cursor to first word.

• Unable to find out the circuit

Cause : No circuit element.

• Unable to insert the mnemonic.

Cause : Inserted address is intermediate point of other instruction. Or, memory capacity is insufficient to insert.

• Unable to search the mnemonic.

Cause : Search assigned instruction word does not exists.

• Unable to set symbol & comment

Cause : The cursor is at other than data memory position.

Remedy : Move the cursor to data memory position.

• Unable to write the mnemonic.

Cause : Attempted to change instruction word during circuit displaying, monitoring. Or, memory capacity is insufficient.

[V]

• Verify error

Cause : An error occurred when verifying with user diskette or with PC memory.

Remedy : Read again and write.