Version 1.0
Produced in Mar. 2004

Sharp Programmable Controller

Model name

Hand-held programmer **JW-15PG**

User's Manual

SHARP
JW-15PG
STR
AND NOT
M-000182
OR
MAIN

Thank you for purchasing the JW-15PG hand-held programmer for the Sharp programmable controller satellite W series.
This book (the user's manual) describes the operation of the JW-15PG.
Depending on the PLC model you are using, you may want to read this book together with the "Handling Manual for JW-14PG." Refer to the table below.

PLC model names	**Reference manual**		
	Table of functions **Table of operation procedure**	**Operations peculiar to JW300**	**Operation details**
JW300	This manual (Chapter 7, 8)	This manual (Chapter 9)	JW-14PG instruction manual *
JW50H/70H/100H, JW50/70/100 JW30H, JW20H, JW20, JW10 J-board（Z500）, J-board（Z300） W100H, W70H, W100 W51, W16, W10 JW-32CV1/2/3		———	

* If you are using the JW300 series, the descriptions are the same as for the JW-14PG, except for items marked "Operation specific to the JW300."
For other PLC models, all the operations are the same as for the JW-14PG.
To find the reference pages in the JW-14PG Handling Manual, see Chapter 8 in this manual.

- When using the JW300 or JW50H/70H/100H, set the MODE switches on the JW-15PG in order to match the PLC model you are using. => See page 4-2

Precautions

- When you plan to use SHARP programmable controllers (hereafter referred to as "PLCs"), you are requested to design each system so that even if a fault or malfunction occurs within the PLC, it will not lead to a serious accident in your system. You should incorporate back-up measures and fail-safe features in your system that will thoroughly protect your system from malfunctions if a fault or error occurs in the PLC.
- SHARP PLCs are designed and manufactured with the idea that they will be used in general applications in ordinary industries. Therefore, they must not be used in specific applications that can affect the health or safety of the public, such as nuclear power plants and other power generating plants. Such applications require a special warranty of quality that SHARP explicitly does NOT offer for these PLCs. However, if a user will certify that he/she does not requires a special quality warranty on the PLC, and will limit the use of the PLC to non-critical areas of these applications, SHARP will agree to such use.

  If you are planning to use SHARP PLCs for applications that may affect the lives of human beings and property, and you need particularly high reliability performance, such as in the fields of aviation, medicine, transportation, combustion and fuel processing equipment, passenger cars, amusement park rides, and safety equipment, please contact our sales division so that we can confirm the required specifications.

Notes

- Though this manual is produced with the almost care, if you have any questions and inquiries, please feel free to contact our dealers.
- The whole or partial photocopy of this booklet is prohibited.
- Contents of this booklet may be revised for improvement without notice.

Safety Precautions

Read this manual and attached documents carefully before installation, operation, maintenance and checking in order to use the machine correctly. Understand all of the machine knowledge, safety information, and cautions before starting to use. In this instruction manual, safety precautions are ranked into "danger" and "caution" as follows.

Danger	: Wrong handling may possibly lead to death or heavy injury.
⚠ Caution	: Wrong handling may possibly lead to medium or light injury.

Even in the case of ⚠ Caution, a serious result may be experienced depending on the circumstances. Anyway, important points are mentioned. Be sure to observe them strictly.

The picture signs of prohibit and compel are explained below.

⊘ : It means don'ts. For example, prohibition of disassembly is indicated as (⊘).

■ Installation

⚠ Caution

- Use in the environments specified in the catalog and user's manual.
  Electric shock, fire or malfunction may be caused when used in the environments of high temperature, high humidity, dusty or corrosive atmosphere, vibration or impact.
- Install according to the manual.
  Wrong installation may cause drop, trouble or malfunction.

■ Use

Danger

- Assemble the emergency stop circuit and interlock circuit outside of the programmable controller. Otherwise the machine breakdown or accident may be caused by the trouble of the programmable controller.

⚠ Caution

- Manipulation for program change, forced output, run or stop during operation should be done with particular care by confirming safety. Misoperation may lead to machine trouble or accident.
- To avoid eye strain, rest your eyes 10 to 15 minutes every when working for long periods of time. Avoid continuous use for long periods of time.

■ Maintenance

⊘ Prohibit

- Don't disassemble or modify.
  Or fire, trouble or malfunction may be caused.

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Chapter 1. Overview

The JW-15PG hand-held programmer (referred to as "programmer" in this manual) is a support tool for Sharp's programmable controller. The programmer is designed for ease of use in maintenance, as well as for programming and monitoring the programmable controller.

The JW-15PG has added functions to the standard JW-14PG model, which are compatible with JW300 series PLCs.

- Display in two languages (Japanese/English), selectable.
- An EL backlight makes it easy to read in dark locations.
- Can display messages using the device function.
  Up to three steps can be displayed at once.
- Equipped with various monitor functions including freely selected multiple points, simultaneous monitoring of two stations, and data input/output.
- Equipped with a plenty of editing functions including programming, copying data memory, and batch processing of instructions.
- Includes with error message display functions.

Chapter 2. Precautions for Use

When using and storing JW-15PG, observe the following precautions.

(1) Installation and storage

1. Avoid installing the JW-15PG in a place where it will be exposed to:
   - Area exposed to direct sunlight.
   - Flammable gases permeate.
2. During storage, do not place anything on the JW-15PG.

(2) Connection

When connecting the JW-15PG to a control module of a programmable controller (hereafter referred to as "PLC") with a connection cable (option), keep the cable away from high voltage lines, motor lines, signal lines to the I/O module and power supply lines.

(3) Operation

1. Do not apply excessive force to the mounting screws or connectors.
2. Do not press the keypad with a sharp pointed object such as a pencil or ballpoint pen.
3. Keep the keypad away from welding sparks and hot solder.
4. If a malfunction or error (overheating, etc.) occurs in the JW-15PG, immediately stop operation, disconnect the cable or the control module from the JW-15PG and contact your dealer or our service company.

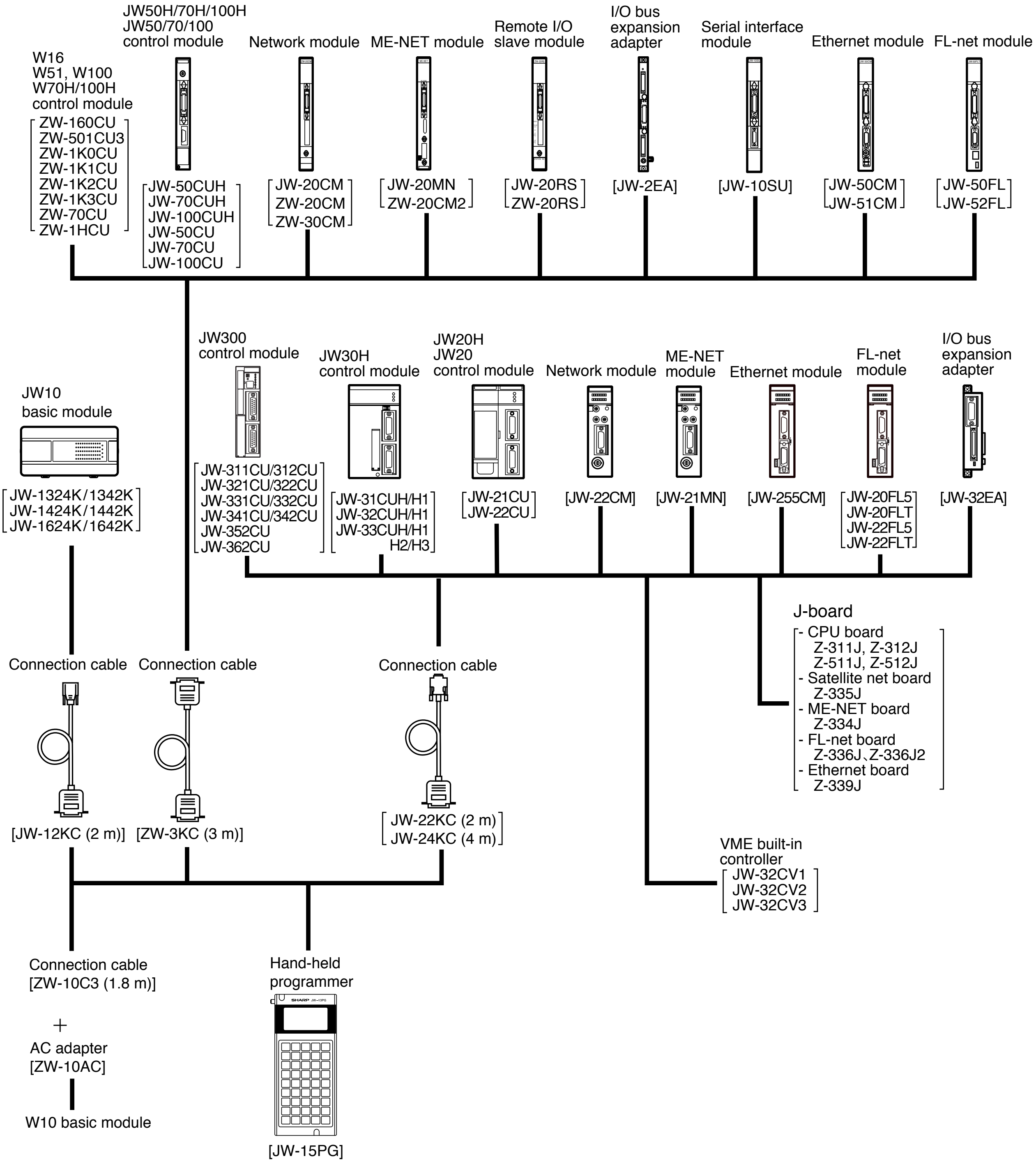
(4) Static electricity

In an extremely dry area, large amounts of static electricity may be generated in a person. Before touching the programmer, discharge any static electricity by first touching a grounded metallic object.

(5) Cleaning

Use a soft, dry cloth to clean the programmer. Use of volatile chemicals (alcohol, thinner, freon, etc.) or a wet cloth may cause deformation or discoloration.

Chapter 3. System Configuration


W16
W51, W100
W70H/100H
control module
ZW-160CU
ZW-501CU3
ZW-1K0CU
ZW-1K1CU
ZW-1K2CU
ZW-1K3CU
ZW-70CU
ZW-1HCU
JW50H/70H/100H
JW50/70/100
control module
JW-50CUH
JW-70CUH
JW-100CUH
JW-50CU
JW-70CU
JW-100CU
Network module
JW-20CM
ZW-20CM
ZW-30CM
ME-NET module
JW-20MN
ZW-20CM2
Remote I/O
slave module
JW-20RS
ZW-20RS
I/O bus
expansion
adapter
[JW-2EA]
Serial interface
module
[JW-10SU]
Ethernet module
JW-50CM
JW-51CM
FL-net module
JW-50FL
JW-52FL
JW10
basic module
JW-1324K/1342K
JW-1424K/1442K
JW-1624K/1642K
JW300
control module
JW-311CU/312CU
JW-321CU/322CU
JW-331CU/332CU
JW-341CU/342CU
JW-352CU
JW-362CU
JW30H
control module
JW-31CUH/H1
JW-32CUH/H1
JW-33CUH/H1
H2/H3
JW20H
JW20
control module
JW-21CU
JW-22CU
Network module
[JW-22CM]
ME-NET
module
[JW-21MN]
Ethernet module
[JW-255CM]
FL-net
module
JW-20FL5
JW-20FLT
JW-22FL5
JW-22FLT
I/O bus
expansion
adapter
[JW-32EA]
J-board
- CPU board
Z-311J, Z-312J
Z-511J, Z-512J
- Satellite net board
Z-335J
- ME-NET board
Z-334J
- FL-net board
Z-336J、Z-336J2
- Ethernet board
Z-339J
Connection cable
[JW-12KC (2 m)]
Connection cable
[ZW-3KC (3 m)]
Connection cable
JW-22KC (2 m)
JW-24KC (4 m)
VME built-in
controller
JW-32CV1
JW-32CV2
JW-32CV3
Connection cable
[ZW-10C3 (1.8 m)]
+
AC adapter
[ZW-10AC]
W10 basic module
Hand-held
programmer
[JW-15PG]

- Direct installation

The JW-15PG can be installed directly in the following PLC models.
JW50H/70H/100H, JW50/70/100, W70H/100H => See "Chapter 5. Connection/Installation Method."

The following modules and cables can be connected to the JW-15PG.

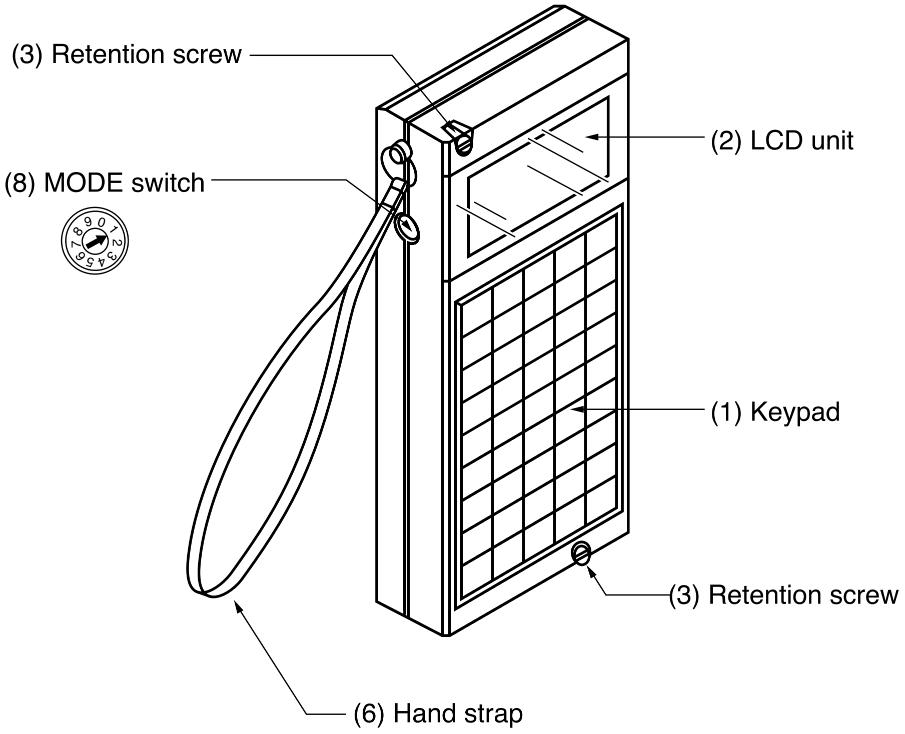
■ Connection module

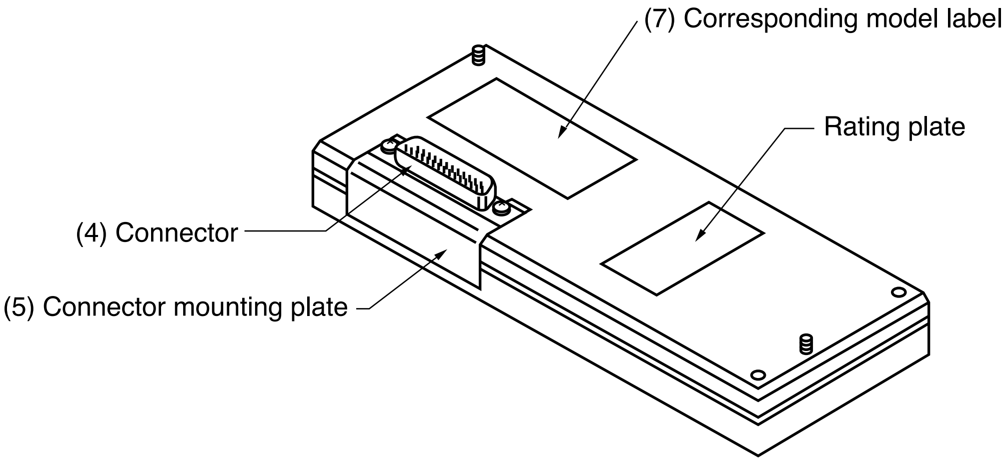
Module name		Model name
Control module	JW300	JW-311CU, JW-312CU, JW-321CU, JW-322CU, JW-331CU, JW-332CU, JW-341CU, JW-342CU, JW-352CU, JW-362CU
	JW50H/70H/100H	JW-50CUH, JW-70CUH, JW-100CUH
	JW50/70/100	JW-50CU, JW-70CU, JW-100CU
	JW30H	JW-31CUH1, JW-32CUH1, JW-33CUH1, JW-33CUH2, JW-33CUH3, JW-31CUH, JW-32CUH, JW-33CUH
	JW20H, JW20	JW-21CU, JW-22CU
	JW10	JW-1324K, JW-1342K, JW-1424K, JW-1442K, JW-1624K, JW-1642K
	W70H/100H	ZW-70CU, ZW-1HCU
	W100	ZW-1K0CU, ZW-1K1CU, ZW-1K2CU, ZW-1K3CU
	W51	ZW-501CU3
	W16	ZW-160CU
	W10	ZW-28M124, ZW-28M114, ZW-28M111, ZW-28M122, ZW-28M324, ZW-28M424
CPU board	J-board	Z-511J, Z-512J
		Z-311J, Z-312J
Network module		JW-20CM, ZW-20CM, ZW-30CM
		JW-22CM
ME-NET module		JW-20MN, ZW-20CM2
		JW-21MN
Ethernet module		JW-50CM, JW-51CM
		JW-255CM
FL-net module		JW-50FL, JW-52FL
		JW-20FL5, JW-20FLT, JW-22FL5, JW-22FLT
Serial interface module		JW-10SU
Remote I/O slave module		JW-20RS, ZW-20RS
I/O bus expansion adapter		JW-2EA
		JW-32EA
VME built-in controller		JW-32CV1, JW-32CV2, JW-32CV3

■ Connection cable

Model name	Cable length	Remarks
JW-22KC	2 m	Use for JW300, JW30H, JW20H, J-board (Z300/Z500), etc.
JW-24KC	4 m	
ZW-3KC	3 m	Use for JW50H/70H/100H, etc.
JW-12KC	2 m	Use for JW10
ZW-10C3	1.8 m	Use for W10 (ZW-10AC AC adapter is needed)

Chapter 4. Name and Function of Each Part


(3) Retention screw
(8) MODE switch
(2) LCD unit
(1) Keypad
(3) Retention screw
(6) Hand strap


(7) Corresponding model label
Rating plate
(4) Connector
(5) Connector mounting plate

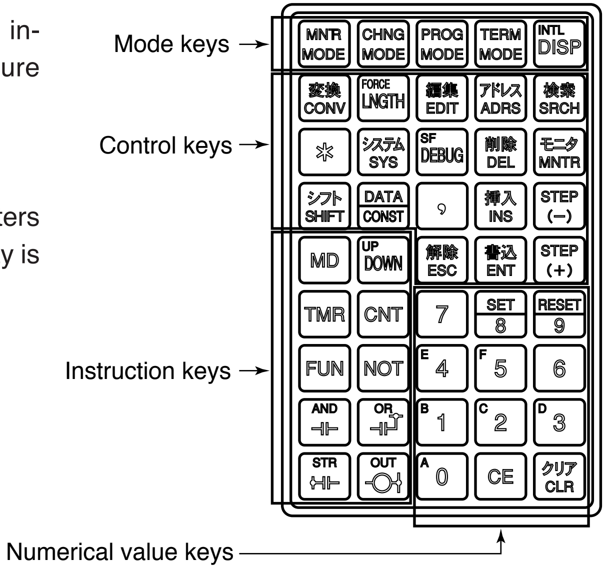
- As for function of (1) to (8) => See next page

(1) Keypad

For manipulating program writing, etc.

The key panel contains mode keys, control keys, instruction keys, and numeric keys. => See the figure on the right.

[Key layout of the keypad]


Mode keys
Control keys
Instruction keys
Numerical value keys
MNTR MODE
CHNG MODE
PROG MODE
TERM MODE
INTL DISP
変換 CONV
FORCE LNGTH
編集 EDIT
アドレス ADRS
検索 SRCH
*
システム SYS
SF DEBUG
削除 DEL
モニタ MNTR
シフト SHIFT
DATA CONST
9
挿入 INS
STEP (−)
MD
UP DOWN
解除 ESC
書込 ENT
STEP (+)
TMR
CNT
7
SET 8
RESET 9
FUN
NOT
E 4
F 5
6
AND
OR
B 1
C 2
D 3
STR
OUT
A 0
CE
クリア CLR

(2) LCD unit

The liquid crystal full dot matrix display (16 characters by 4 lines) shows instructions and data. The display is fitted with an EL backlight.

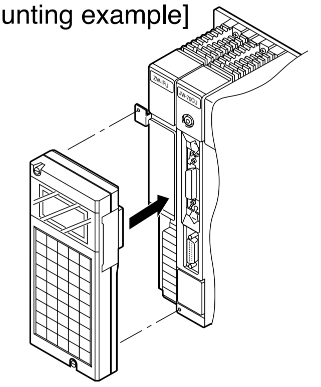
(Display example)

```
 F E D C B A 9 8 7 6 5 4 3 2 1 0
   A N D           0 0 0 0 1
   O R     N O T   0 0 0 0 2
 P 0 0 0 0 3
 > S T R   N O T   0 0 0 0 3
```

(3) Retention screw

Used to secure the JW-15PG on a control module (PLC) or control panel.

[Mounting example]

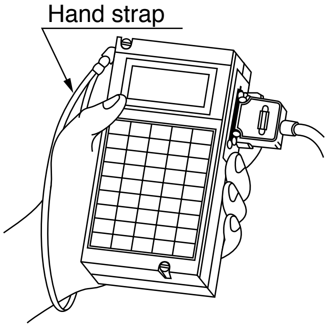


(4) Connector

Connects to a control module (PLC) or connection cable. The mounting direction can be changed.

(5) Connector mounting plate

The mounting direction of the connector can be changed for direct mounting of the programmer or for connection using the optional cable.



(6) Hand strap

Pass your hand through the strap when the programmer is connected via cable to prevent dropping it.

(7) Corresponding model label

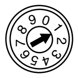
This decal shows compatible PLC models and settings for the MODE switch.

(8) MODE switch

Used to select the PLC model you want to use and to change the display language (Japanese/English).

Setting value of MODE switch	1	2	3	4
Display (Japanese/English)	Japanese	English	Japanese	English
Corresponding models (PLC)	JW300		—	
	JW50H/70H/100H (Unusable an expansion relay)		JW50H/70H/100H (Usable an expansion relay)	
	JW30H, JW20H, JW20, JW10 J-board (Z300/500), JW50/70/100 W10/16/51/100, W70H/100H			

MODE


0 1 2 3 4 5 6 7 8 9

(Setting when delivered : 1)

Note: Make sure to disconnect the cable from JW-15PG before setting the mode switch.
Positions other than "1" to "4" cannot be used.

Chapter 5. Connection/Installation Method

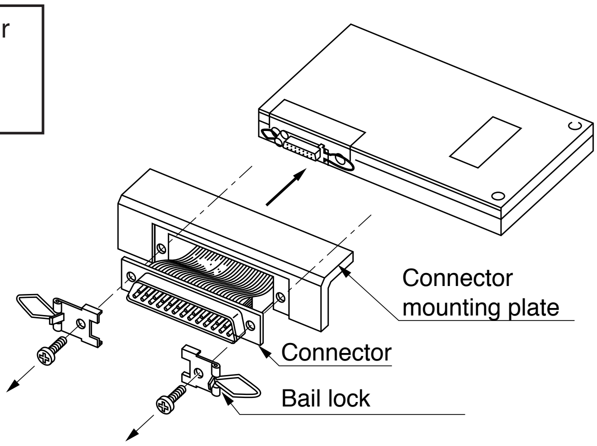
This chapter describes the cable connections and installation of the JW-15PG.

5-1 Changing the direction of the connector

The orientation of the cable connector on the JW-15PG can be changed as follows.

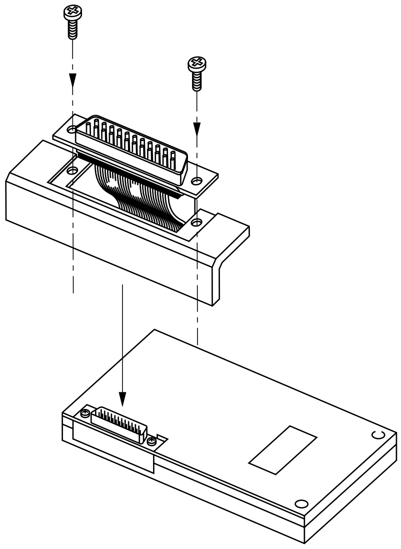
1) Remove the 2 screws securing the connector then detach the connector and connector mounting plate from the JW-15PG.

- Also remove the bail locks if attached.



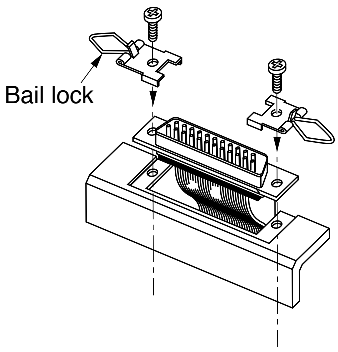
2) Change the direction of the connector mounting plate.

3) Secure the connector and connector mounting plate to the programmer with the 2 screws.



Note: Do not attach the bail locks when directly mounting the programmer to the control module. The connectors will not contact properly if they are attached.

=> Refer to page 5-8



5-2 Method for making cable connections

This method is used to connect the JW-15PG to a PLC using cables (JW-24KC etc.: optional). This section describes the methods for connecting the following models.

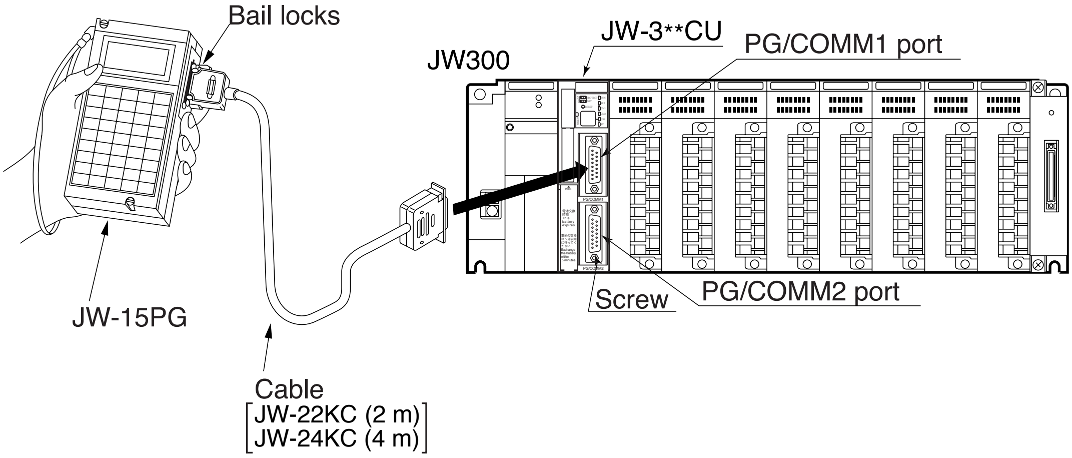
JW300	=> [1]
JW50H/70H/100H	=> [2]
JW30H, JW20H, J-board	=> [3]
JW10	=> [4]
Modules other than control modules	=> [5]
Control panel (front face)	=> [6]

[1] Connections to a control module in the JW300 series

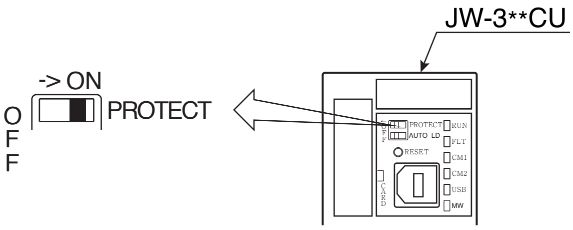
Connect a communication port (PG COMM1 or PG/COMM2) on a control module (JW-3**CU) to the JW-15PG.

1) Connect the JW-15PG to a control module using a JW-22KC/24KC cable.

2) Secure the cable using the bail locks on the JW-15PG and screws on the communication port connector.


Bail locks
JW-3**CU
PG/COMM1 port
JW300
JW-15PG
Screw
PG/COMM2 port
Cable
JW-22KC (2 m)
JW-24KC (4 m)

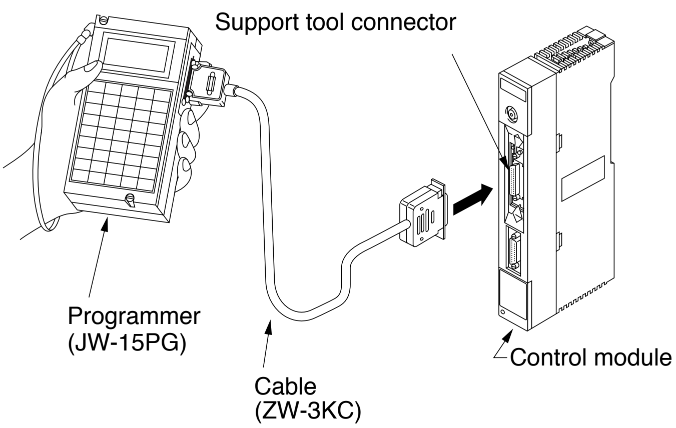
[Reference] If you want to connect or disconnect the JW-15PG while the power to the JW300 remains ON, set the PROTECT switch on the control module to the ON position. When it is in that position, the program and system memory on the JW300 will be protected.


JW-3**CU
-> ON
OFF
PROTECT
PROTECT
AUTO LD
RESET
RUN
FLT
CM1
CM2
USB
MW

[2] Connecting to the JW50H/70H/100H control module

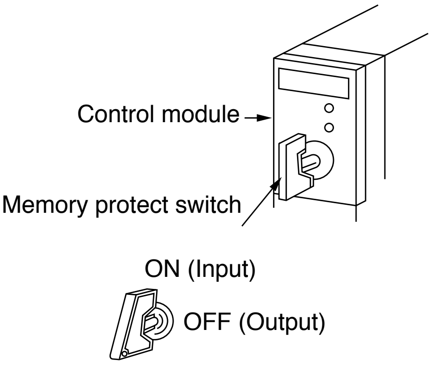
A common procedure is used to connect the programmer to the JW50H/70H/100H control module.

Connect the cable to the programmer's connector and to the control module's support tool connector. Firmly secure both the programmer's end and the control module's end of the cable with the bail locks.


Support tool connector
Programmer
(JW-15PG)
Cable
(ZW-3KC)
Control module

[Reference]

- Set the memory protect switch to "ON" when connecting or disconnecting the programmer while the JW50H/70H/100H's power is "ON." This protects the JW50H/70H/100H's memory.


Control module
Memory protect switch
ON (Input)
OFF (Output)

Notes

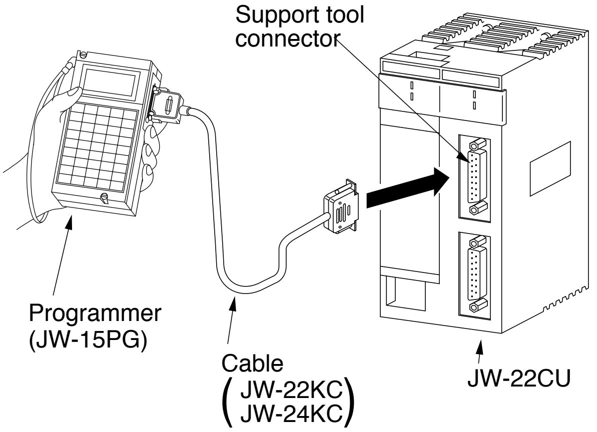
When the JW-15PG connected, a condition may occur where a "beep" is emitted and nothing is displayed. This occurs when the control module has been set to the device function.

[3] Connecting to the JW30H, JW20H, and J-board control modules (board)

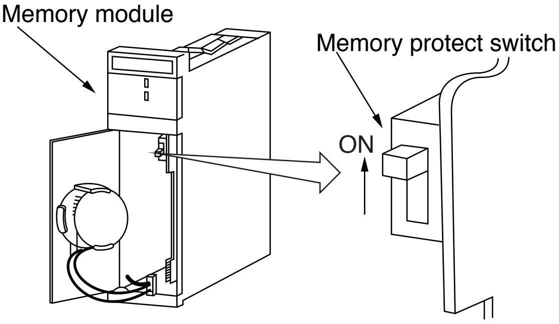
A common procedure is used to connect the programmer to the control modules.

1) Connect the JW-15PG with the control module using the cable.

2) Secure the cable at the JW-15PG's end with the bail locks and at the control module’s end with the screws.


Support tool connector
Programmer (JW-15PG)
Cable
JW-22KC
JW-24KC
JW-22CU

[Reference]
Set the PROTECT (memory protect) switch to "ON" when connecting or disconnecting the JW-15PG while the JW30H, etc.’s power is "ON." This protects the JW30H, etc.’s memory.


Memory module
Memory protect switch
ON

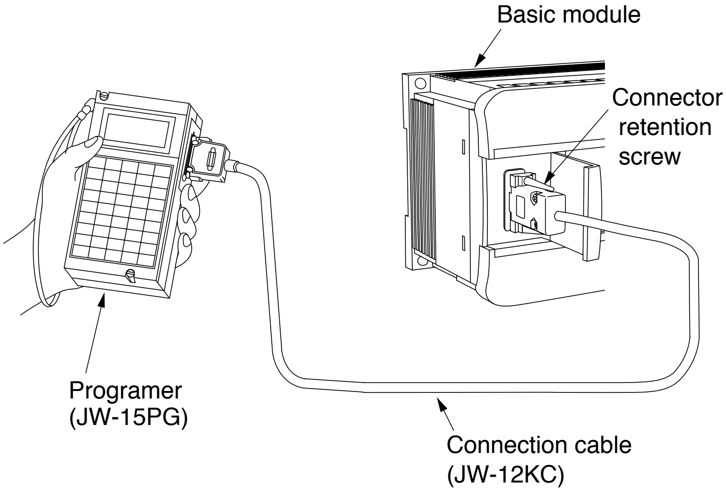
(In case of JW20H)

Notes

When the JE-15PG is connected, a condition may occur where a "beep" is emitted and nothing is displayed. This occurs when the control module has been set to the device function.

[4] Connecting to the JW10 basic module

Connect the JW-15PG and basic module using connection cable JW-12KC.
Connect the cable with the JW-15PG using the bail locks. Connect the cable with the basic module using connector retention screws.


Basic module
Connector retention screw
Programer (JW-15PG)
Connection cable (JW-12KC)

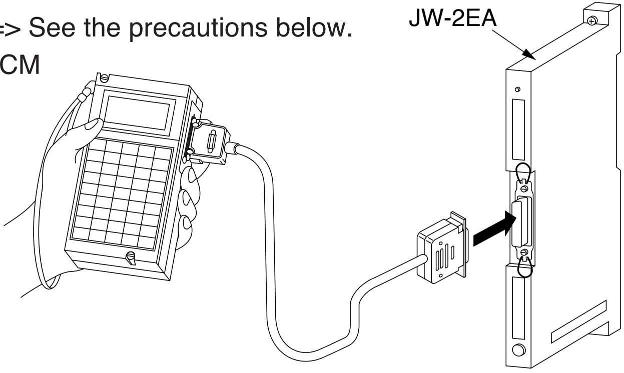
[5] Connecting to a module other than the control module

Installation methods of the JW-15PG are common for all the modules.

This section describes connection procedures to the JW-2EA I/O bus expansion adapter.

The modules other than control modules are as follows:

- I/O bus expansion adapter: JW-2EA, JW-32EA => See the precautions below.
- Network module: JW-20CM/22CM, ZW-20CM/30CM
- Remote I/O slave module: JW-20RS, ZW-20RS
- ME-MET module: JW-20MN/21MN, ZW-20CM2
- FL-net module: JW-50FL, JW-52FL,
  JW-20FL5/T, JW-22FL5/T
- Serial interface module: JW-10SU
- Satellite net board: Z-335J
- ME-NET board: Z-334J
- FL-net board: Z-336J, Z-336J2
- Ethernet module (board): JW-50CM, JW-51CM, JW-255CM, Z-339J
- VME built-in controller : JW-32CV1/32CV2 /32CV3

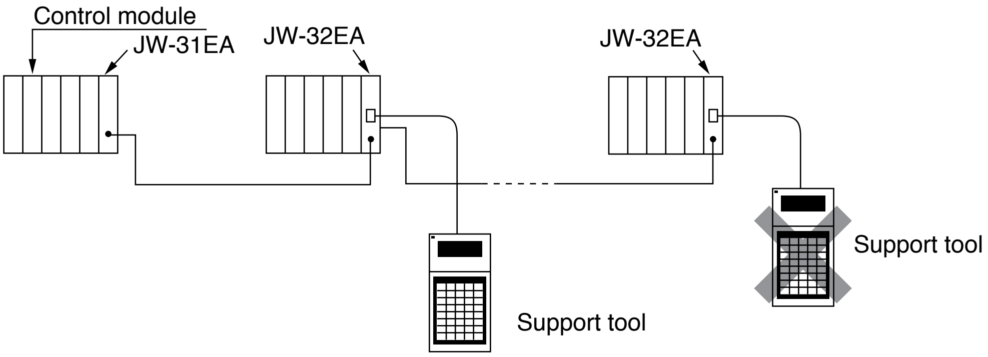


Precautions (Connect with JW-2EA or JW-32EA)

● In case of JW300

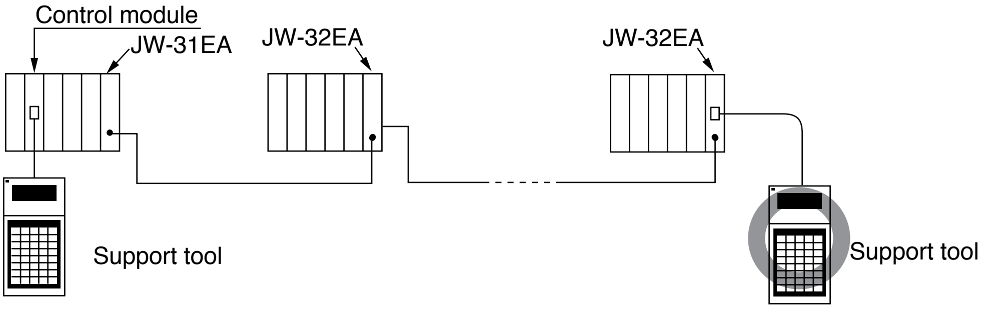
- Only one support tool at a time (JW-300SP, JW-15PG) can be connected to the JW-32EA.

[Example]


Control module
JW-31EA
JW-32EA
JW-32EA
Support tool
Support tool

- With the JW300, when one support tool (JW-300SP, JW-15PG) is connected to the control module, you can also connect another support tool to the JW-32EA.

[Example]

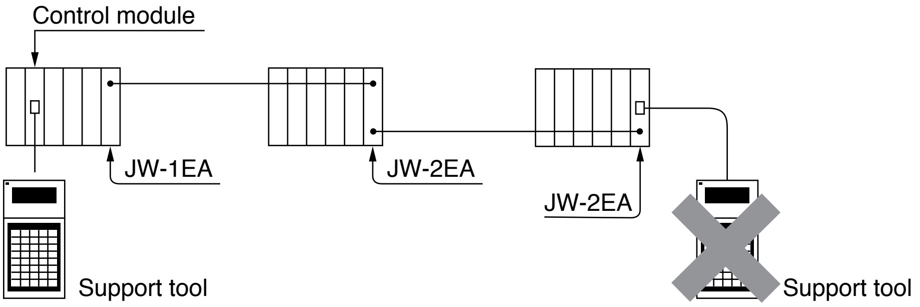

Control module
JW-31EA
JW-32EA
JW-32EA
Support tool
Support tool

↓
To the next page

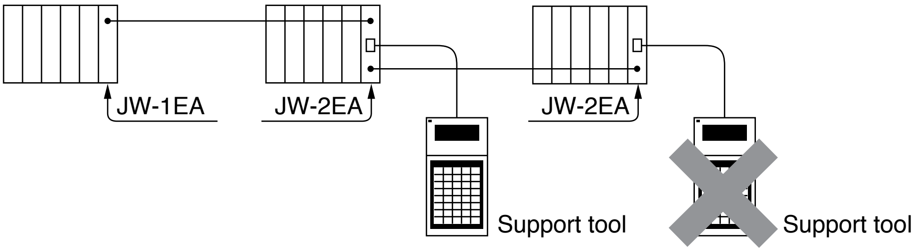
● In case of JW50H/70H/100H, JW30H

Only one support tool can be connected to the JW-2EA, JW-32EA. If a support tool is already connected to the control module or to another JW-2EA, JW-32EA, do not connect the programmer. Connecting the programmer will cause a malfunction.

[Example]

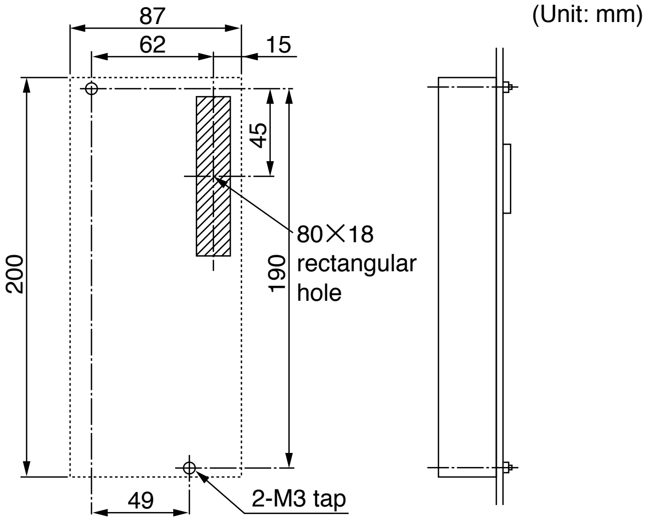

Control module
JW-1EA
JW-2EA
JW-2EA
Support tool
Support tool

[Example]


JW-1EA
JW-2EA
JW-2EA
Support tool
Support tool

[6] Mounting to a control panel surface

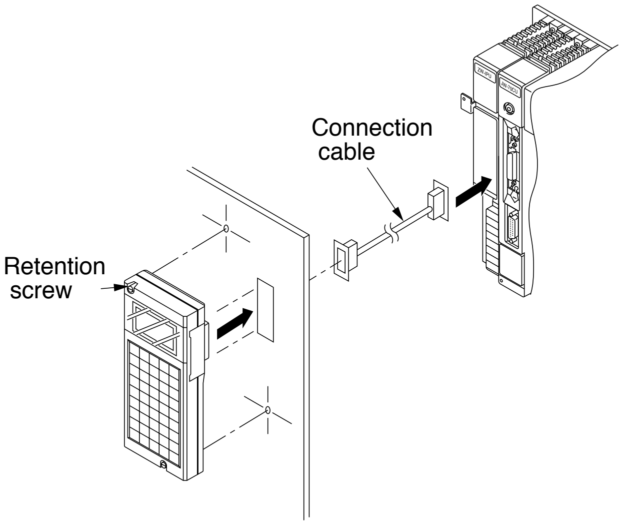
The programmer can be connected by cable and mounted apart from the PLC. For example, the PLC can be mounted in a control panel and the JW-15PG can be mounted to the door on the control panel.


(Unit: mm)
87
62
15
45
200
190
80×18
rectangular
hole
49
2-M3 tap

Make the M3 tapping holes used to secure the JW-15PG and a hole for the connector in the door on the control panel.

Mount the JW-15PG to the holes in the door on the control panel.

Connect the cable to the JW-15PG's connector and to the control module's support tool connector. Firmly secure both the JW-15PG's end and the network module's end of the cable with the bail locks.


Connection
cable
Retention
screw

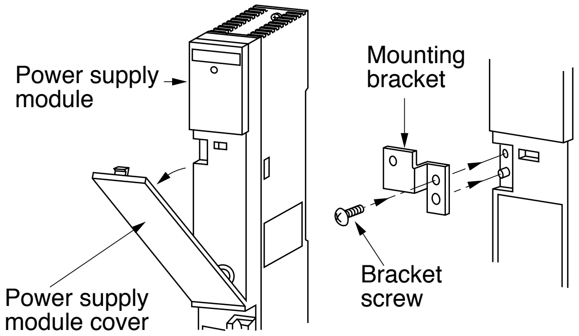
Notes

Keep the cable away from high voltage lines, power lines and the signal lines and power supply lines to the I/O module.

5-3 Direct mounting method

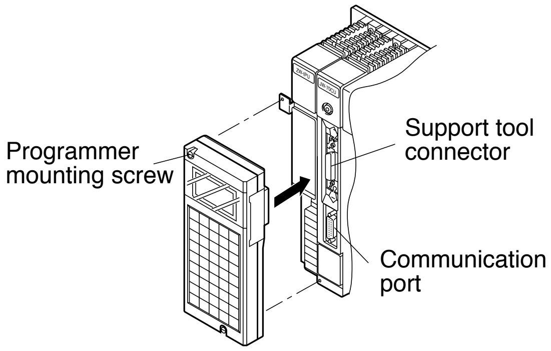
When JW50H/70H/100H, JW50/70/100, and W70H/100H PLC are used, you can install the JW-15PG directly on the control module. The method to connect the JW-15PG with the control module directly is shown below.

1) Detach the cover from the power supply module and fasten the programmer mounting bracket with the bracket screw.


Power supply module
Mounting bracket
Power supply module cover
Bracket screw

2) Attach the power supply module cover and detach the communication port cover. *

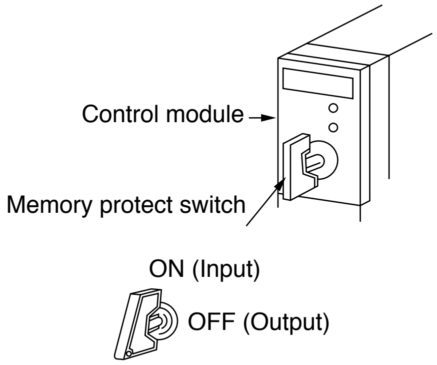
3) Connect the JW-15PG's connector to the control module's support tool connector.


Programmer mounting screw
Support tool connector
Communication port

4) Tighten the 2 programmer mounting screws.

Reference

Set the memory protect switch to "ON" when mounting or dismounting the programmer while the JW50H/70H/100H, etc.'s power is "ON." This protects the JW50H/70H/100H, etc.'s memory.


Control module
Memory protect switch
ON (Input)
OFF (Output)

* Detach the communication port connector cover when directly mounting the programmer to the JW70H/100H or JW70/100. Keep the detached cover.

Notes

- When the JW-15PG is connected, a condition may occur where a "beep" is emitted and nothing is displayed. This occurs when the control module has been set to the device function.

Chapter 6. Specifications

This chapter gives the general specifications and the performance specifications for the JW-15PG.

[1] General specifications

Items		Specifications
Ambient temperature	Operation	0 to 40°C
	Storage	–20 to 60°C
Ambient humidity	Operation	35 to 85% RH (non-condensing)
	Storage	
Ambient operating atmosphere		Free from corrosive gas and dust.
Vibration resistance		Conform to JIS B 3502 (2 hours each in X, Y and Z axes)
Shock resistance		Conform to JIS B 3502
Consumption current		110 mA
Weight		Approx. 400 g
Accessories		Bail lock set 1 Programmer mounting bracket 1 Programmer mounting bracket screw (M3x6) 1

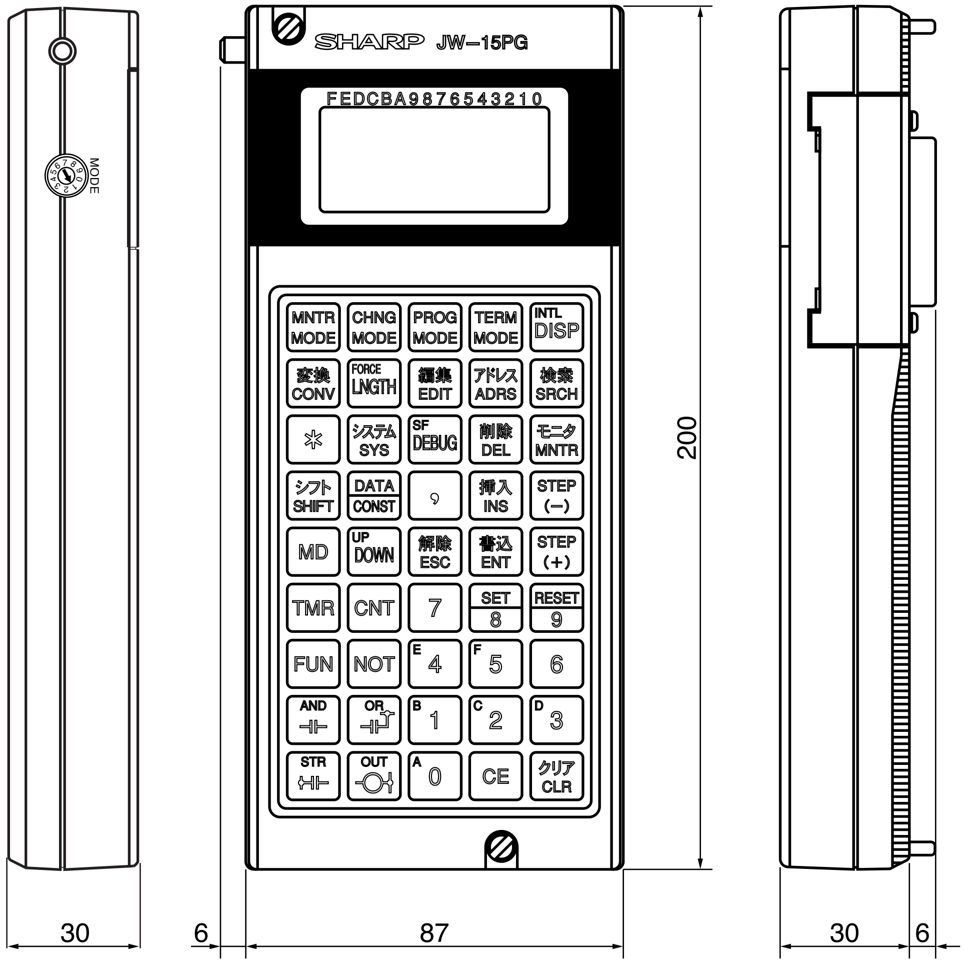
[2] Performance specification

Items	Specifications
Modules to connect with	- Control module - Network module - ME-NET module - Remote I/O slave module - I/O bus expansion adapter - Serial interface module * - Ethernet module - FL-net module - VME built-in controller - J-board
Connection method	- Cable connection (for all module for connection listed above) - Direct mounting (JW50H/70H/100H, JW50/70/100, W70H/100H)
Display device	Liquid crystal full dot matrix display (16 characters by 4 lines) - With EL backlight (Auto OFF: Turns OFF: after about 10 minutes from the last key operation.) - Contrast adjustment (key operation) - Selectable between Japanese and English displays *
Keys	45 flat keys - Audible alarm is emitted at an invalid operation - Key click sound is ON/OFF selectable

* Use the MODE switches on the JW-15PG to set it for the model that it is connected to (and to change between Japanese/English). => Refer to page 4-2.

[3] Dimensions

(Unit: mm)



SHARP JW-15PG
FEDCBA9876543210
MODE
MNTR MODE
CHNG MODE
PROG MODE
TERM MODE
INTL DISP
変換 CONV
FORCE LNGTH
編集 EDIT
アドレス ADRS
検索 SRCH
*
システム SYS
SF DEBUG
削除 DEL
モニタ MNTR
シフト SHIFT
DATA CONST
,
挿入 INS
STEP (−)
MD
UP DOWN
解除 ESC
書込 ENT
STEP (+)
TMR
CNT
7
SET 8
RESET 9
FUN
NOT
E 4
F 5
6
AND
OR
B 1
C 2
D 3
STR
OUT
A 0
CE
クリア CLR
200
30
6
87
30
6

Chapter 7. Table of Functions

Shown below are the functions of the JW-15PG and the compatible PLC models.

- The function usable in each PLC is indicated by circle mark.
- The key procedures for each function are shown in Chapter 8. (The right hand column in the table below shows the pages to refer to.)

Functions		PLC models							Key operation (See page)
		JW300	JW50H/70H/100H JW50/70/100	JW30H J-board (Z500)	JW20H, JW20 J-board (Z300)	JW10	W100 W70H W100H	W10 W16 W51	
Buzzer ON/OFF selection		○	○	○	○	○	○	○	8-1
EL backlight ON/OFF selection									
Contrast adjustment									
Auto repeat function									
Display mode selection		○	○	○	○	○	×	×	
Operation mode setting	Program	○	○	○	○	○	○	○	8-2
	Monitor	○	○	○	○	○	○	○	
	Change	○	○	○	○	○	○	○	
	Terminal	×	○	○	○	×	×	×	
	Initial	○	○	○	○	○	×	×	
Menu selection		○	○	○	○	○	○	○	
Memory clear	System memory	○	○	○	○	○	○	○	8-3
	Program memory	○	○	○	○	○	○	○	
	Data memory	○	○	○	○	○	○	○	
	File register (file 1)	○	○	○	—	—	○	○	
	Files 2 to 7	—	○	—	—	—	○	—	
	Files C, D, E	—	○	—	—	—	—	—	
	Files 2, 3 10 to 2C	—	—	○	—	—	—	—	
System memory	Read	○	○	○	○	○	○	○	
	Write								
	Write check code	○	○	○	○	○	○	×	
Enter program address		○	○	○	○	○	○	○	8-4 to 8-6
Instruction entry method									
Program	Write								
	Read								

- The VMEs with built-in controllers (JW-32CV1/2/3) can be read the same as the "JW30H (JW-32CUH1)."

Function		PLC models							Key operation (See page)
		JW300	JW50H/70H/100H JW50/70/100	JW30H J-board (Z500)	JW20H, JW20 J-board (Z300)	JW10	W100 W70H W100H	W10 W16 W51	
Search program	Search instruction	○	○	○	○	○	○	○	8-6 8-7
	Search NOP instruction								
	Search Non-NOP instruction								
	Search data memory								
	Retry search								
Modify program	Change instruction	○	○	○	○	○	○	○	8-7
	Insert instruction								
	Delete instruction								
	Write during RUN	○	○	○	○	○ *1	○	*2	
	Change TMR, CNT, MD preset value	○	○	○	○	○	○	○	
	Change application instruction constant								
Edit program	Copy program (write) insert copy	×	○ *3	×	×	×	×	×	8-7 8-8
	Block write and insert program								
	Delete program block								
Check program	Check parity	×	○	×	○	×	○	○	8-8
	Check program	○		○		○			
Monitor program									

*1: Version 2.1 or later basic rack panel.
*2: W10 --- ×, W16/51 --- ○
*3: JW50H/70H/100H (the expansion relays can be used) --- ×

Functions		PLC models							Key operation (See page)
		JW300	JW50H/70H/100H JW50/70/100	JW30H J-board (Z500)	JW20H, JW20 J-board (Z300)	JW10	W100 W70H W100H	W10 W16 W51	
Monitor data memory	Monitor relay	○	○	○	○	○	○	○	8-9
	Monitor TMR, CNT, MD								
	Monitor register								
	Monitor multiple point								
Monitor break (debug function)	Monitor break	○	○	○	○	×	○	×	8-10
	Break at designated program address						×		
	Break at END instruction								
	Break at designated register	×		×	×				
	One step run of break monitor	○		○	○				
Forced set/reset									8-11
Read/write internal memory	Read internal memory by hexadecimal designation	×					○		
	Write internal memory by hexadecimal designation								
Change data memory	Set/rest latched relay	○	○	○	○	○	○	○	
	Set/reset timer and counter								
	Change register block								

Functions		PLC models							Key operation (See page)
		JW300	JW50H/70H/100H JW50/70/100	JW30H J-board (Z500)	JW20H, JW20 J-board (Z300)	JW10	W100 W70H W100H	W10 W16 W51	
Correct current register value	Insert current register value	×	○*	×	×	×	×	×	8-12
	Delete current register value								
Edit current register value	Copy write or insert register								8-12 8-13
	Block write or insert register								
	Delete register block								
Monitor process of I/O module	Monitor I/O	×	○	×	×	×	×	×	8-13
	Search I/O								
	Clear and execute I/O verify								
I/O module monitor process		○	×	○	○				8-14
Connect/remove I/O module live line		×	○	×	×	×	×	×	
I/O address assignment	Auto I/O module registration	○							8-15
	Enter rack top address	×							
	Enter number of dummy points								8-16
	Assign special I/O data register								
	Auto registration		×	○					
	Create table								8-17
I/O module registration		×	×	×	○				
Set parameter		○		○					

* JW50H/70H/100H (the expansion relays can be used) --- ×

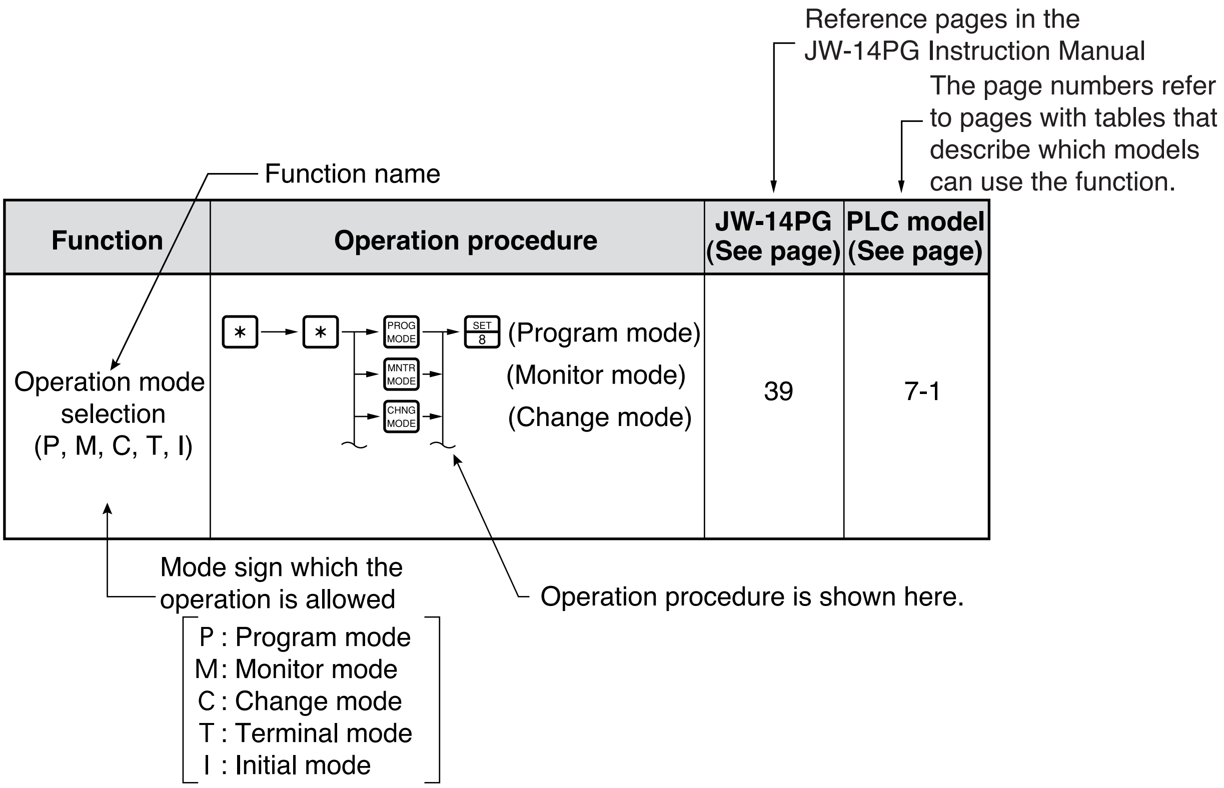
Function		**PLC models**							**Key operation (See page)**
		JW300	**JW50H/70H/100H JW50/70/100**	**JW30H J-board (Z500)**	**JW20H, JW20 J-board (Z300)**	**JW10**	**W100 W70H W100H**	**W10 W16 W51**	
Set clock		×	○	○	○	○	×	×	8-18
Monitor clock									
Set parameter such as network module		[Applicable models] JW-20CM/20RS/22CM ZW-20CM/20RS/30CM JW-20MN/21MN ZW-20CM2□ Z-334J/Z-335J JW-50CM, JW-51CM, JW-255CM, JW-25TCM, Z-339J: Only setting of parameter - Set the parameters for the JW-22CM, JW-21MN, JW-255CM, and JW-25TCM in the optional parameters for the control module on the JW300.							
Remote programming and remote monitor	Connect standard network								
	Connect satellite net expansion function								8-19
Monitor target station number									
Device function	Display output function	×	○	○	○	×	×	×	
	Key input function								
Write program to EEPROM		○	○	○	○	○	*3	*1	
Read program to ROM							○		
Verifiy program with ROM		×	×	×	×	×	×	*2	
Transfer to ROM writer					○			×	

*1 W10･･･○, W16/51･･･×
*2 W10･･･○, W16/51･･･×
*3 W100･･･×, W70H/100H･･･×

Functions	PLC models							Key operation (See page)
	JW300	JW50H/70H/100H JW50/70/100	JW30H J-board (Z500)	JW20H, JW20 J-board (Z300)	JW10	W100 W70H W100H	W10 W16 W51	
SF monitor	×	×	×	○	×	×	×	8-20
Symbol registration								
Monitor error	○	○	○	○	○	○	○	
Secret function	○	×	○	×	○	×	×	
OCT/DCML/HEX display of numerical value	×	×	○	×	○	×	×	
PC card	○	×	×	×	×	×	×	8-23

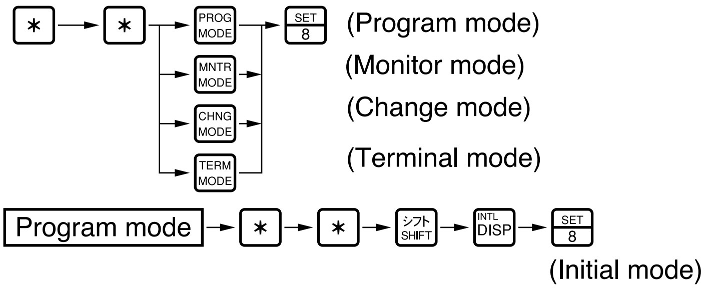
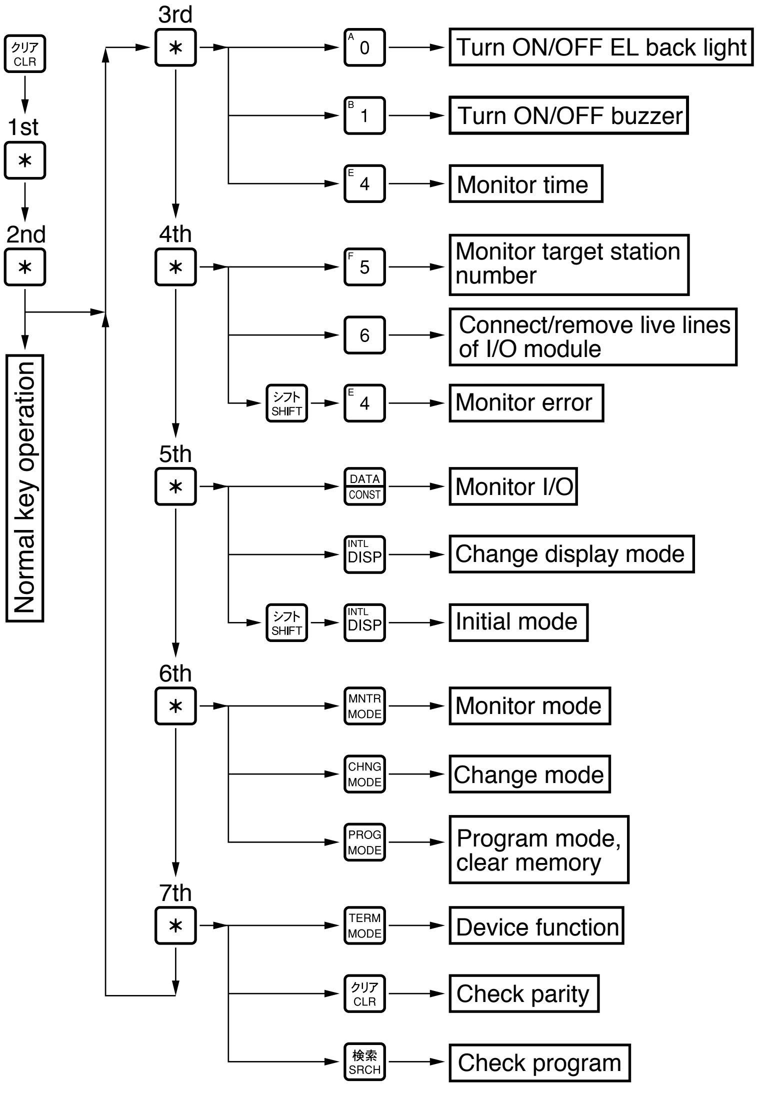
Chapter 8. Table of Operation Procedure

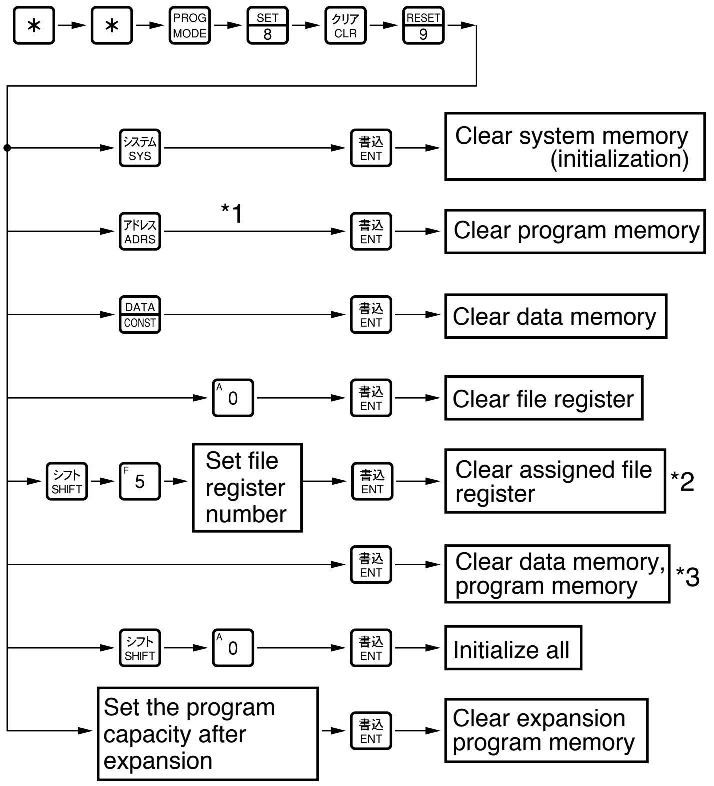
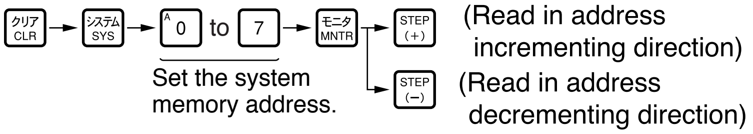
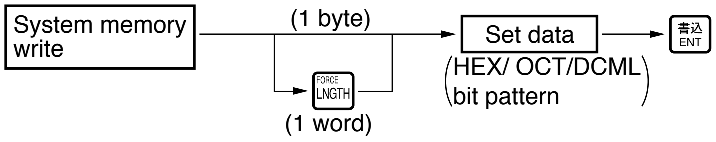
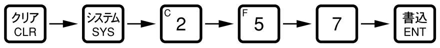
This chapter shows the key procedures for the functions (described in Chapter 7) on the JW-15PG. The table can be read as follows:


Reference pages in the JW-14PG Instruction Manual
The page numbers refer to pages with tables that describe which models can use the function.
Function name
Mode sign which the operation is allowed
P : Program mode
M: Monitor mode
C : Change mode
T : Terminal mode
I : Initial mode
Operation procedure is shown here.

Function	Operation procedure	JW-14PG (See page)	PLC model (See page)
Operation mode selection (P, M, C, T, I)	[∗] → [∗] → [PROG MODE] → [SET 8] (Program mode) [MNTR MODE] → (Monitor mode) [CHNG MODE] → (Change mode)	39	7-1

Function	Operation procedure	JW-14PG (See page)	PLC model (See page)
Turn buzzer ON/OFF (P, M, C, , I)	[∗] → [∗] → [B 1] → [SET 8] (ON) [RESET 9] (OFF)	34	7-1
Turn EL backlight ON/OFF (P, M, C, , I)	[∗] → [∗] → [A 0] → [SET 8] (ON) [RESET 9] (OFF)	35	
Adjust contrast (P, M, C, , I)	[∗] → [∗] → [A 0] → [STEP (+)] (Darker) [STEP (−)] (Brighter)	36	
Auto repeat function (P, M, C, ,)	Monitor program address or data memory address → [STEP (+)] (Turn ON 1 second or longer) --- Repeat address +1. → [STEP (−)] (Turn OFF 1 second or longer) --- Repeat address -1.	37	
Change display mode (P, M, C, ,)	1PG mode → [∗] [∗] [INTL DISP] → 2PG mode → [∗] [∗] [INTL DISP] → 1PG mode	38	

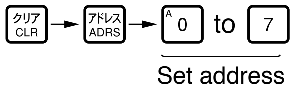
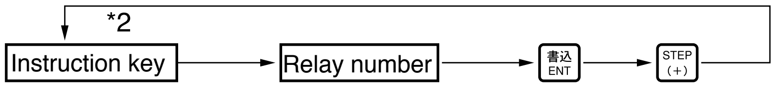
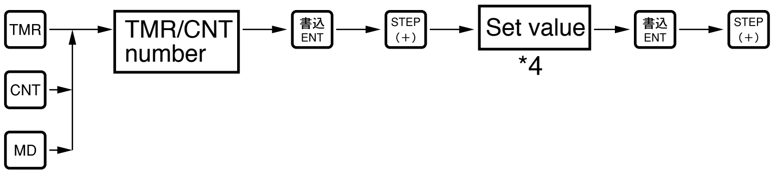
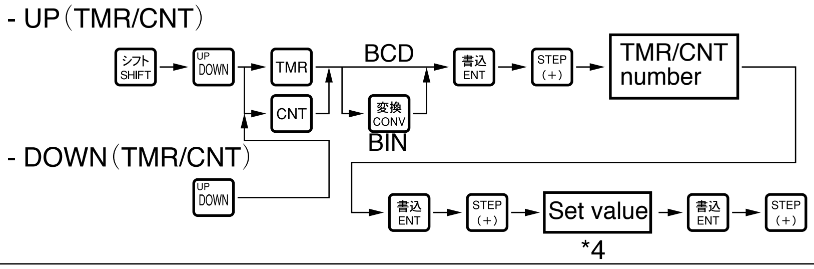
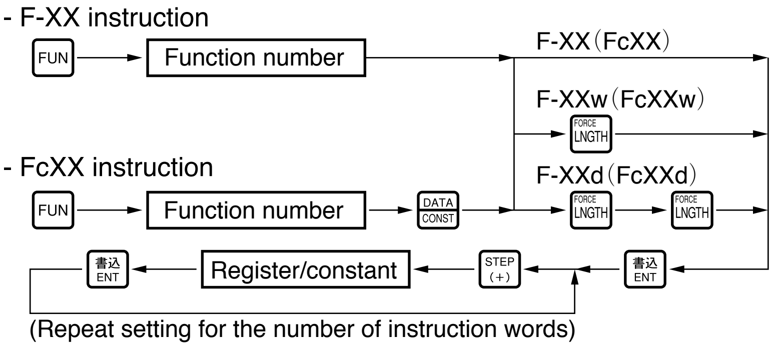
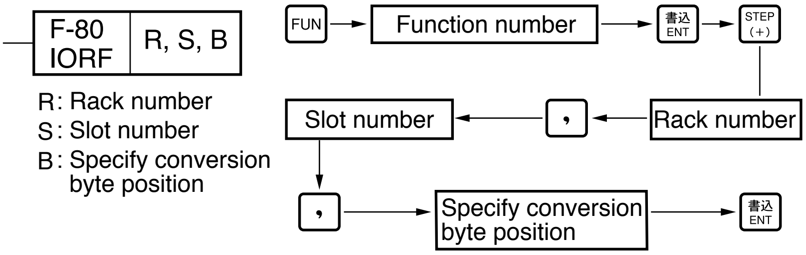
Function	Operation procedure	JW-14PG (See page)	PLC model (See page)
Select operation mode (P, M, C, T, I)	 ∗ ∗ PROG MODE MNTR MODE CHNG MODE TERM MODE SET 8 (Program mode) (Monitor mode) (Change mode) (Terminal mode) Program mode ∗ ∗ シフト SHIFT INTL DISP SET 8 (Initial mode)	39	7-1
Operation screen menu selection (P, M, C, T, I)	 クリア CLR 1st ∗ 2nd ∗ Normal key operation 3rd ∗ A 0 Turn ON/OFF EL back light B 1 Turn ON/OFF buzzer E 4 Monitor time 4th ∗ F 5 Monitor target station number 6 Connect/remove live lines of I/O module シフト SHIFT E 4 Monitor error 5th ∗ DATA CONST Monitor I/O INTL DISP Change display mode シフト SHIFT INTL DISP Initial mode 6th ∗ MNTR MODE Monitor mode CHNG MODE Change mode PROG MODE Program mode, clear memory 7th ∗ TERM MODE Device function クリア CLR Check parity 検索 SRCH Check program	41	

Function		Operation procedure	JW-14PG (See page)	PLC model (See page)
Clear memory (P, , , ,)		 ＊ ＊ PROG MODE SET 8 クリア CLR RESET 9 システム SYS 書込 ENT Clear system memory (initialization) アドレス ADRS *1 Clear program memory DATA CONST Clear data memory A 0 Clear file register シフト SHIFT F 5 Set file register number Clear assigned file register *2 Clear data memory, program memory *3 Initialize all Set the program capacity after expansion Clear expansion program memory	42	7-1
Read/write system memory	Read system memory (P, M, C, ,)	 クリア CLR システム SYS A 0 to 7 モニタ MNTR STEP (+) STEP (−) Set the system memory address. (Read in address incrementing direction) (Read in address decrementing direction)	53	
	Write system memory (P, , , ,)	 System memory write (1 byte) FORCE LNGTH (1 word) Set data (HEX/ OCT/DCML bit pattern) 書込 ENT	55	
	Write system memory check code (P, , , ,)	 クリア CLR システム SYS C 2 F 5 7 書込 ENT	57	

*1: On the JW300, if you press STEP (+) or STEP (−) you can select the block of program memory to clear. => See page 9-15

*2: On the JW300, you cannot perform a "clear the specified file register" operation. => See page 9-16

*3: On the W16/51, W100, and W70H/100H, a "clear the file register (file 1)" can be performed.

Function		Operation procedure	JW-14PG (See page)	PLC model (See page)
Set program address (P, M, C, ,) *1		 クリア CLR アドレス ADRS 0 to 7 Set address	60	7-1
Enter basic and application instruction *3	Entry method of basic instructions	 *2 Instruction key Relay number 書込 ENT STEP (+)	61	
	- TMR - CNT - MD instructions entry method	 TMR CNT MD TMR/CNT number 書込 ENT STEP (+) Set value *4 書込 ENT STEP (+)		
	- UTMR - UCNT - DTMR - DCNT instructions entry method (BCD/BIN)	 - UP（TMR/CNT） シフト SHIFT UP DOWN TMR CNT BCD 変換 CONV BIN 書込 ENT STEP (+) TMR/CNT number - DOWN（TMR/CNT） UP DOWN 書込 ENT STEP (+) Set value *4 書込 ENT STEP (+)	62	
	Application instructions entry method	 - F-XX instruction FUN Function number F-XX（FcXX） F-XXw（FcXXw） FORCE LNGTH - FcXX instruction FUN Function number DATA CONST F-XXd（FcXXd） FORCE LNGTH FORCE LNGTH 書込 ENT Register/constant STEP (+) 書込 ENT (Repeat setting for the number of instruction words)	63	
		 F-80 IORF R, S, B R: Rack number S: Slot number B: Specify conversion byte position FUN Function number 書込 ENT STEP (+) Rack number , Slot number , Specify conversion byte position 書込 ENT		

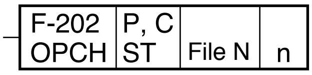
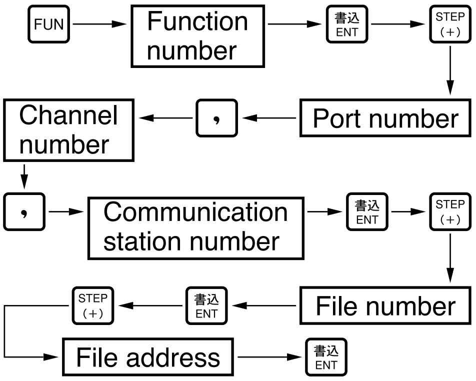
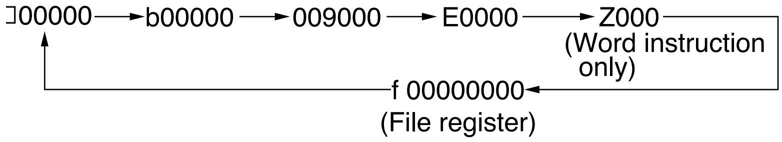
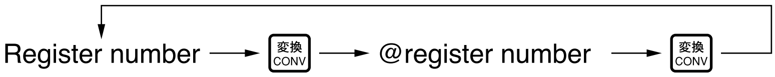
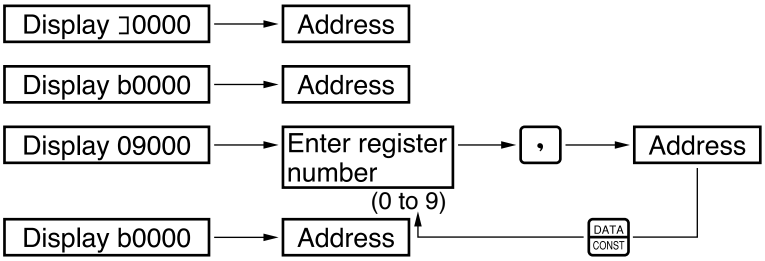
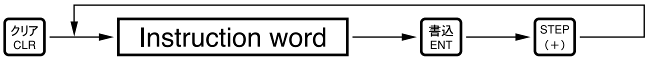
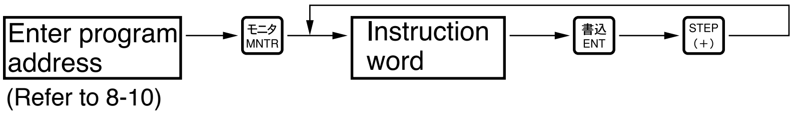
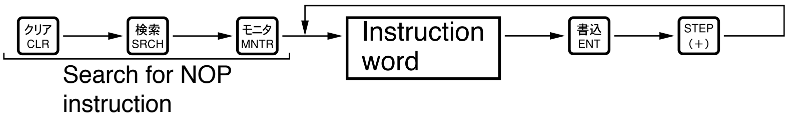
Items *1 to *4 below only apply to the JW300.

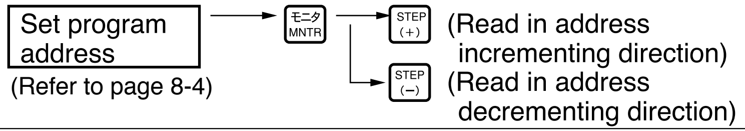
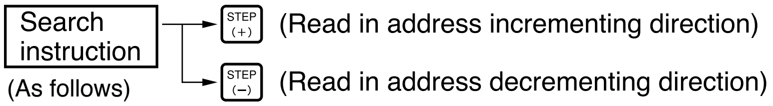
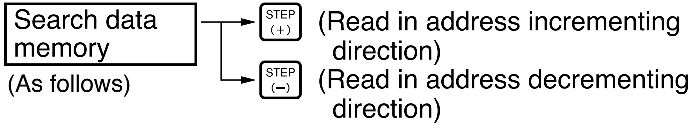
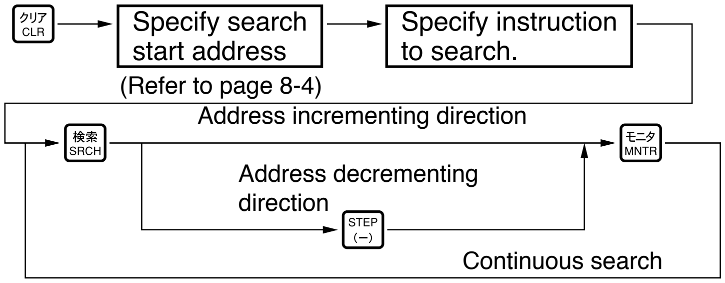
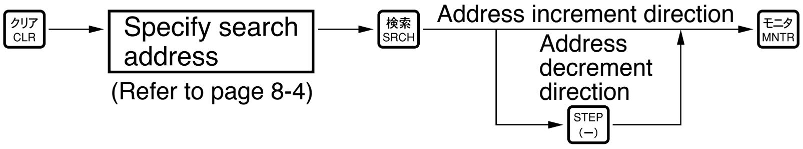
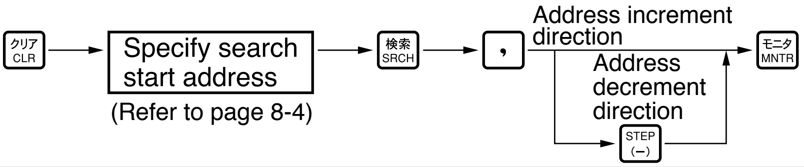
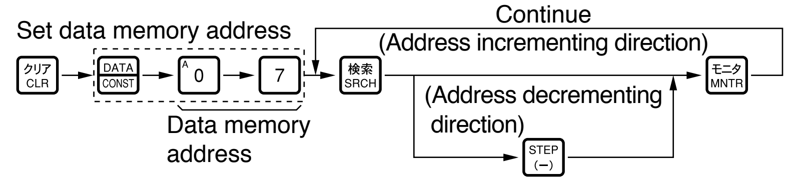
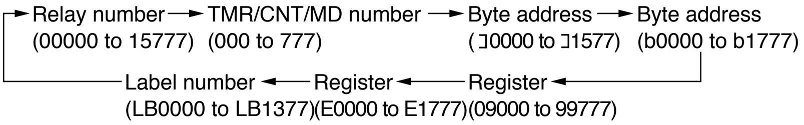
*1: Method to block move a program. => Refer to page 9-1 to 3

*2: How to enter basic instruction (STR POS etc.). => Refer to page 9-10

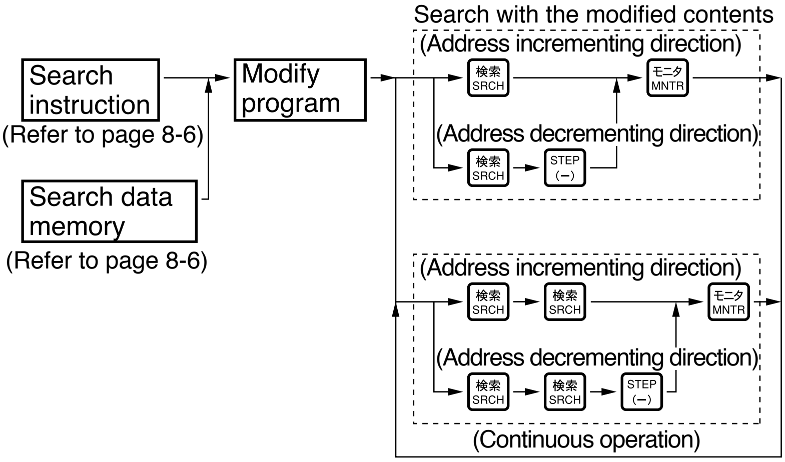
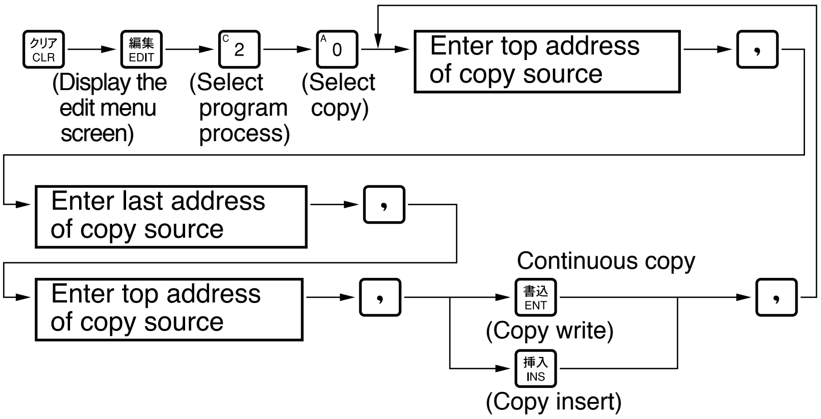
*3: How to enter index qualifications. => Refer to page 9-13

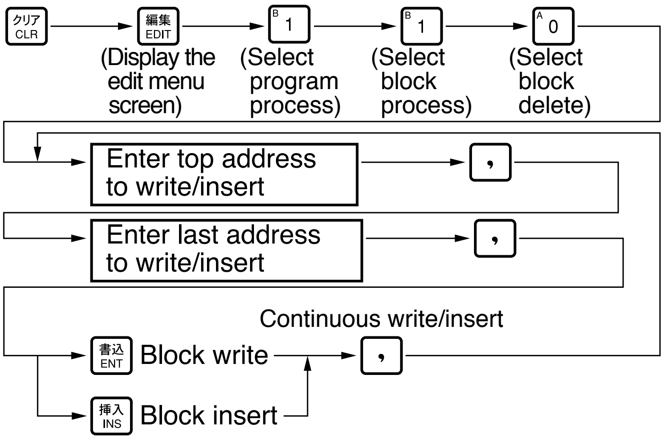
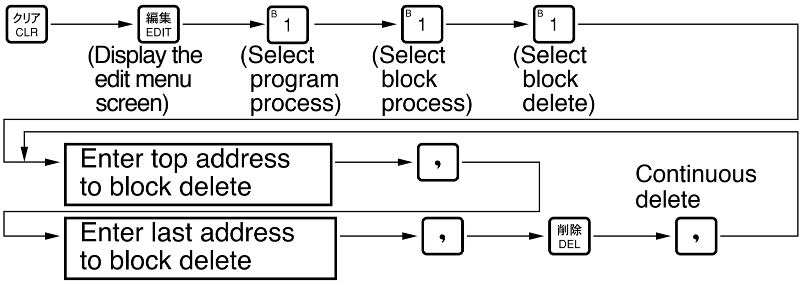
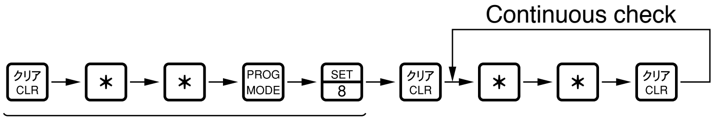
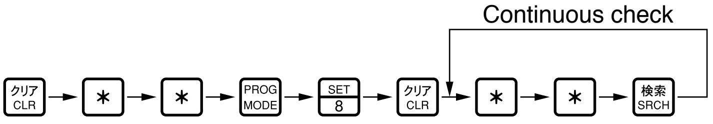
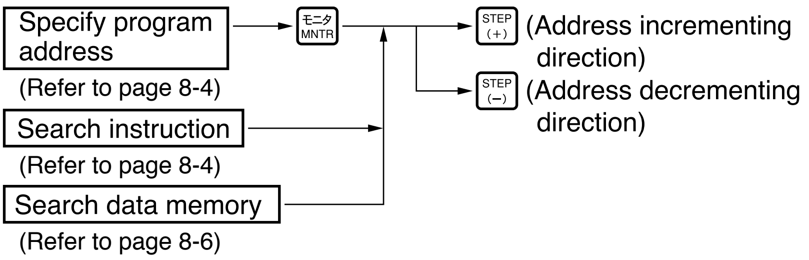
*4: Registers can be used to set values for the TMR, CNT, UTMR, UCNT, DTMR, and the DCNT instructions. To use this function, press the DATA CONST key to change the memory pointer and enter an address. => Refer to page 9-11 In addition, you can also specify a register in the JW10.

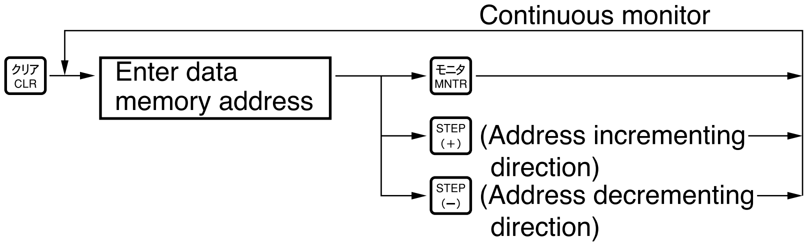
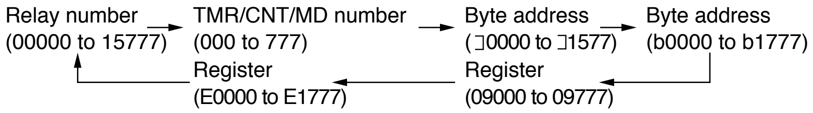
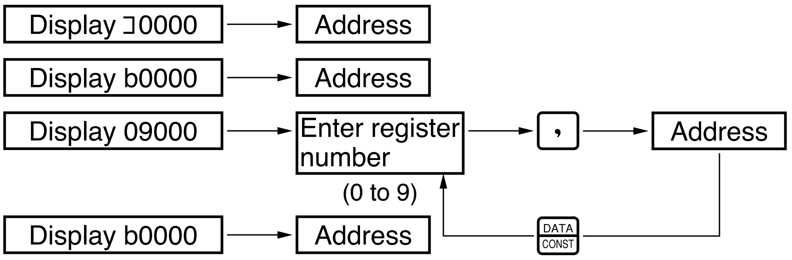
	Function	Operation procedure	JW-14PG (See page)	PLC model (See page)
Enter basic and application instruction	Application instruction entry method	 F-202 OPCH P, C ST File N n P : Rack port number c : Channel number ST : Communication station number N : File number n : File address  FUN Function number 書込 ENT STEP (+) Port number , Channel number , Communication station number 書込 ENT STEP (+) File number 書込 ENT STEP (+) File address 書込 ENT	64	7-1
	Register area selection	Press the DATA CONST key to change the register area. [Example of JW300]  ℶ00000 b00000 009000 E0000 Z000 (Word instruction only) f 00000000 (File register)	65	
	Assign indirect address	 Register number 変換 CONV @register number 変換 CONV		
Enter application instruction	Set the register address	 Display ℶ0000 Address Display b0000 Address Display 09000 Enter register number (0 to 9) , Address Display b0000 Address DATA CONST		
Read/write program	Write program (P, , , ,)	- Write from address 00000  クリア CLR Instruction word 書込 ENT STEP (+)	66	
		- Write from a specified address  Enter program address (Refer to 8-10) モニタ MNTR Instruction word 書込 ENT STEP (+)		
		- Write from an address where no program is written  クリア CLR 検索 SRCH モニタ MNTR Search for NOP instruction Instruction word 書込 ENT STEP (+)		

	Function	Operation procedure	JW-14PG (See page)	PLC model (See page)
Read/write program	Read program (P, M, C, ,)	- Read by specifying an address  Set program address (Refer to page 8-4) モニタ MNTR STEP (+) (Read in address incrementing direction) STEP (−) (Read in address decrementing direction) - Search an instruction and read  Search instruction (As follows) STEP (+) (Read in address incrementing direction) STEP (−) (Read in address decrementing direction) - Search data memory and read  Search data memory (As follows) STEP (+) (Read in address incrementing direction) STEP (−) (Read in address decrementing direction)	75	7-1
Search program	Search instruction (P, M, C, ,)	 クリア CLR Specify search start address (Refer to page 8-4) Specify instruction to search. Address incrementing direction 検索 SRCH モニタ MNTR Address decrementing direction STEP (−) Continuous search	76	7-2
	Search NOP instruction (P, M, C, ,)	 クリア CLR Specify search address (Refer to page 8-4) 検索 SRCH Address increment direction モニタ MNTR Address decrement direction STEP (−)	78	
	Search non-NOP instruction (P, M, C, ,)	 クリア CLR Specify search start address (Refer to page 8-4) 検索 SRCH , Address increment direction モニタ MNTR Address decrement direction STEP (−)	79	
	Search data memory (P, M, C, ,)	 Set data memory address クリア CLR DATA CONST 0 7 Data memory address 検索 SRCH Continue (Address incrementing direction) モニタ MNTR (Address decrementing direction) STEP (−) Press the DATA CONST key to change the data memory area. * [Example of JW20H]  Relay number (00000 to 15777) TMR/CNT/MD number (000 to 777) Byte address (コ0000 to コ1577) Byte address (b0000 to b1777) Register (09000 to 99777) Register (E0000 to E1777) Label number (LB0000 to LB1377)	80	

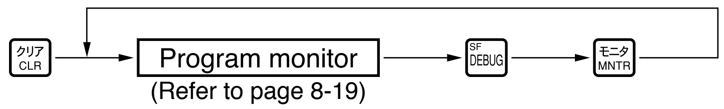
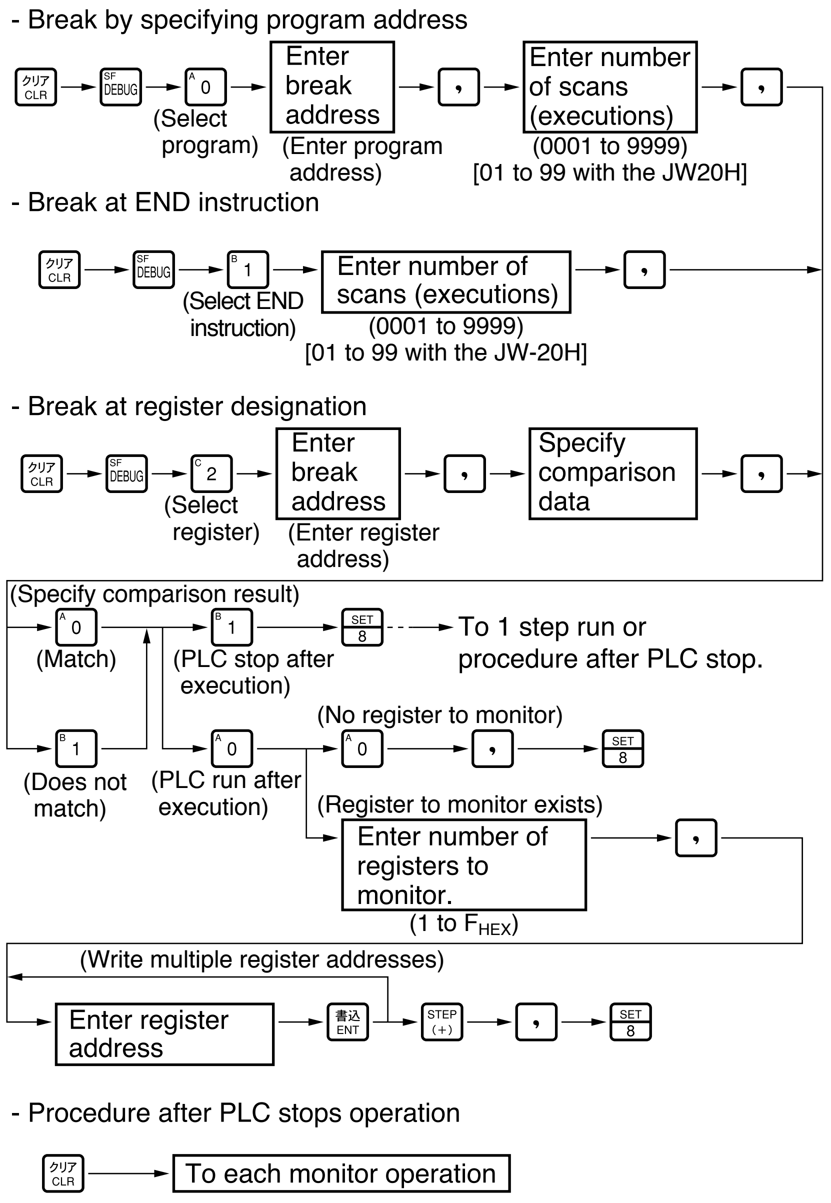
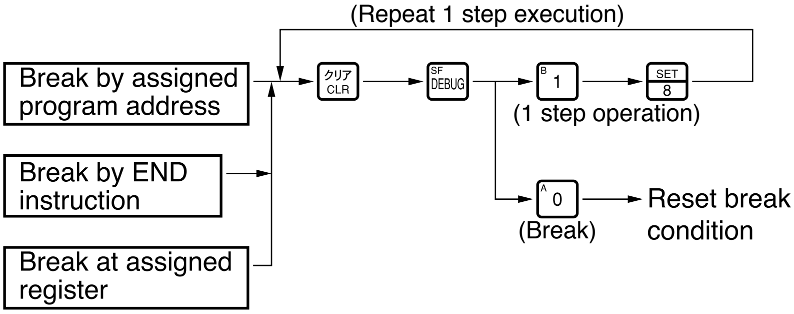
* Change the data memory in the JW300 => Refer to page 9-14.

	Function	Operation procedure	JW-14PG (See page)	PLC model (See page)
Search program	Re-execute search (P, M, C, ,)	 Search instruction (Refer to page 8-6) Search data memory (Refer to page 8-6) Modify program Search with the modified contents (Address incrementing direction) 検索 SRCH モニタ MNTR (Address decrementing direction) 検索 SRCH STEP (−) (Address incrementing direction) 検索 SRCH 検索 SRCH モニタ MNTR (Address decrementing direction) 検索 SRCH 検索 SRCH STEP (−) (Continuous operation)	83	7-2
Modify program	Change instruction (P, , , ,)	Specify address to modify → Specify instruction to modify → 書込 ENT (Refer to page 8-4)	84	
	Insert instruction (P, , , ,)	Specify address to insert → Specify instruction to insert → 挿入 INS (Refer to page 8-4)	86	
	Delete instruction (P, , , ,)	Read the instruction to delete → 削除 DEL (Refer to page 8-6)	88	
	Write during running program (, , C, ,)	✱ → ✱ → 7 → SET 8 → Modify program	89	
	Change TMR, CNT, and MD preset value (P, , C, ,)	Read set value currently programming → Change set value → 書込 ENT (Refer to page 8-6)	90	
	Change application instruction constant (P, , C, ,)	Search program address → Change set value → 書込 ENT (Refer to page 8-4)	92	
Edit program	Copy write/insert program (P, , , ,)	 クリア CLR 編集 EDIT C 2 A 0 (Display the edit menu screen) (Select program process) (Select copy) Enter top address of copy source , Enter last address of copy source , Enter top address of copy source , Continuous copy 書込 ENT (Copy write) 挿入 INS (Copy insert) ,	94	

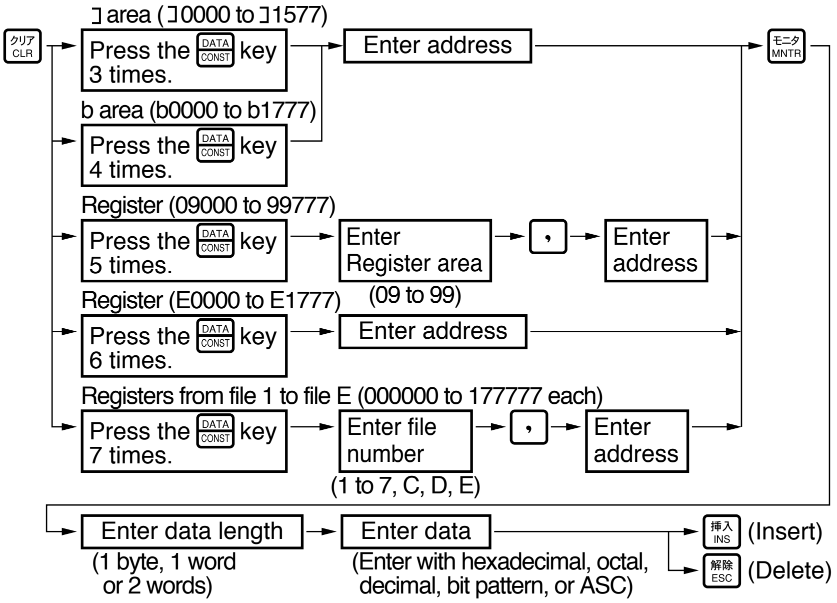
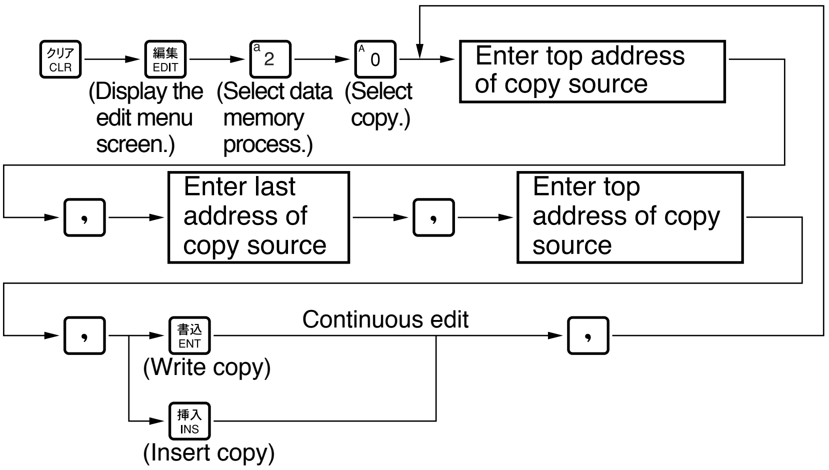
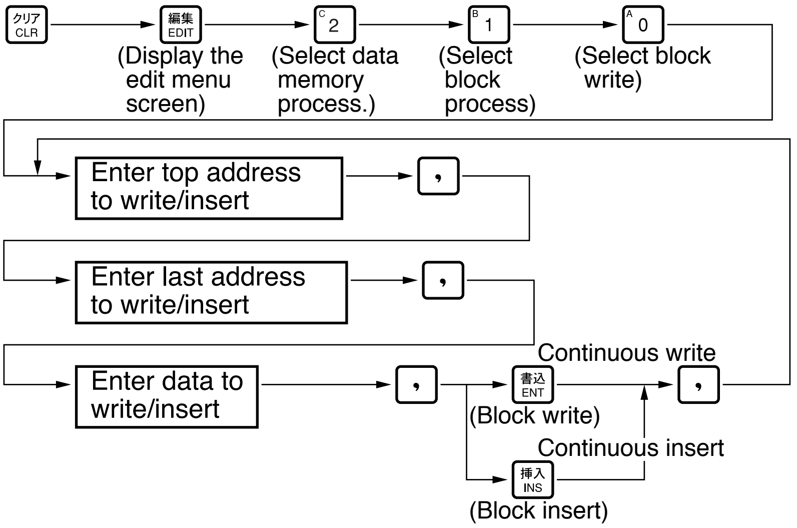
Function		Operation procedure	JW-14PG (See page)	PLC model (See page)
Edit program	Write/insert program block (P, , , ,)	 クリア CLR 編集 EDIT (Display the edit menu screen) B 1 (Select program process) B 1 (Select block process) A 0 (Select block delete) Enter top address to write/insert , Enter last address to write/insert , Continuous write/insert 書込 ENT Block write 挿入 INS Block insert ,	98	7-2
	Delete program block (P, , , ,)	 クリア CLR 編集 EDIT (Display the edit menu screen) B 1 (Select program process) B 1 (Select block process) B 1 (Select block delete) Enter top address to block delete , Enter last address to block delete , 削除 DEL , Continuous delete	101	
Check program	Check parity (P, , , ,)	 Continuous check クリア CLR * * PROG MODE SET 8 クリア CLR * * クリア CLR Mode change to program mode (Omit if already in program mode)	103	
	Check program (P, , , ,)	 Continuous check クリア CLR * * PROG MODE SET 8 クリア CLR * * 検索 SRCH	104	
Monitor program (, M, C, ,)		- Read program  Specify program address (Refer to page 8-4) Search instruction (Refer to page 8-4) Search data memory (Refer to page 8-6) モニタ MNTR STEP (+) (Address incrementing direction) STEP (−) (Address decrementing direction)	108	

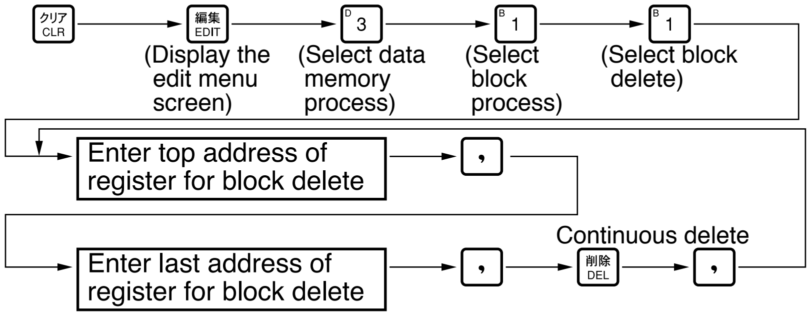
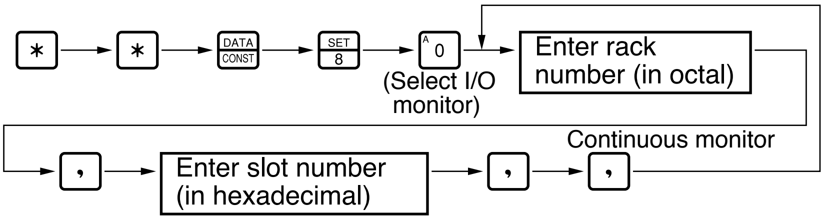
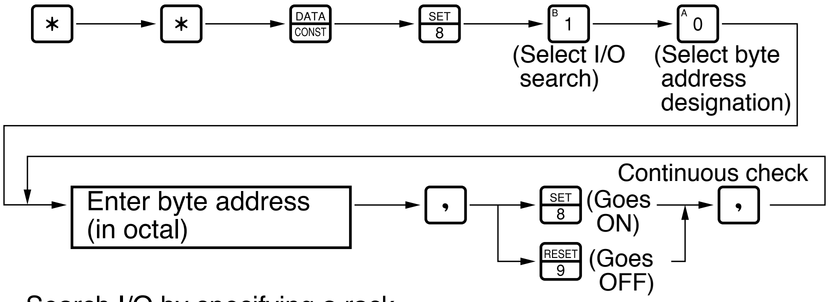
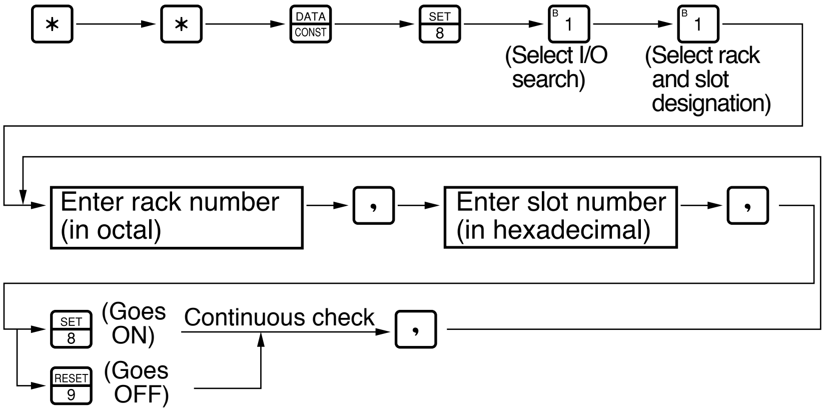
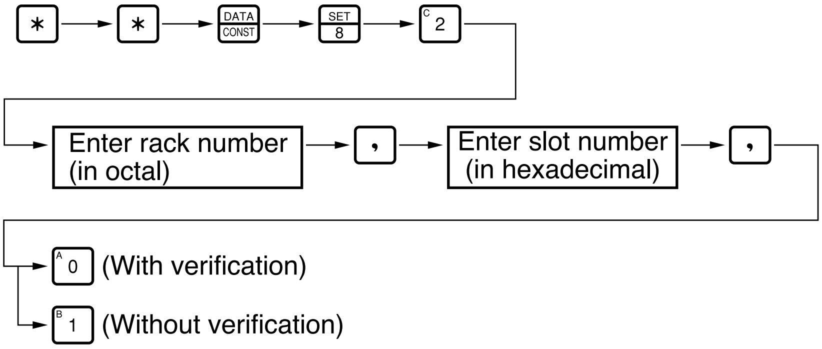
	Function	Operation procedure	JW-14PG (See page)	PLC model (See page)
Monitor data memory	Monitor relay (P, M, C, ,)	 Continuous monitor クリア CLR Enter data memory address モニタ MNTR STEP (+) (Address incrementing direction) STEP (−) (Address decrementing direction)	114	7-3
	Monitor TMR, CNT, and MD (P, M, C, ,)	Press the DATA CONST key to change the data memory area. * [Example of JW20H]	117	
	Monitor register (P, M, C, ,)	 Relay number (00000 to 15777) TMR/CNT/MD number (000 to 777) Byte address (コ0000 to コ1577) Byte address (b0000 to b1777) Register (09000 to 09777) Register (E0000 to E1777)	120	
	Monitor multiple point (P, M, C, ,)	 Display コ0000 Address Display b0000 Address Display 09000 Enter register number (0 to 9) , Address Display b0000 Address DATA CONST	124	

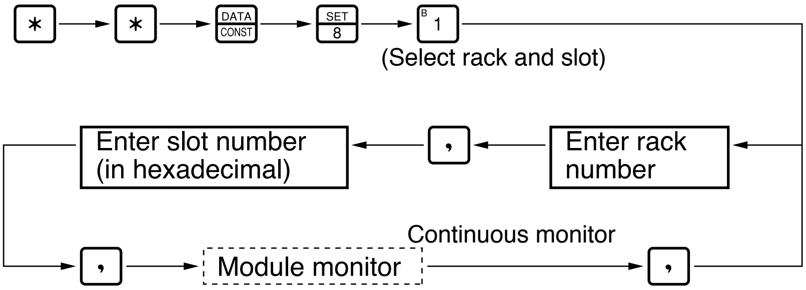
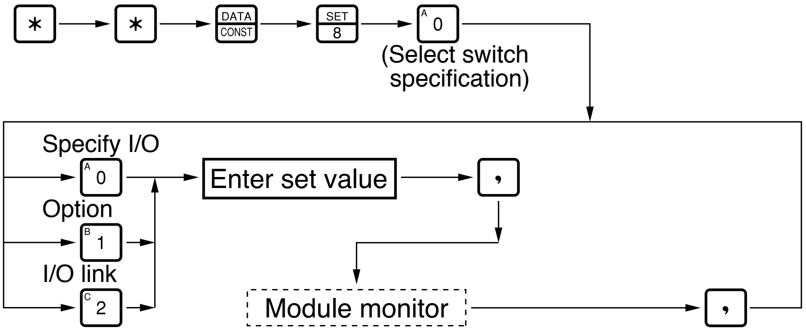
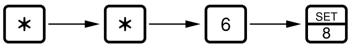
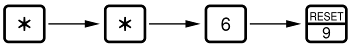
* Change the data memory in the JW300 => Refer to page 9-14.

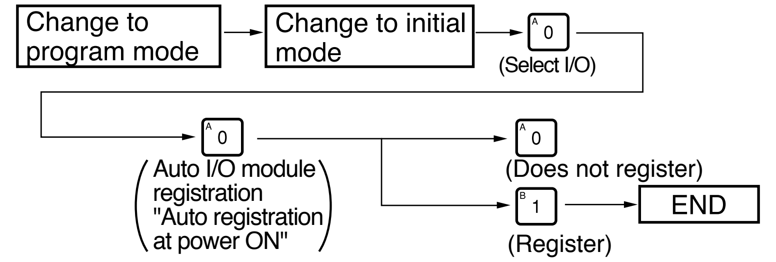
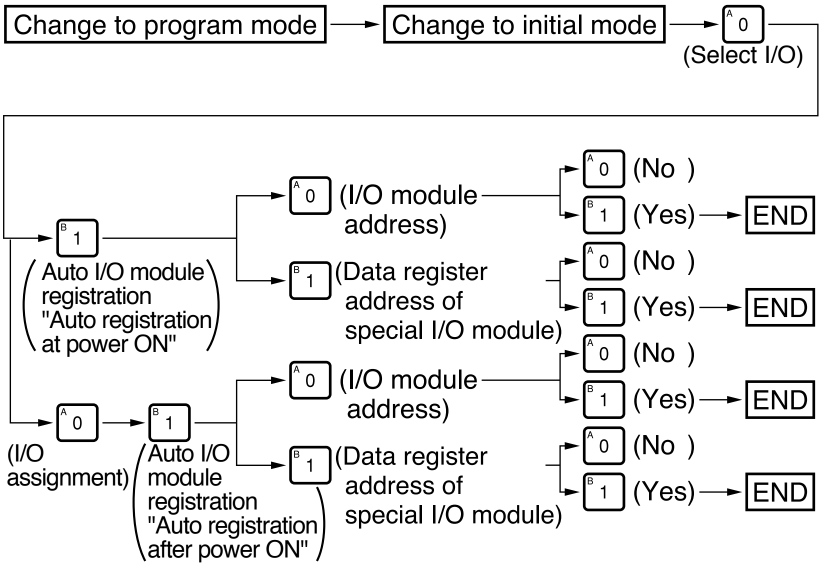
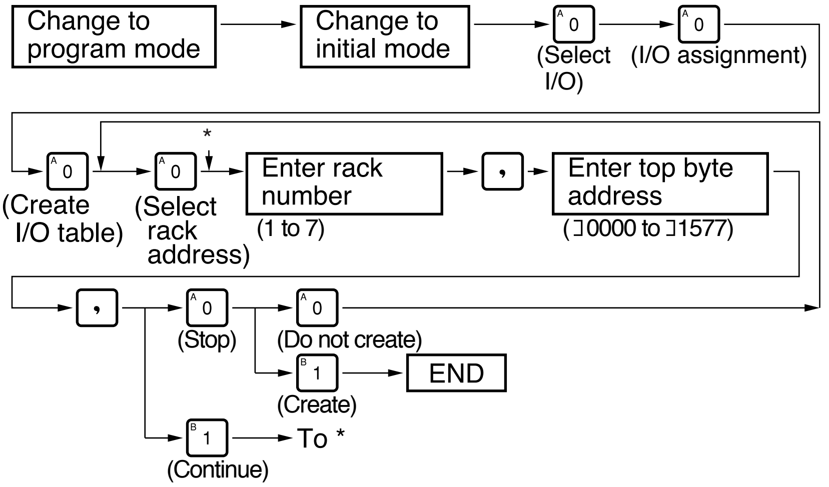
	Function	Operation procedure	JW-14PG (See page)	PLC model (See page)
Break monitor (debug function)	Monitor break (P, , C, ,)	 クリア CLR Program monitor (Refer to page 8-19) SF DEBUG モニタ MNTR	126	7-3
	Break by specifying program address (P, , C, ,)	 - Break by specifying program address クリア CLR SF DEBUG A 0 (Select program) Enter break address (Enter program address) , Enter number of scans (executions) (0001 to 9999) [01 to 99 with the JW20H] , - Break at END instruction クリア CLR SF DEBUG B 1 (Select END instruction) Enter number of scans (executions) (0001 to 9999) [01 to 99 with the JW-20H] , - Break at register designation クリア CLR SF DEBUG C 2 (Select register) Enter break address (Enter register address) , Specify comparison data , (Specify comparison result) A 0 (Match) B 1 (Does not match) B 1 (PLC stop after execution) SET 8 To 1 step run or procedure after PLC stop. A 0 (PLC run after execution) (No register to monitor) A 0 , SET 8 (Register to monitor exists) Enter number of registers to monitor. (1 to F_{HEX}) , (Write multiple register addresses) Enter register address 書込 ENT STEP (+) , SET 8 - Procedure after PLC stops operation クリア CLR To each monitor operation	129	
	Break at END instruction (P, , C, ,)		136	
	Break at register destination (P, , C, ,)		142	
	One step operation of the break monitor (P, , C, ,)	 (Repeat 1 step execution) Break by assigned program address Break by END instruction Break at assigned register クリア CLR SF DEBUG B 1 SET 8 (1 step operation) A 0 (Break) Reset break condition	149	

Function		Operation procedure	JW-14PG (See page)	PLC model (See page)
Forced set and reset (, , C, ,)		- Read the forced set/reset area クリア CLR → シフト SHIFT → FORCE LNGTH (Forced set/ reset screen display) → (アドレス ADRS → Specify address in octal (Specify 00 to 77)) → モニタ MNTR → STEP (+) (Address incrementing direction) → STEP (−) (Address incrementing direction) - Set to a forced set area Read forced set area (00 to 37) → Enter relay number → SET 8 (Forced set) - Set to a forced reset area Read forced reset area (40 to 77) → Enter relay number → RESET 9 (Forced reset) - Release forced set/reset relay (Release in units of one point) Read forced set/reset area → 解除 ESC (Release all the points) Read forced set/reset area → シフト SHIFT → A 0 → 解除 ESC	152	7-3
Read/write internal memory with hexadecimal	Read internal memory with hexadecimal (P, M, C, ,)	クリア CLR → シフト SHIFT → A 0 → アドレス ADRS → Enter file number or address (in hexadecimal) → モニタ MNTR → STEP (+) (Address incrementing direction) → STEP (−) (Address decrementing direction)	155	
	Write internal memory with hexadecimal (P, , , ,)	クリア CLR → シフト SHIFT → A 0 → アドレス ADRS → Enter file number or address (in hexadecimal) → モニタ MNTR → Enter data → * → * → 書込 ENT	159	
Change data memory	Set/reset latch relay (P, , C, ,)	Monitor relay (Refer to page 8-9) → SET 8 (Set) → RESET 9 (Reset)	162	
	Set and reset TMR and CNT (, , C, ,)	Monitor TMR or CNT (Refer to page 8-9) → SET 8 (Set) → RESET 9 (Reset)	164	
	Change register current value (P, , C, ,)	Monitor register (Refer to page 8-9) → Current value → 書込 ENT	166	

	Function	Operation procedure	JW-14PG (See page)	PLC model (See page)
Modify register current value	Enter register current value (P, , , ,)	 クリア CLR ユ area (ユ0000 to ユ1577) Press the DATA CONST key 3 times. Enter address モニタ MNTR b area (b0000 to b1777) Press the DATA CONST key 4 times. Register (09000 to 99777) Press the DATA CONST key 5 times. Enter Register area (09 to 99) , Enter address Register (E0000 to E1777) Press the DATA CONST key 6 times. Enter address Registers from file 1 to file E (000000 to 177777 each) Press the DATA CONST key 7 times. Enter file number (1 to 7, C, D, E) , Enter address Enter data length (1 byte, 1 word or 2 words) Enter data (Enter with hexadecimal, octal, decimal, bit pattern, or ASC) 挿入 INS (Insert) 解除 ESC (Delete)	170	7-4
	Delete register current value (P, , , ,)		174	
Edit register current value	Write copy register (P, , , ,)	 クリア CLR 編集 EDIT (Display the edit menu screen.) a 2 (Select data memory process.) A 0 (Select copy.) Enter top address of copy source , Enter last address of copy source , Enter top address of copy source , 書込 ENT (Write copy) Continuous edit , 挿入 INS (Insert copy)	176	
	Insert copy register (P, , , ,)			
	Block write register (P, , , ,)	 クリア CLR 編集 EDIT (Display the edit menu screen) C 2 (Select data memory process.) B 1 (Select block process) A 0 (Select block write) Enter top address to write/insert , Enter last address to write/insert , Enter data to write/insert , 書込 ENT (Block write) Continuous write , Continuous insert 挿入 INS (Block insert)	181	
	Block insert register (P, , , ,)			

	Function	Operation procedure	JW-14PG (See page)	PLC model (See page)
Edit register current value	Block register delete (P, , , ,)	 クリア CLR 編集 EDIT (Display the edit menu screen) D 3 (Select data memory process) B 1 (Select block process) B 1 (Select block delete) Enter top address of register for block delete , Enter last address of register for block delete , Continuous delete 削除 DEL ,	185	7-4
I/O module monitor process (JW100H, etc.)	Monitor I/O (P, M, C, ,)	 * * DATA CONST SET 8 A 0 (Select I/O monitor) Enter rack number (in octal) , Enter slot number (in hexadecimal) , Continuous monitor ,	188	
	Search I/O (, M, C, ,)	- Search I/O by specifying byte address  * * DATA CONST SET 8 B 1 (Select I/O search) A 0 (Select byte address designation) Enter byte address (in octal) , SET 8 (Goes ON) RESET 9 (Goes OFF) Continuous check , - Search I/O by specifying a rack number and slot number  * * DATA CONST SET 8 B 1 (Select I/O search) B 1 (Select rack and slot designation) Enter rack number (in octal) , Enter slot number (in hexadecimal) , SET 8 (Goes ON) RESET 9 (Goes OFF) Continuous check ,	191	
	Release and execution of I/O verification (P, M, C, ,)	 * * DATA CONST SET 8 C 2 Enter rack number (in octal) , Enter slot number (in hexadecimal) , A 0 (With verification) B 1 (Without verification)	195	

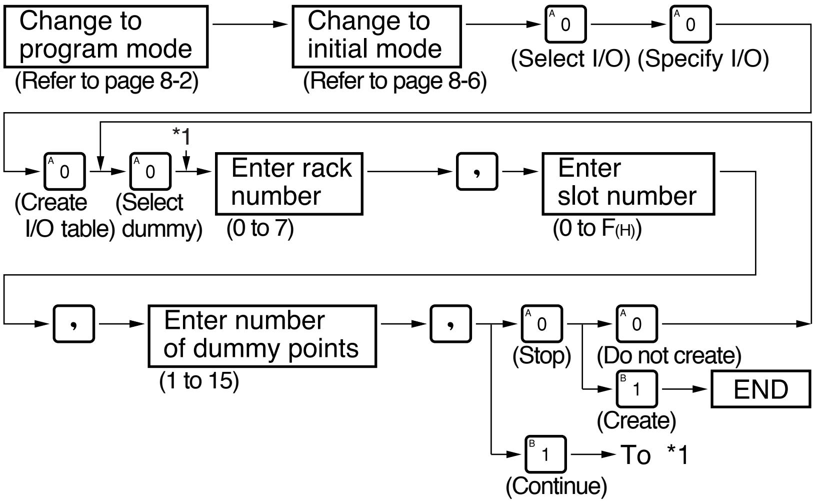
Function	Operation procedure	JW-14PG (See page)	PLC model (See page)
I/O module monitor process [JW20H, JW30H, etc.] (, M, C, ,)	- Monitor by specifying the rack number and slot number  ∗ ∗ DATA CONST SET 8 B 1 (Select rack and slot) Enter rack number , Enter slot number (in hexadecimal) Continuous monitor , Module monitor , - Monitor by specifying the switch setting  ∗ ∗ DATA CONST SET 8 A 0 (Select switch specification) Specify I/O A 0 Option B 1 I/O link C 2 Enter set value , Module monitor ,	198	7-4
Connect/remove live line of I/O module (, M, C, ,)	- Install/remove I/O module  - Restart operation  	203	

Function		Operation procedure	JW-14PG (See page)	PLC model (See page)
Enter I/O address	[JW300] Auto I/O module registration * (, , , , I)	 Change to program mode Change to initial mode 0 (Select I/O) 0 Auto I/O module registration "Auto registration at power ON" 0 (Does not register) 1 (Register) END	–	7-4
	[JW50H to 100H, etc.] Auto I/O module registration (, , , , I)	 Change to program mode Change to initial mode 0 (Select I/O) 1 Auto I/O module registration "Auto registration at power ON" 0 (I/O module address) 1 (Data register address of special I/O module) 0 (No) 1 (Yes) END 0 (I/O assignment) 1 Auto I/O module registration "Auto registration after power ON"	205	
	[JW50H to 100H, etc.] Enter rack top address (Free I/O module registration) (, , , , I)	 Change to program mode Change to initial mode 0 (Select I/O) 0 (I/O assignment) 0 (Create I/O table) * 0 (Select rack address) Enter rack number (1 to 7) , Enter top byte address (ℶ0000 to ℶ1577) , 0 (Stop) 0 (Do not create) 1 (Create) END 1 (Continue) To *	207	

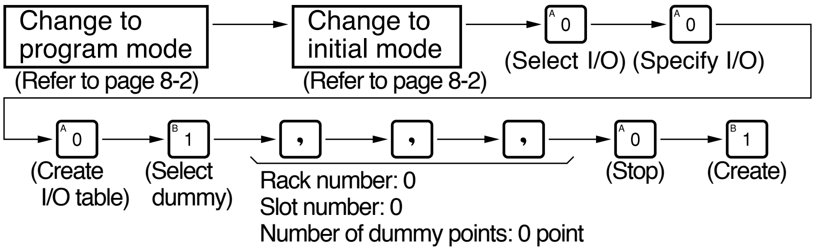
* JW300 auto I/O registration => Refer to page 9-18

<table>
<tr><th colspan="2">Function</th><th>Operation procedure</th><th>JW-14PG
(See page)</th><th>PLC model
(See page)</th></tr>
<tr><td rowspan="3">Enter I/O address</td><td>[JW50H to 100H, etc.] Enter number of dummy points (Free I/O module registration) (, , , , I)</td><td>

- Assign the number of dummy points (Free registration)

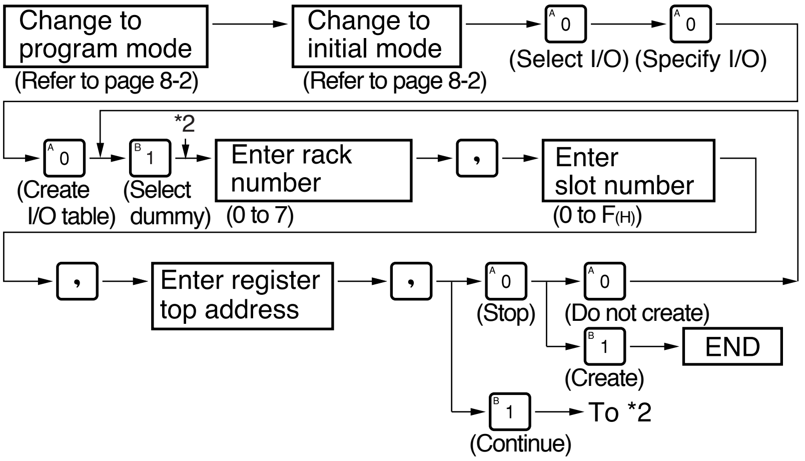

Change to program mode
(Refer to page 8-2)
Change to initial mode
(Refer to page 8-6)
A 0
A 0
(Select I/O) (Specify I/O)
*1
A 0
(Create I/O table)
A 0
(Select dummy)
Enter rack number
(0 to 7)
,
Enter slot number
(0 to F(H))
,
Enter number of dummy points
(1 to 15)
,
A 0
(Stop)
A 0
(Do not create)
B 1
END
(Create)
B 1
To *1
(Continue)

- Reset table

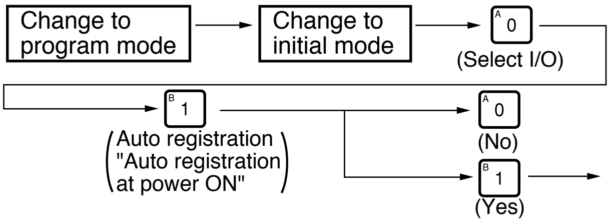

Change to program mode
(Refer to page 8-2)
Change to initial mode
(Refer to page 8-2)
A 0
A 0
(Select I/O) (Specify I/O)
A 0
(Create I/O table)
B 1
(Select dummy)
,
,
,
Rack number: 0
Slot number: 0
Number of dummy points: 0 point
A 0
(Stop)
B 1
(Create)

</td><td>211</td><td rowspan="3">7-4</td></tr>
<tr><td>[JW50H to 100H, etc.] Enter special I/O data register (Free I/O module registration) (, , , , I)</td><td>

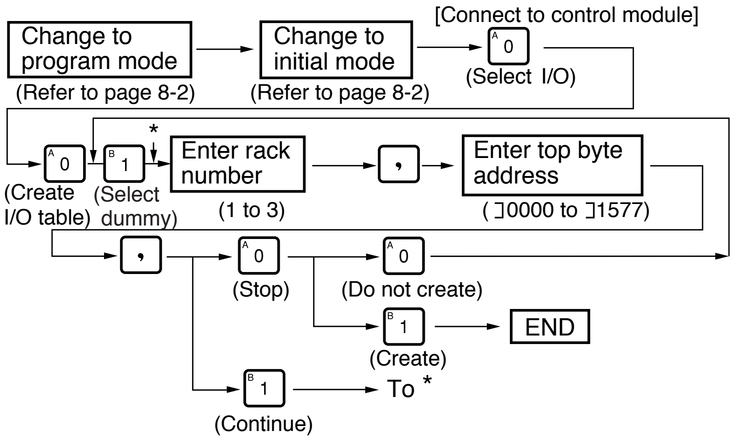
- Assign data register's top address of special I/O (Connect to control module)

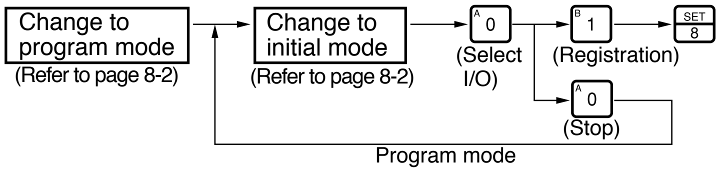

Change to program mode
(Refer to page 8-2)
Change to initial mode
(Refer to page 8-2)
A 0
A 0
(Select I/O) (Specify I/O)
*2
A 0
(Create I/O table)
B 1
(Select dummy)
Enter rack number
(0 to 7)
,
Enter slot number
(0 to F(H))
,
Enter register top address
,
A 0
(Stop)
A 0
(Do not create)
B 1
END
(Create)
B 1
To *2
(Continue)

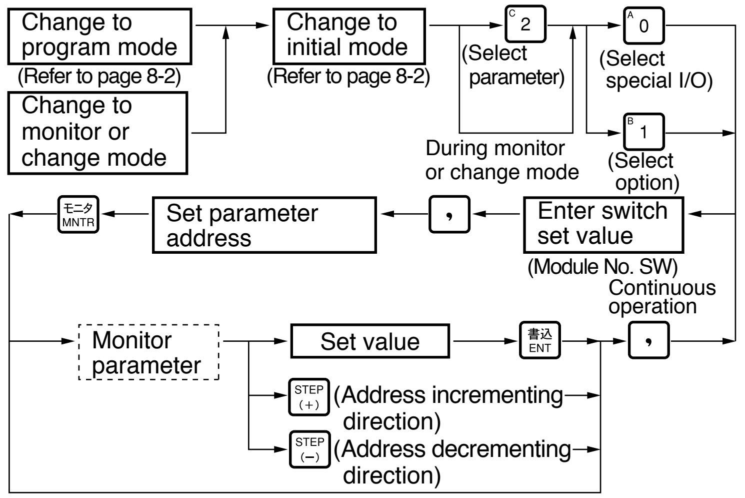
</td><td>214</td></tr>
<tr><td>[JW30H, etc.] Auto registration (, , , , I)</td><td>

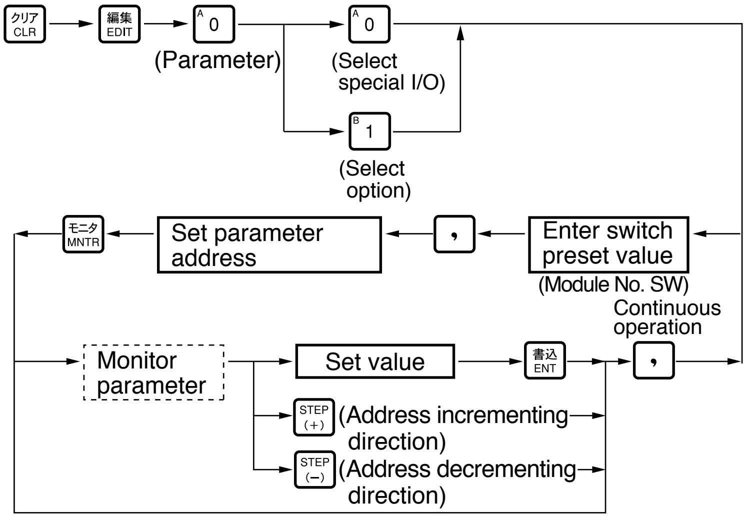

Change to program mode
Change to initial mode
A 0
(Select I/O)
B 1
(Auto registration "Auto registration at power ON")
A 0
(No)
B 1
END
(Yes)

</td><td>218</td></tr>
</table>

<table>
<tr><th colspan="2">Function</th><th>Operation procedure</th><th>JW-14PG
(See page)</th><th>PLC model
(See page)</th></tr>
<tr><td rowspan="2">Enter I/O address</td><td>[JW30H, etc.]
Table creation
(, , , , I)</td><td>
[Connect to control module]
Change to program mode
(Refer to page 8-2)
Change to initial mode
(Refer to page 8-2)
0
(Select I/O)
0
(Create I/O table)
1
(Select dummy)
*
Enter rack number
(1 to 3)
,
Enter top byte address
(⊐0000 to ⊐1577)
,
0
(Stop)
0
(Do not create)
1
(Create)
END
1
(Continue)
To *

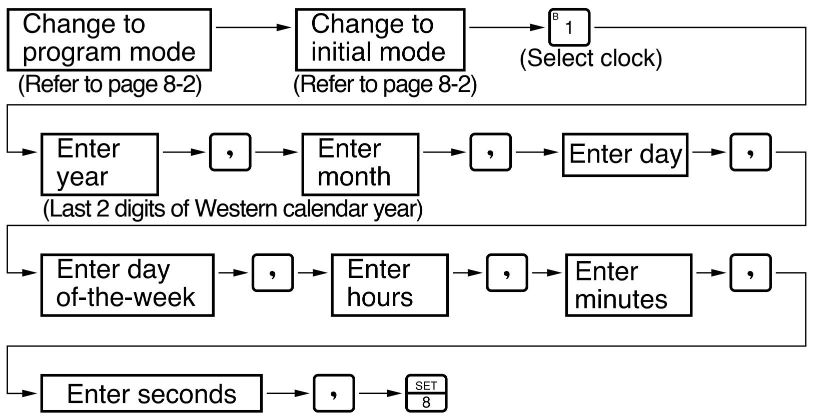
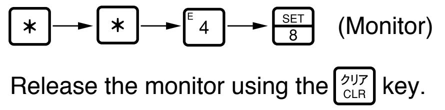
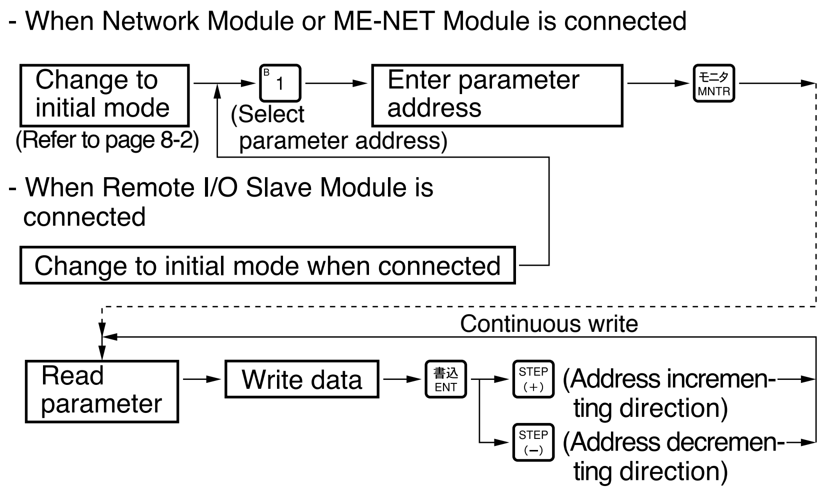
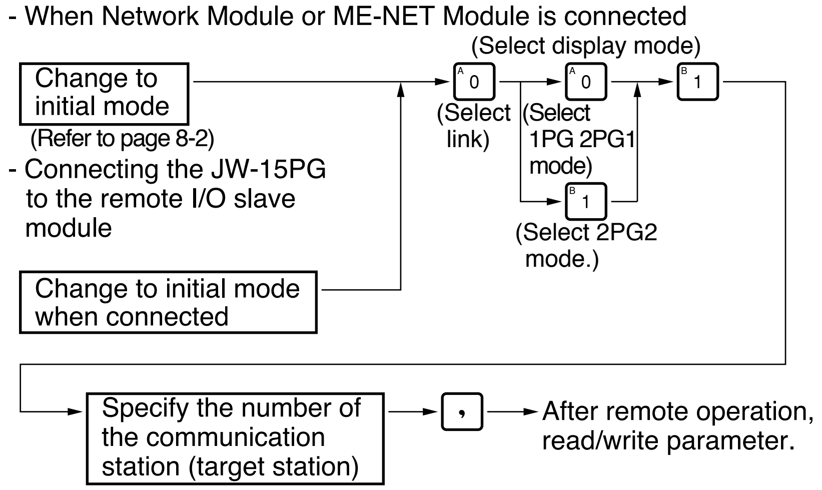
</td><td>219</td><td rowspan="4">7-4</td></tr>
<tr><td>[JW20H, etc.]
I/O
registration
(, , , , I)</td><td>
Change to program mode
(Refer to page 8-2)
Change to initial mode
(Refer to page 8-2)
0
(Select I/O)
1
(Registration)
SET 8
0
(Stop)
Program mode

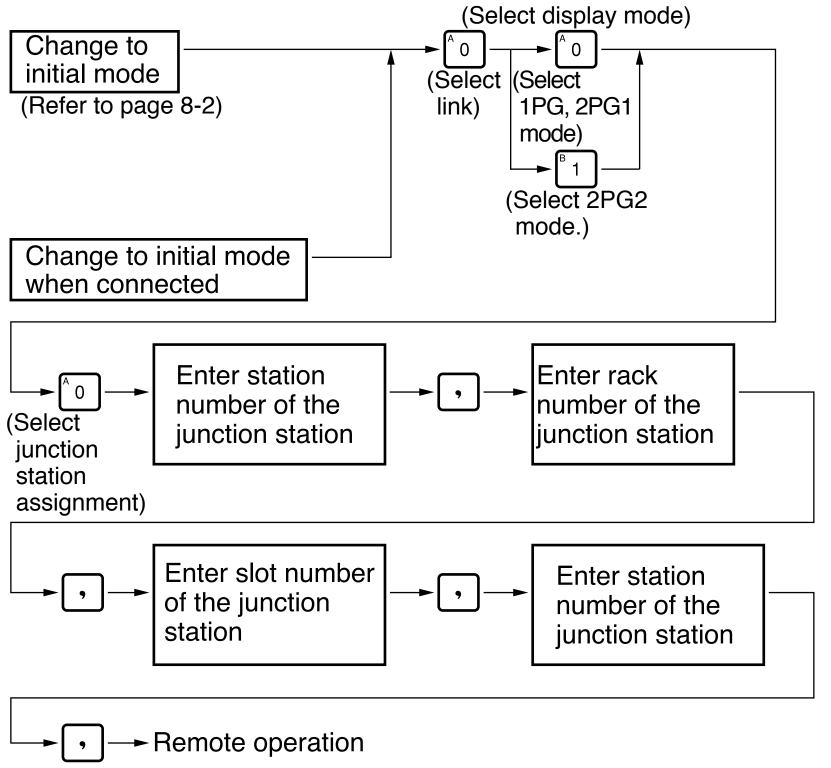
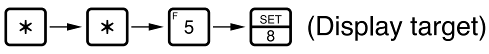
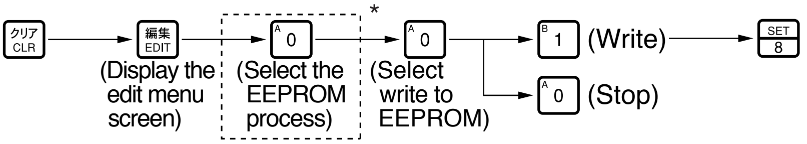
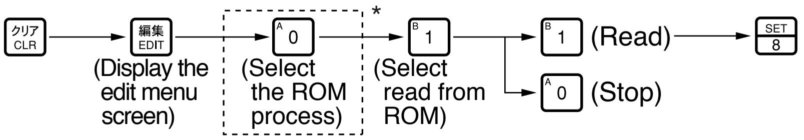
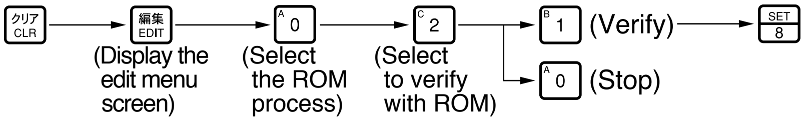
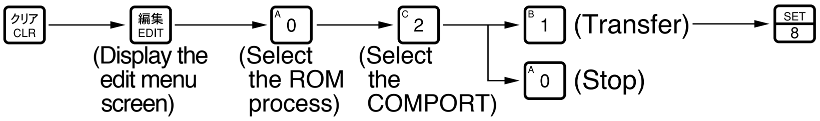
</td><td>220</td></tr>
<tr><td colspan="2">Parameter
setting
[JW20H,
JW30H, etc.]
(, , , , I)</td><td>
Change to program mode
(Refer to page 8-2)
Change to initial mode
(Refer to page 8-2)
Change to monitor or change mode
2
(Select parameter)
During monitor or change mode
0
(Select special I/O)
1
(Select option)
モニタ MNTR
Set parameter address
,
Enter switch set value
(Module No. SW)
Continuous operation
Monitor parameter
Set value
書込 ENT
,
STEP (+)
(Address incrementing direction)
STEP (−)
(Address decrementing direction)

</td><td>223</td></tr>
<tr><td colspan="2">Parameter
setting
[JW300] *
(P, M, C, ,)</td><td>
クリア CLR
編集 EDIT
0
(Parameter)
0
(Select special I/O)
1
(Select option)
モニタ MNTR
Set parameter address
,
Enter switch preset value
(Module No. SW)
Continuous operation
Monitor parameter
Set value
書込 ENT
,
STEP (+)
(Address incrementing direction)
STEP (−)
(Address decrementing direction)

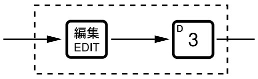
</td><td>–</td></tr>
</table>

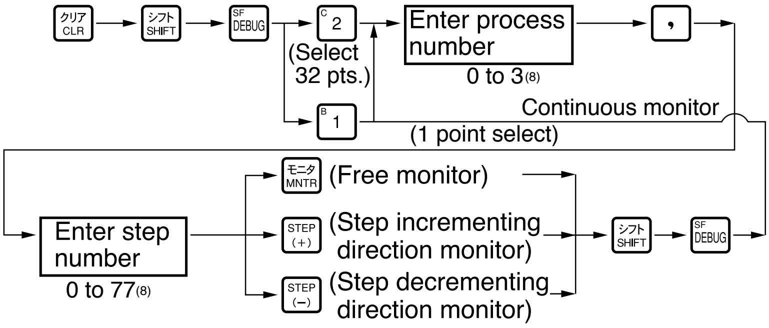
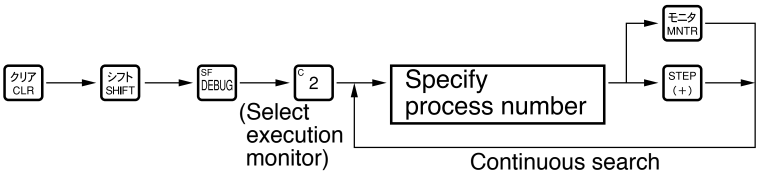
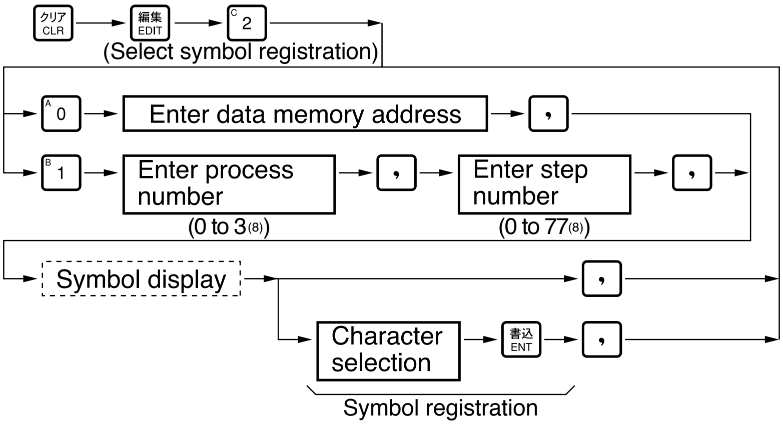
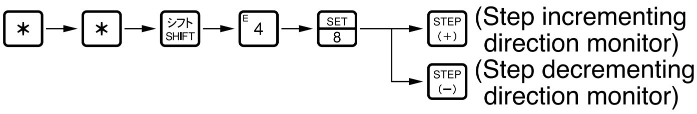
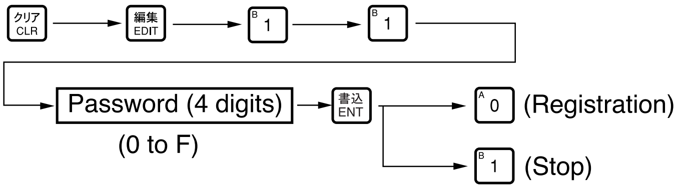
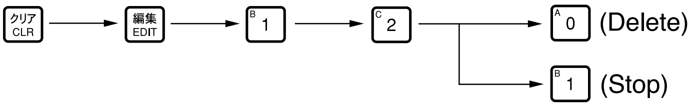
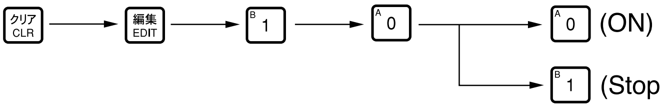
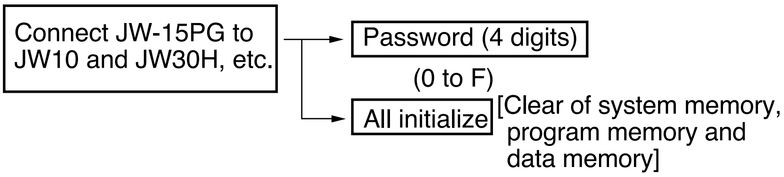
* JW300 parameter setting => Refer to page 9-17

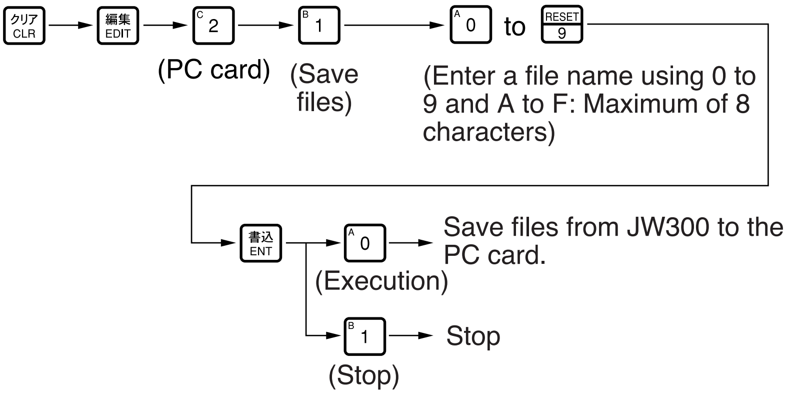
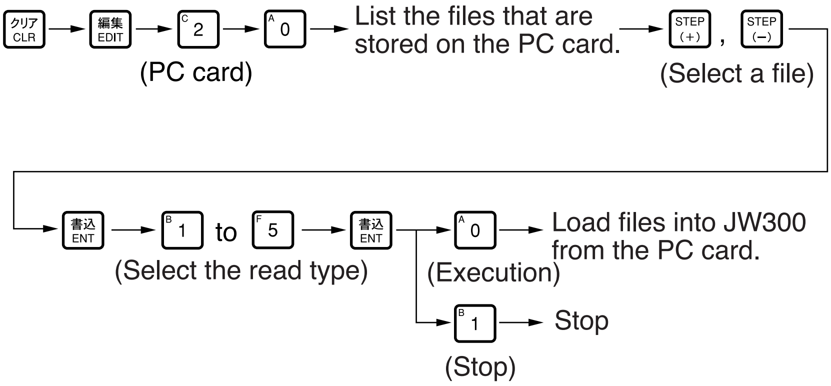
Function	Operation procedure	JW-14PG (See page)	PLC model (See page)
Set the clock (, , , , I)	 Change to program mode (Refer to page 8-2) Change to initial mode (Refer to page 8-2) B 1 (Select clock) Enter year , Enter month , Enter day , (Last 2 digits of Western calendar year) Enter day of-the-week , Enter hours , Enter minutes , Enter seconds , SET 8	226	7-5
Monitor time (P, M, C, ,)	 * * E 4 SET 8 (Monitor) Release the monitor using the クリア CLR key.	229	
Set parameter for network module (, , , , I)	 - When Network Module or ME-NET Module is connected Change to initial mode (Refer to page 8-2) B 1 (Select parameter address) Enter parameter address モニタ MNTR - When Remote I/O Slave Module is connected Change to initial mode when connected Continuous write Read parameter Write data 書込 ENT STEP (+) (Address incrementing direction) STEP (−) (Address decrementing direction)	230	
Remote programming Connect standard network (, , , , I)	 - When Network Module or ME-NET Module is connected (Select display mode) Change to initial mode (Refer to page 8-2) A 0 (Select link) A 0 (Select 1PG 2PG1 mode) B 1 B 1 (Select 2PG2 mode.) - Connecting the JW-15PG to the remote I/O slave module Change to initial mode when connected Specify the number of the communication station (target station) , After remote operation, read/write parameter.	236	

Function		Operation procedure	JW-14PG (See page)	PLC model (See page)
Remote programming and remote monitor	Satellite net expansion function (, , , , I)	- When Network Module or ME-NET Module is connected  (Select display mode) Change to initial mode (Refer to page 8-2) A 0 (Select link) A 0 (Select 1PG, 2PG1 mode) B 1 (Select 2PG2 mode.) Change to initial mode when connected A 0 (Select junction station assignment) Enter station number of the junction station , Enter rack number of the junction station , Enter slot number of the junction station , Enter station number of the junction station , Remote operation	241	7-5
Monitor target station number (P, M, C, , I)		 * * F 5 SET 8 (Display target)	245	
Device function (, , , T,)		Change to terminal mode (Refer to page 8-2)	246	
Write program to an EEPROM (P, , , ,)		 クリア CLR 編集 EDIT (Display the edit menu screen) A 0 (Select the EEPROM process) * A 0 (Select write to EEPROM) B 1 (Write) SET 8 A 0 (Stop)	252	
Read program from ROM (P, , , ,)		 クリア CLR 編集 EDIT (Display the edit menu screen) A 0 (Select the ROM process) * B 1 (Select read from ROM) B 1 (Read) SET 8 A 0 (Stop)	254	
Verify program with ROM [W10] (P, , , ,)		 クリア CLR 編集 EDIT (Display the edit menu screen) A 0 (Select the ROM process) C 2 (Select to verify with ROM) B 1 (Verify) SET 8 A 0 (Stop)	256	
Data transfer to ROM writer [JW20H, etc.] (P, M, C, ,)		 クリア CLR 編集 EDIT (Display the edit menu screen) A 0 (Select the ROM process) C 2 (Select the COMPORT) B 1 (Transfer) SET 8 A 0 (Stop)	257	

* On the JW300, operate the dotted rectangle above using the following operations. => Refer to page 9-19.



Function		Operation procedure	JW-14PG (See page)	PLC model (See page)
SF monitor [JW20H, etc.]	32 points/ 1 point monitor (, M, C, ,)	 クリア CLR シフト SHIFT SF DEBUG C 2 (Select 32 pts.) B 1 Enter process number 0 to 3(8) , Continuous monitor (1 point select) Enter step number 0 to 77(8) モニタ MNTR (Free monitor) STEP (+) (Step incrementing direction monitor) STEP (−) (Step decrementing direction monitor) シフト SHIFT SF DEBUG	259	7-6
	Executing step monitor (, M, C, ,)	 クリア CLR シフト SHIFT SF DEBUG C 2 (Select execution monitor) Specify process number モニタ MNTR STEP (+) Continuous search	263	
Symbol registration [JW20H, etc.] (P, , , ,)		 クリア CLR 編集 EDIT C 2 (Select symbol registration) A 0 Enter data memory address , B 1 Enter process number (0 to 3(8)) , Enter step number (0 to 77(8)) , Symbol display , Character selection 書込 ENT , Symbol registration	265	
Monitor error (P, M, C, ,)		 * * シフト SHIFT E 4 SET 8 STEP (+) (Step incrementing direction monitor) STEP (−) (Step decrementing direction monitor)	270	
Secret function (JW30H, etc.)	Register password (P, , , ,)	 クリア CLR 編集 EDIT B 1 B 1 Password (4 digits) (0 to F) 書込 ENT A 0 (Registration) B 1 (Stop)	274	
	Delete password (P, , , ,)	 クリア CLR 編集 EDIT B 1 C 2 A 0 (Delete) B 1 (Stop)		
	Secret ON (P, , , ,)	 クリア CLR 編集 EDIT B 1 A 0 A 0 (ON) B 1 (Stop)		
	Secret OFF (P,M, C, ,)	 Connect JW-15PG to JW10 and JW30H, etc. Password (4 digits) (0 to F) All initialize [Clear of system memory, program memory and data memory]		
Indicates the base notation (octal/decimal/ hexadecimal) of the values specified		Set in system memory #114, #115	276	

Function		Operation procedure	JW-14PG (See page)	PLC model (See page)
PC card	Save files	 クリア CLR → 編集 EDIT → C 2 → B 1 → A 0 to RESET 9 (PC card) (Save files) (Enter a file name using 0 to 9 and A to F: Maximum of 8 characters) → 書込 ENT → A 0 → Save files from JW300 to the PC card. (Execution) → B 1 → Stop (Stop)	–	7-6
	Load files	 クリア CLR → 編集 EDIT → C 2 → A 0 → List the files that are stored on the PC card. → STEP (+) , STEP (–) (PC card) (Select a file) → 書込 ENT → B 1 to F 5 → 書込 ENT → A 0 → Load files into JW300 from the PC card. (Select the read type) (Execution) → B 1 → Stop (Stop)		

Chapter 9. Operating the JW300

This chapter describes the functions and instructions that are specific to the JW300 and it covers additions to and changes from the conventional operating methods for the JW300.

9-1 Functions specific to the JW300

The JW300 can handle "block programs" and "PC cards," unlike other models.

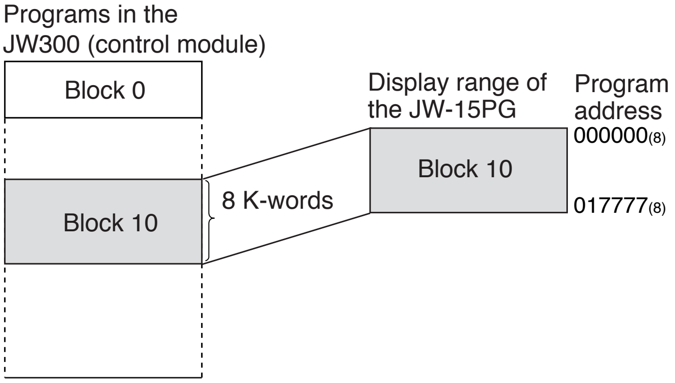
[1] Block programs

The JW300 can store multiple programs in "blocks" in a single control module. Each block can be sized in units of 0.5 K-word using the JW-300SP application (ladder logic programming software).
=> The JW-15PG writes an END instruction (F-40) at the end of each block.
The number of blocks available varies with the control module model (JW-3**CU).

	JW-311CU JW-312CU	JW-321CU JW-322CU	JW-331CU JW-332CU	JW-341CU JW-342CU	JW-352CU	JW-362CU
Number of blocks (Max.)	16	32	64	128	256	512

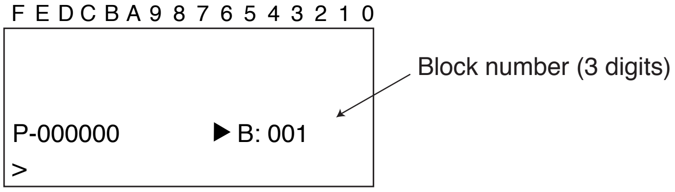
When the JW-15PG is used, only the blocks currently displayed on the JW-15PG can be used. To display other blocks, use the "block move" function. => See page 9-3.

[Ex.] When 10 is displayed as the program block number on the JW-15PG and the memory capacity is 8 K-words.


Programs in the JW300 (control module)
Block 0
Block 10
8 K-words
Display range of the JW-15PG
Block 10
Program address
000000(8)
017777(8)

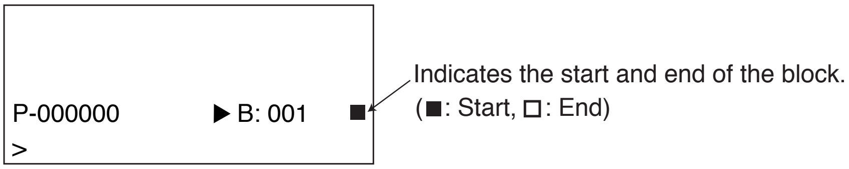
The JW-15PG displays program block numbers, as shown below.

- To display the main block (Block 0)


F E D C B A 9 8 7 6 5 4 3 2 1 0
Block number (3 digits)

```
P-000000          ▶B: 001
>
```

- When you want to display any normal program (Block 1 or higher)


Indicates the start and end of the block.
(■: Start, □: End)

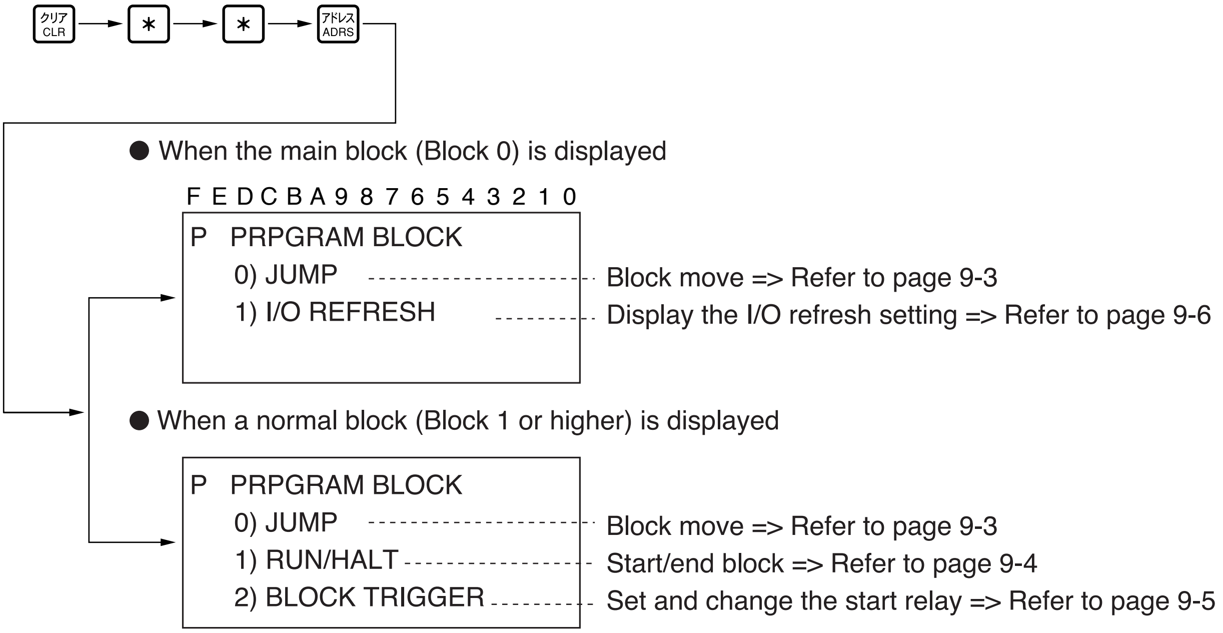
```
P-000000          ▶B: 001   ■
>
```

Notes

- After starting the JW-15PG, the first program block displayed is always the main block (Block 0).
- While monitoring, the JW-15PG may not display a block number, such as when changing the display format.
- A block number is not displayed when displaying data memory, system memory, or other menus.

■ Block operation menu

Key operations concerning program blocks, including block move and others.



● When the main block (Block 0) is displayed

```
F E D C B A 9 8 7 6 5 4 3 2 1 0
P  PRPGRAM BLOCK
    0) JUMP
    1) I/O REFRESH
```

0) JUMP: Block move => Refer to page 9-3

1) I/O REFRESH: Display the I/O refresh setting => Refer to page 9-6

● When a normal block (Block 1 or higher) is displayed

```
P  PRPGRAM BLOCK
    0) JUMP
    1) RUN/HALT
    2) BLOCK TRIGGER
```

0) JUMP: Block move => Refer to page 9-3

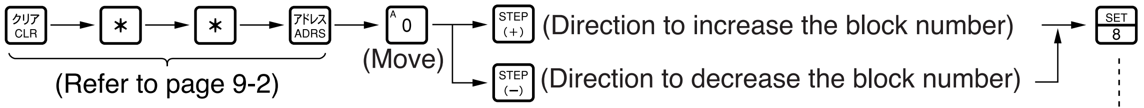
1) RUN/HALT: Start/end block => Refer to page 9-4

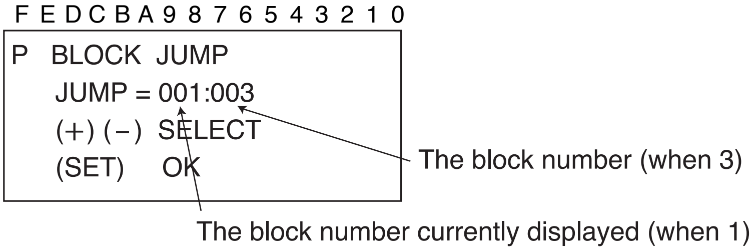
2) BLOCK TRIGGER: Set and change the start relay => Refer to page 9-5

(1) Block move

To change the program block currently displayed and view some other block, follow the procedure below.

■ Operations

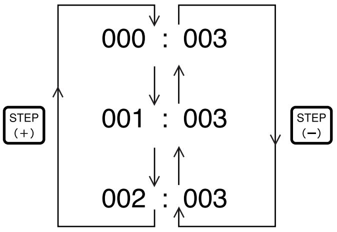

クリア CLR
*
*
アドレス ADRS
A 0
(Refer to page 9-2)
(Move)
STEP (+)
(Direction to increase the block number)
STEP (−)
(Direction to decrease the block number)
SET 8


F E D C B A 9 8 7 6 5 4 3 2 1 0

```
P  BLOCK  JUMP
   JUMP = 001:003
   (+) (−)  SELECT
   (SET)    OK
```

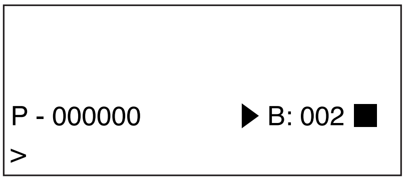
The block number (when 3)
The block number currently displayed (when 1)

- To select a block number, press STEP (+) and STEP (−) .


000 : 003
001 : 003
002 : 003
STEP (+)
STEP (−)

- When there are no program blocks, the block number will be "1."

[Ex.] Select block number "002" and press SET 8 .



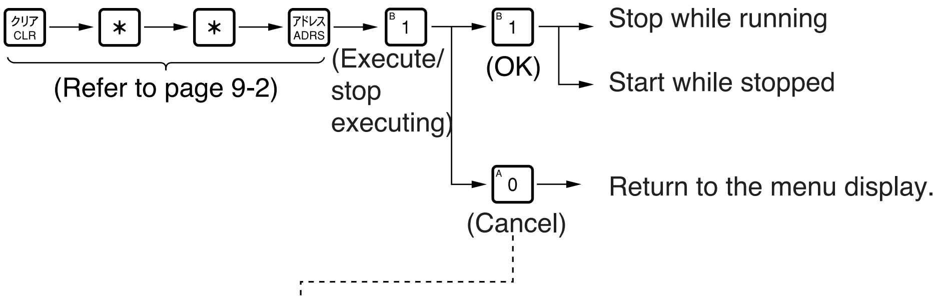
```
P - 000000        ▶ B: 002 ■
>
```

Move to Block 002 (normal block).

(2) Start/end block (when a normal block is selected)

To set the start/end for each block, perform the key operations below.

■ Operations



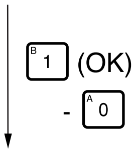
クリア CLR
＊
＊
アドレス ADRS
B 1
(Refer to page 9-2)
(Execute/ stop executing)
B 1
(OK)
Stop while running
Start while stopped
A 0
(Cancel)
Return to the menu display.

```
F E D C B A 9 8 7 6 5 4 3 2 1 0
P  RUN／HALT
   STATUS: RUN
   HALT BLOCK?
   0) CANCEL  1)OK
```

← Status of the block currently displayed

[When stopped:
STATUS: HALT]

[Ex.] When you want to stop at Block 12 (normal block).



- Press the (Cancel) key to return to the menu display.

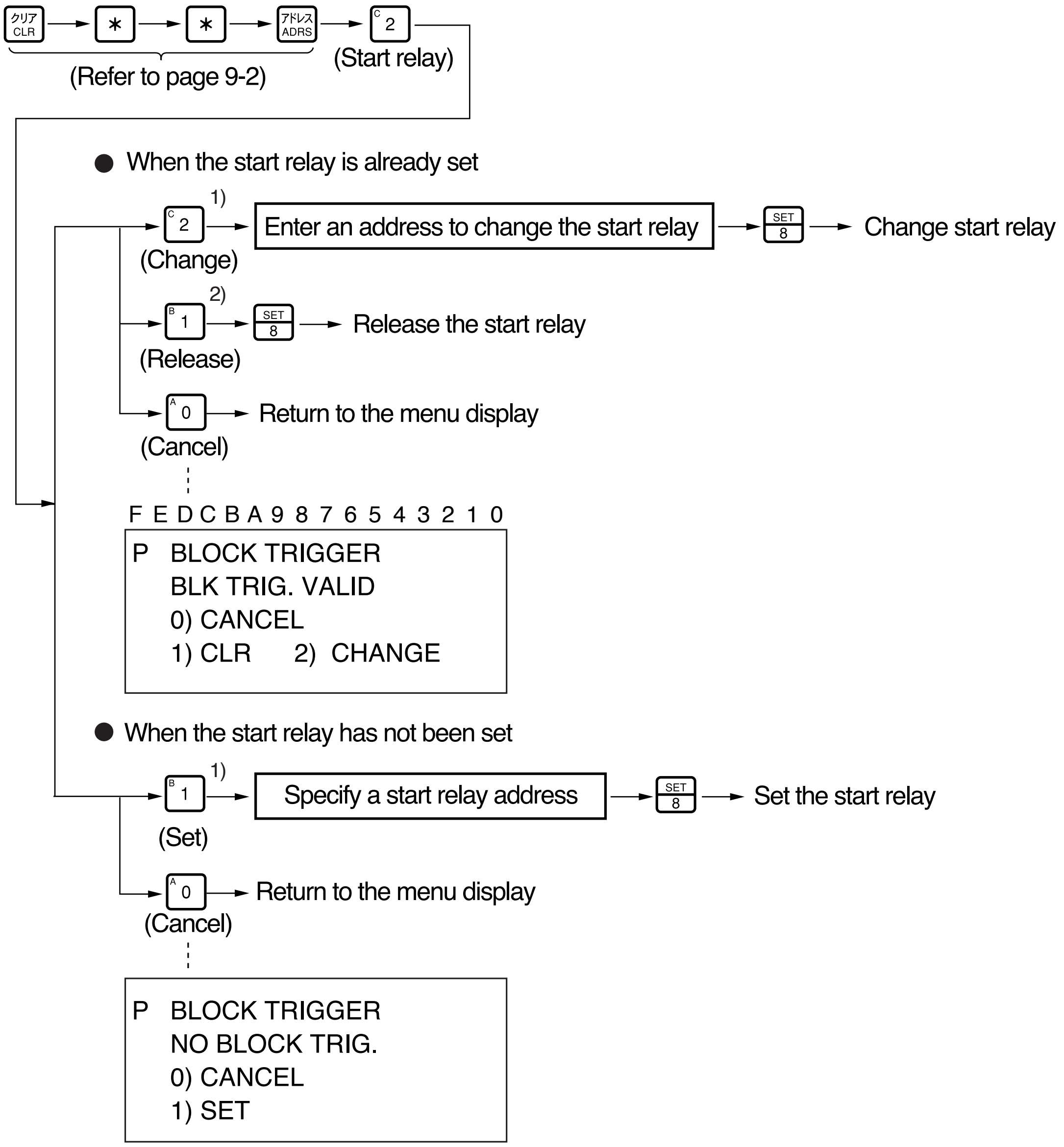
```
P - 000000          ▶B: 012 □
>
```

Changes to "stopped."

(3) Set/change the start relay (when a normal relay is selected)

To set/change a relay to start a block operation, do the following.

■ Operations


クリア CLR
∗
∗
アドレス ADRS
C 2
(Refer to page 9-2)
(Start relay)
When the start relay is already set
1)
C 2
(Change)
Enter an address to change the start relay
SET 8
Change start relay
2)
B 1
(Release)
SET 8
Release the start relay
A 0
(Cancel)
Return to the menu display
When the start relay has not been set
1)
B 1
(Set)
Specify a start relay address
SET 8
Set the start relay
A 0
(Cancel)
Return to the menu display
F E D C B A 9 8 7 6 5 4 3 2 1 0

```
P   BLOCK TRIGGER
    BLK TRIG. VALID
    0) CANCEL
    1) CLR      2)  CHANGE
```

```
P   BLOCK TRIGGER
    NO BLOCK TRIG.
    0) CANCEL
    1) SET
```

1) When a start relay is already set press C 2 (change). When the start relay has not been set, press the B 1 (set) key.

```
P   BLOCK TRIGGER
    BLK TRG = 000000

     > (ENT.) PUSH
```

Enter a relay number and press SET 8. Then it will be the start relay. At the same time, the start relay flag will be turned ON (set).

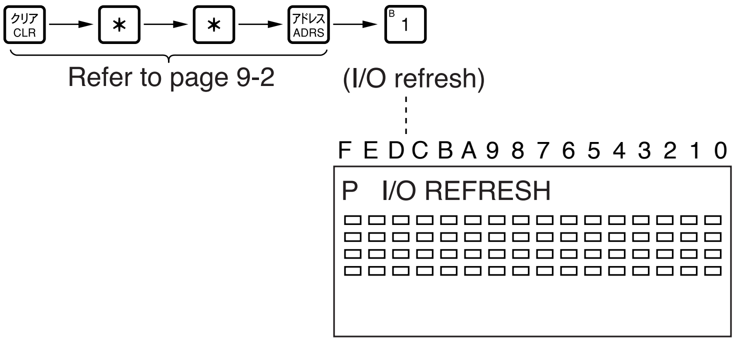
2) If a start relay has already been set, press the B 1 (release),

```
P   BLOCK TRIGGER
    > OK
```

(4) Refresh the I/O status display (when the main block is selected)

The status of the I/O refresh can be checked as follows.

■ Operation procedure


クリア CLR
*
*
アドレス ADRS
B 1
Refer to page 9-2
(I/O refresh)
F E D C B A 9 8 7 6 5 4 3 2 1 0
P I/O REFRESH

The status displayed corresponds to the rack numbers as follows.

⟵ Rack 1 ⟶⟵ Rack 0 ⟶

⟵ Rack 3 ⟶⟵ Rack 2 ⟶

⟵ Rack 5 ⟶⟵ Rack 4 ⟶

⟵ Rack 7 ⟶⟵ Rack 6 ⟶

[2] PC card

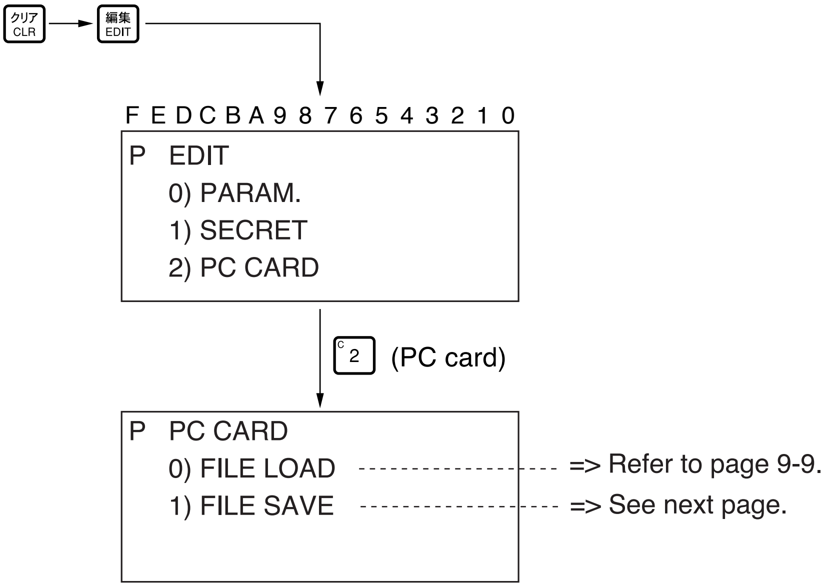
This section describes the procedures used to save and load files on a PC card that is installed in the JW300 control module (JW-3*2CU).

- PC card compatible models
  JW-312CU, JW-322CU, JW-332CU, JW-342CU, JW-352CU, JW-362CU
- Operation
  1. Save files (JW300 to PC card)
  2. Load files (PC card to JW300)
- Setting mode

Program	Monitor	Change	Terminal	Initial
○	×	×	×	×

2PG mode
×

■ PC card operation menu


クリア CLR
編集 EDIT
2
(PC card)
=> Refer to page 9-9.
=> See next page.

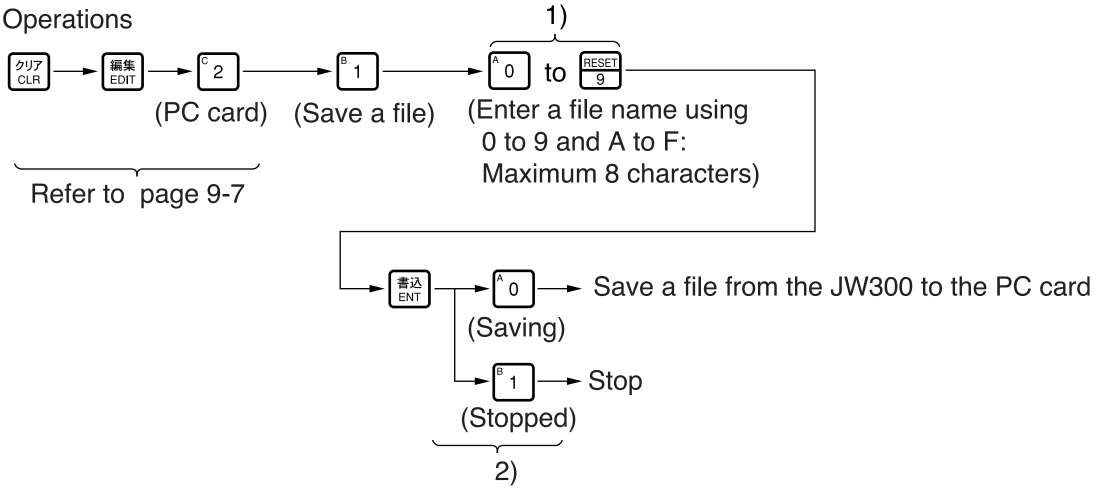
```
F E D C B A 9 8 7 6 5 4 3 2 1 0
P  EDIT
   0) PARAM.
   1) SECRET
   2) PC CARD
```

```
P  PC CARD
   0) FILE LOAD
   1) FILE SAVE
```

(1) Save files

To save files to a PC card from a JW300, do the following:

■ Operations


1)
クリア CLR
編集 EDIT
C 2
B 1
A 0
to
RESET 9
(PC card)
(Save a file)
(Enter a file name using 0 to 9 and A to F: Maximum 8 characters)
Refer to page 9-7
書込 ENT
A 0
Save a file from the JW300 to the PC card
(Saving)
B 1
Stop
(Stopped)
2)

1) Enter a file name to use when saving the file.

```
F E D C B A 9 8 7 6 5 4 3 2 1 0
P  FILE SAVE
   FILE NAME (MAX8)

   (ENT) OK
```

- Enter a file name using 0 to 9 and A to F, maximum of 8 characters.
  Press 削除 DEL to clear any character you entered.

2) Confirm the file save operation

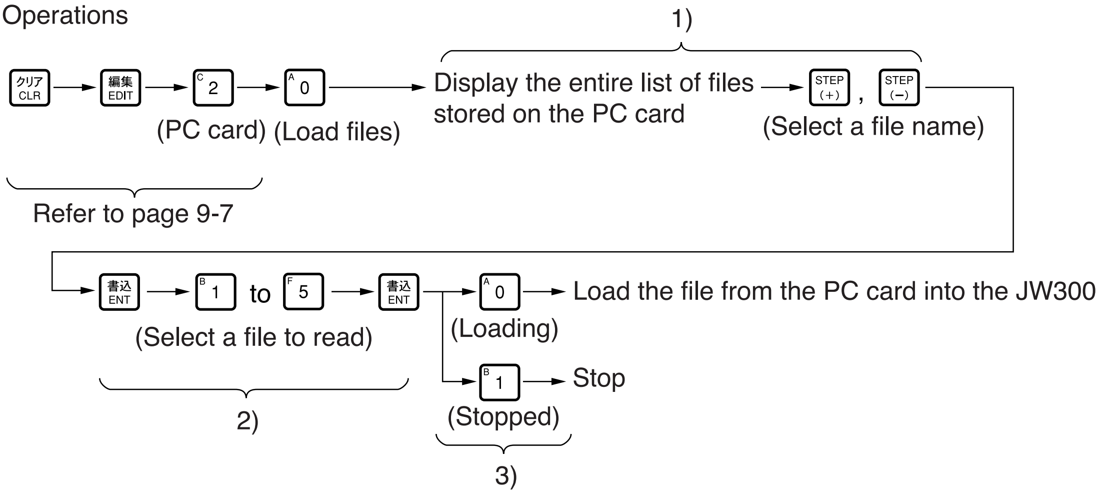
```
P  FILE SAVE
   SAVE?

   0) RUN  1) STOP
```

- When saving a file, the JW-15PG will save the files that are stored in system memory #2221 on the JW300.
  The initial value in #2221 is 1F(H) (save all files).

(2) Load files

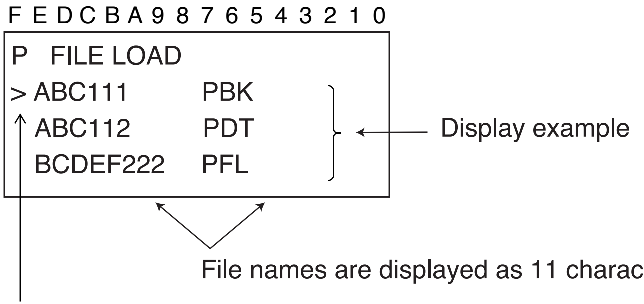
To load files from the PC card into the JW300, do the following.

■ Operations



1)
クリア CLR
編集 EDIT
2
0
(PC card) (Load files)
Display the entire list of files stored on the PC card
STEP (+) , STEP (−)
(Select a file name)
Refer to page 9-7
書込 ENT
1 to 5
書込 ENT
(Select a file to read)
2)
0
Load the file from the PC card into the JW300
(Loading)
1
Stop
(Stopped)
3)

1) Display of the list of files (select a file name)



F E D C B A 9 8 7 6 5 4 3 2 1 0

```
P   FILE LOAD
> ABC111        PBK
  ABC112        PDT
  BCDEF222      PFL
```

Display example

File names are displayed as 11 characters (8 + 3 fixed).

Cursor position (move up and down with STEP (+) and STEP (−))

- When there are more files than can be displayed on one screen, the next page (3 lines) will be displayed.

2) Select a file

Select a file name using the cursor (press 書込 ENT), the "Read a file" selection screen will appear.

```
P   FILE LOAD
    SELECT FILE
1 ☐PRG☐   2 ☐SYS
3 ☐PARA☐ 4 ☐Fi☐     5 ☐DT
```

Select the files you want to read using 1 to 5 . (Select two or more at once)
[Ex.] When you want to read in both a program and parameters, press 1 and 3 .

```
P   FILE LOAD
    SELECT FILE
1 ■PRG    2 ☐SYS
3 ■PARA   4 ☐Fi     5 ☐DT
```

- Press the same key a second time to undo the selection.
- To quit the selection, press 書込 ENT .

3) Check the file loading

```
P   FILE LOAD
    LOAD?

0) RUN   1) STOP
```

After confirming the file loading by pressing 0 , the selected file will be loaded from the PC card into the JW300 acording the "file name" and "type" selected.

9-2 Instructions specific to the JW300

The JW300 has "new instructions (STR POS, etc.)" and an "assign a register for TMR/CNT" instruction, which are unique to it.

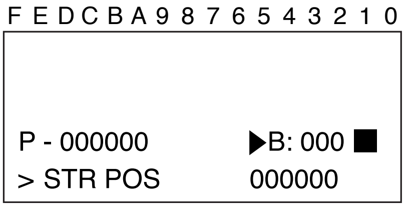
[1] Basic instruction

(1) New instructions

The JW300 has the following unique instructions related to integers, output instructions, and bit operation.

Basic instruction	Ladder symbol	Key operation
STR POS	├──┤P├──	STR → STR → STR → Relay number → 書込 ENT
STR NEG	├──┤N├──	STR → STR → STR → STR → Relay number → 書込 ENT
AND POS	──┤P├──	AND → AND → AND → Relay number → 書込 ENT
AND NEG	──┤N├──	AND → AND → AND → AND → Relay number → 書込 ENT
OR POS	──┤P├──┘	OR → OR → OR → Relay number → 書込 ENT
OR NEG	──┤N├──┘	OR → OR → OR → OR → Relay number → 書込 ENT
OUT POS	──(P)──┤	OUT → OUT → OUT → Relay number → 書込 ENT
OUT NEG	──(N)──┤	OUT → OUT → OUT → OUT → Relay number → 書込 ENT
OUT NOT	──(/)──┤	OUT → OUT → Relay number → 書込 ENT
SET	──(S)──┤	OUT → シフト SHIFT → SET 8 → Relay number → 書込 ENT
RST	──(R)──┤	OUT → シフト SHIFT → RESET 9 → Relay number → 書込 ENT
PUSH		シフト SHIFT → STR → 書込 ENT
POP		シフト SHIFT → OUT → 書込 ENT
MRD		シフト SHIFT → AND → 書込 ENT

[Ex.] Display example when you want to enter a "STR POS" instruction.



```
F E D C B A 9 8 7 6 5 4 3 2 1 0


P - 000000          ▶B: 000 ■
> STR POS           000000
```

(2) TMR/CNT instruction

When the JW300 is used, the allowed range will be "000 to 7999", depending on the setting of the TMR/CNT, and the register can be assigned.

Instruction	Allowed range	
	JW300	Other than JW300
TMR、CNT	Assign 0000 to 7999 registers	0000 to 1999
DTMR(BCD), UTMR(BCD) DCNT(BCD), UCNT(BCD)	Assign 0000 to 7999 registers	0000 to 7999
DTMR(BIN), UTMR(BIN) DCNT(BIN), UCNT(BIN)	Assign 0000 to 32767 registers	0000 to 32767

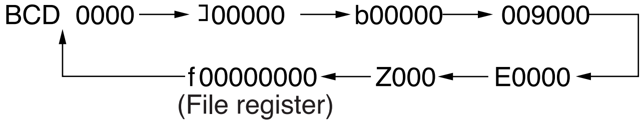
All of the byte addresses in data memory can be specified when assigning registers.
To make an assignment, use two bytes for the byte address and be sure to specify only even addresses.

■ Key operations for assigning registers

```
F E D C B A 9 8 7 6 5 4 3 2 1 0
STR                000400
TMR                 17777
P - 000203         ▶B: 000
>          BCD       0000
```

Display example

Press DATA CONST, to change the registers display.



[Ex.] Display example when set to "コ00000"

```
STR                000400
TMR                 17777
P - 000203         ▶B: 000
>                  コ00000
```

Notes

- When the register specification is selected for the TMR/CNT set value, the set value cannot be changed using the "change mode."

[Display example]

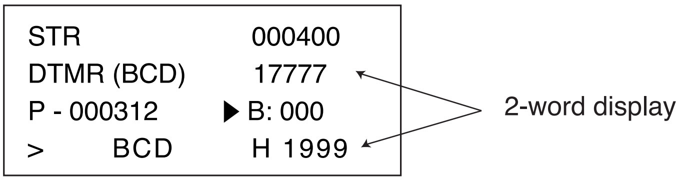
```
STR                 000400
TMR       17777     1000
C - 000203        ▶B: 000
> コ00000           H 1999
```

Current value

Set value (Can't be changed)

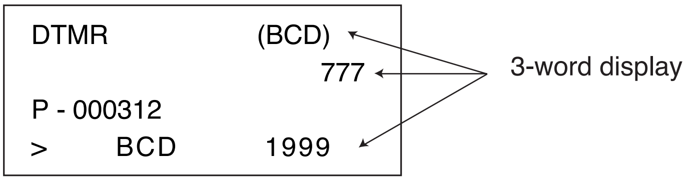
When the JW300 is used, DTMR, UTMR, DCNT, and UCNT will be in a two-word configuration.
(When the machine is not a JW300, these are in a 3-word configuration.)

[Ex.] Display example when the JW300 is used



```
STR                000400
DTMR (BCD)         17777
P - 000312        ▶B: 000
>       BCD        H 1999
```

[Ex.] Display example when some other model is used

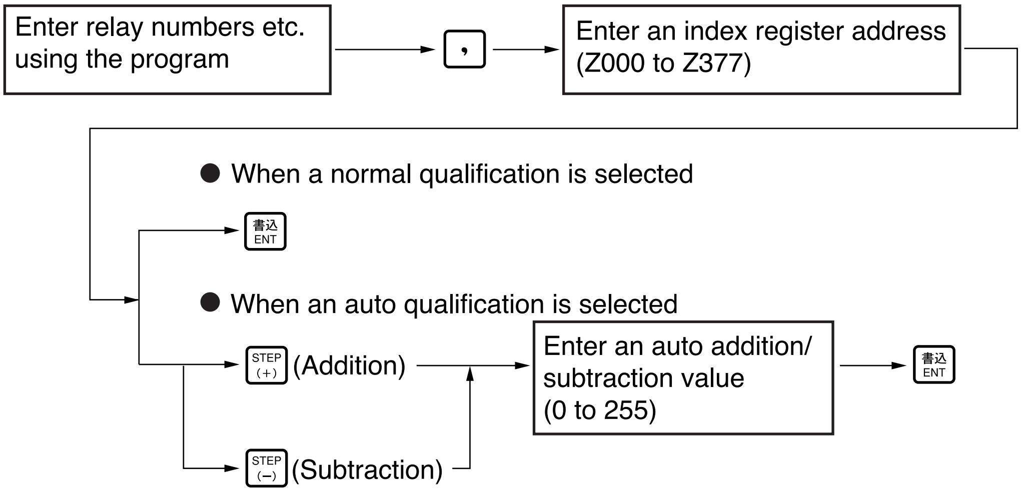


```
DTMR                (BCD)
                        777
P - 000312
>       BCD          1999
```

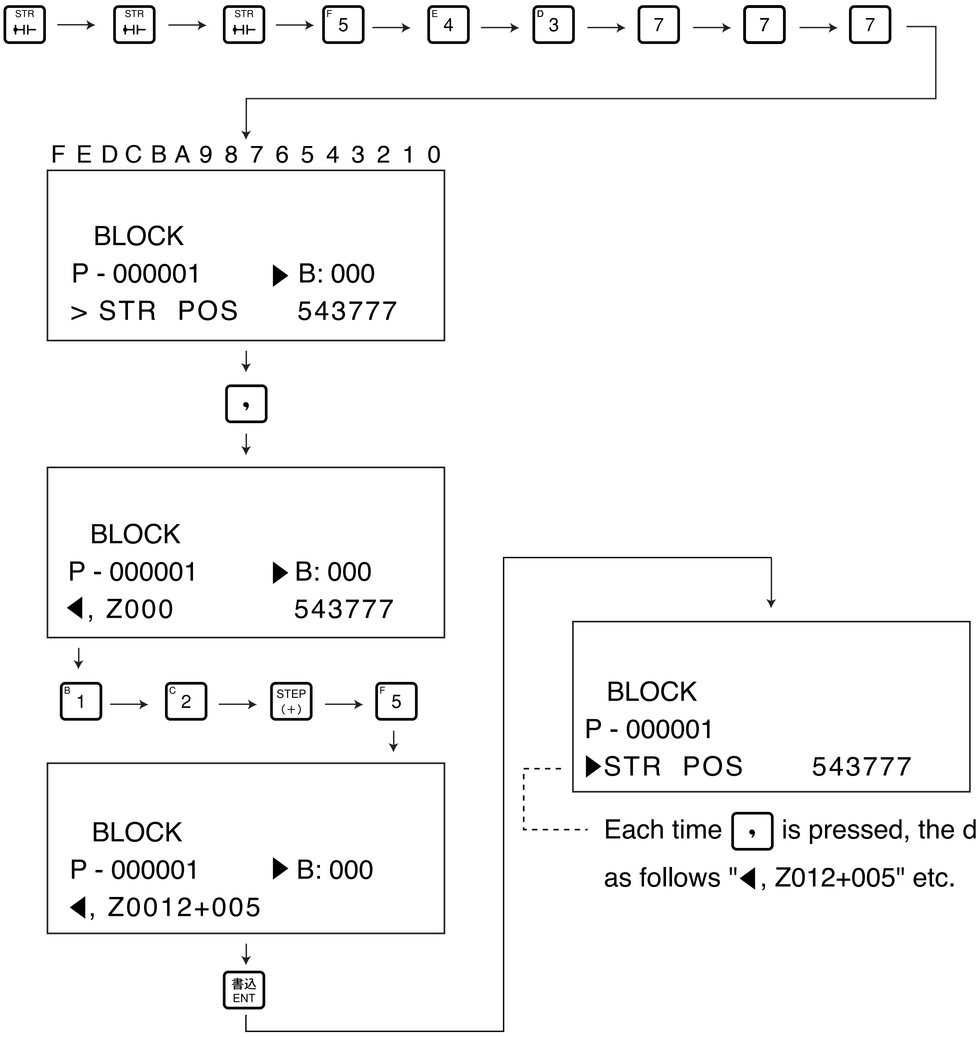
[2] Index qualification

You can add index register (Z000 to Z377) details to relays, registers, TMR/CNT contact points, TMR/CNT numbers, TMR/CNT/MD current values, and labels in JW300 programs, as well as perform addition and subtraction.

■ Operations


Enter relay numbers etc. using the program
,
Enter an index register address (Z000 to Z377)
● When a normal qualification is selected
書込 ENT
● When an auto qualification is selected
STEP (+) (Addition)
STEP (−) (Subtraction)
Enter an auto addition/ subtraction value (0 to 255)
書込 ENT

[Ex.] An input example STR POS 543777, Z012+5


STR
STR
STR
F 5
E 4
D 3
7
7
7
F E D C B A 9 8 7 6 5 4 3 2 1 0
BLOCK
P - 000001 ▶ B: 000
> STR POS 543777
,
BLOCK
P - 000001 ▶ B: 000
◀, Z000 543777
B 1
C 2
STEP (+)
F 5
BLOCK
P - 000001 ▶ B: 000
◀, Z0012+005
書込 ENT
BLOCK
P - 000001
▶STR POS 543777

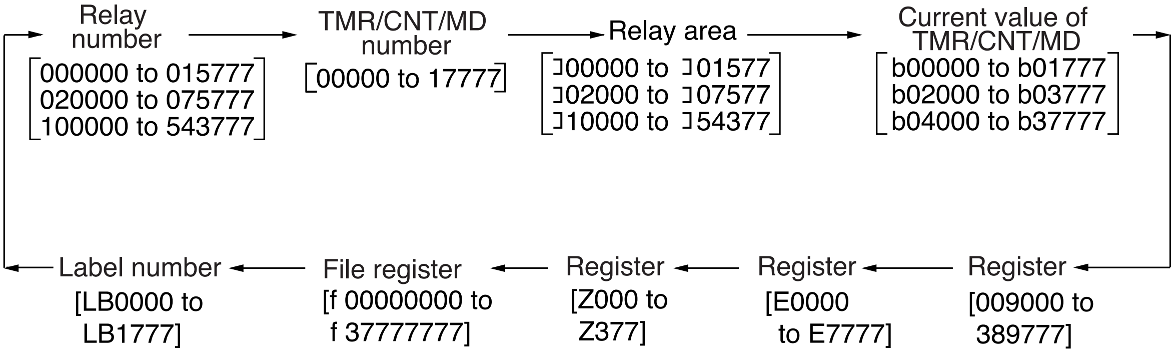
Each time , is pressed, the display changes as follows "◀, Z012+005" etc.

9-3. Additions and changes from conventional operations

This section describes the additions and changes in operations (such as displaying data memory) which are different from the conventional models.

[1] Displaying data memory

Using the JW300, you can display the data memory area that is accessed when entering instructions, searching data memory, and monitoring registers in the following order.


Relay number
[000000 to 015777
020000 to 075777
100000 to 543777]
TMR/CNT/MD number
[00000 to 17777]
Relay area
[コ00000 to コ01577
コ02000 to コ07577
コ10000 to コ54377]
Current value of TMR/CNT/MD
[b00000 to b01777
b02000 to b03777
b04000 to b37777]
Register
[009000 to 389777]
Register
[E0000 to E7777]
Register
[Z000 to Z377]
File register
[f 00000000 to f 37777777]
Label number
[LB0000 to LB1777]

- To change the display, press the DATA/CONST or 解除/ESC key (reverse).
- The range for each address varies with the control module model used with the JW300 (JW-3**CU).

■ Display of Z000 to Z377

The Index register addresses (Z000 to Z377) are configured as words.
Therefore, the data can only be displayed in word length. They cannot be changed to a display of I bytes or double words.

[Ex.]

```
F E D C B A 9 8 7 6 5 4 3 2 1 0

P DATA
> Z000          H 0000
```

Hexadecimal display

- As with the other registers, the data in the display are changed in the following order, by pressing 変換/CONV key.

H (hexadecimal) → O (octal) → D (decimal) → B (binary) → ASCII → H (hexadecimal)

■ Displaying file registers f00000000 and up

The file registers (f00000000 to f37777777) only exist in file 1.

[Ex.]

```
P DATA     f 00000000
>          HEX    00
```

Hexadecimal byte display

■ DisplayingLB0000 to LB1777

Label numbers (LB0000 to LB1777) are not always in the same block, so their block numbers are displayed.

[Ex.]

```
P DATA          LB0000
>          000 - 000100
```

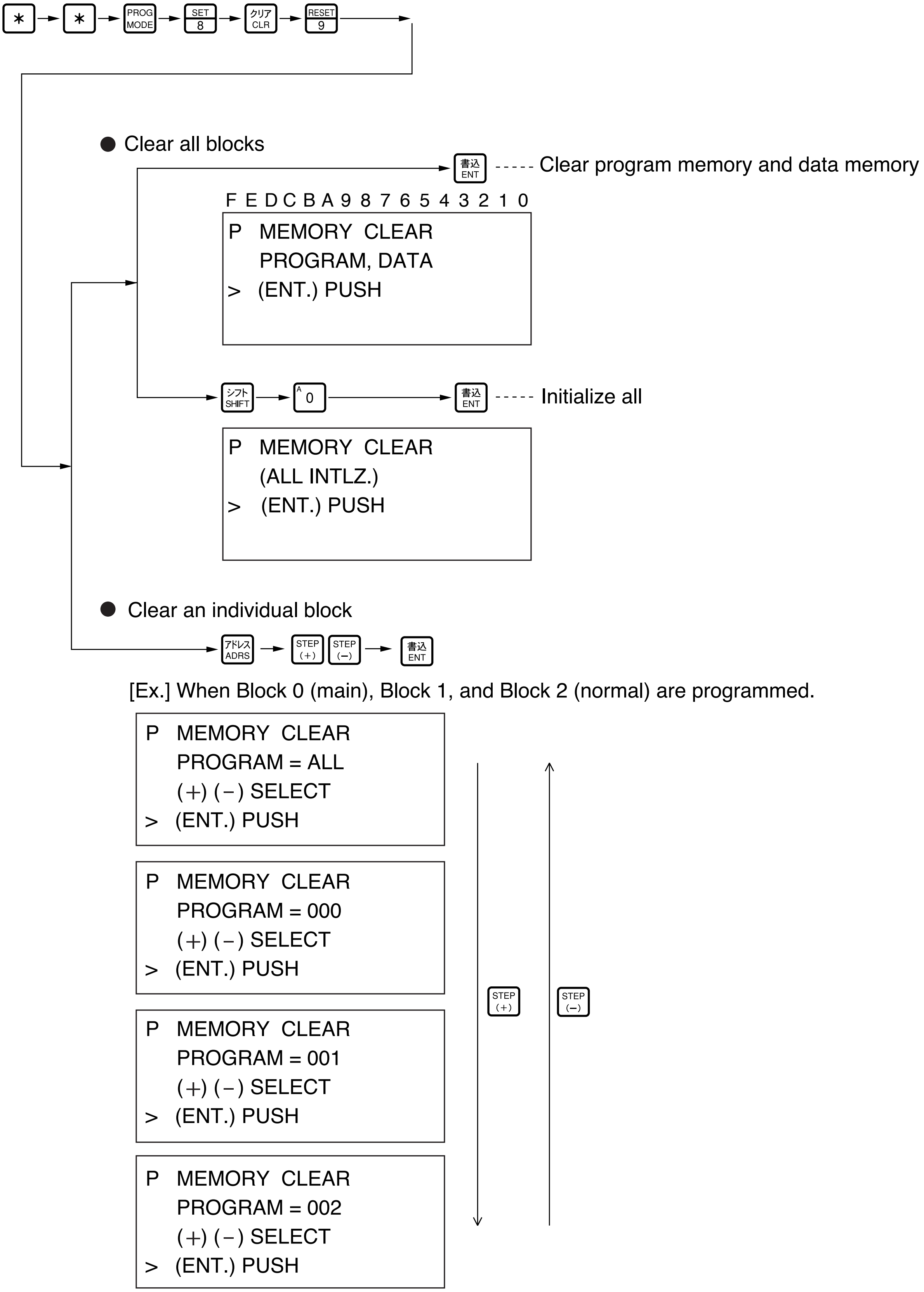
Block number Program address

- LB0000 is programmed at program address 000100(8) in Block 0 (the main block).

[2] Clear program memory

When using the JW300 and you want to clear the program memory you can use the "clear all blocks" or "clear an individual block" functions.

■ Operations



● Clear all blocks

書込 ENT ----- Clear program memory and data memory

```
F E D C B A 9 8 7 6 5 4 3 2 1 0
P  MEMORY  CLEAR
   PROGRAM, DATA
>  (ENT.) PUSH
```

シフト SHIFT → A 0 → 書込 ENT ----- Initialize all

```
P  MEMORY  CLEAR
   (ALL INTLZ.)
>  (ENT.) PUSH
```

● Clear an individual block

アドレス ADRS → STEP (+) STEP (−) → 書込 ENT

[Ex.] When Block 0 (main), Block 1, and Block 2 (normal) are programmed.

```
P  MEMORY  CLEAR
   PROGRAM = ALL
   (+) (−) SELECT
>  (ENT.) PUSH
```

```
P  MEMORY  CLEAR
   PROGRAM = 000
   (+) (−) SELECT
>  (ENT.) PUSH
```

```
P  MEMORY  CLEAR
   PROGRAM = 001
   (+) (−) SELECT
>  (ENT.) PUSH
```

```
P  MEMORY  CLEAR
   PROGRAM = 002
   (+) (−) SELECT
>  (ENT.) PUSH
```

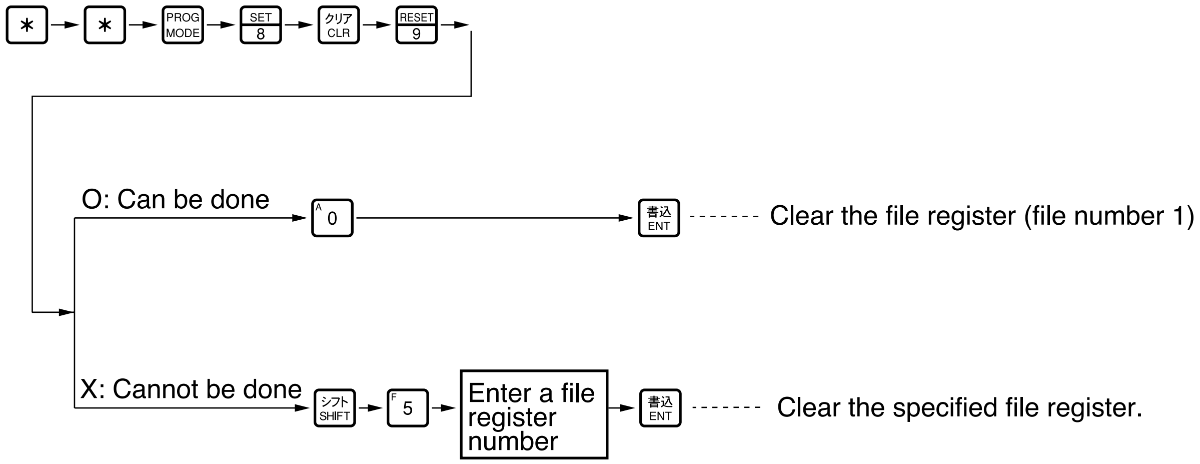
STEP (+) ↓ STEP (−) ↑

If there is no program in the normal blocks, only "ALL" and "000" will be displayed.

[3] Clear the file register

When the JW300 is used, only file 1 is available as a file register. You can only use the "Clear the file register (file number 1)" function. You cannot use the "Clear a specified file register" function.

■ Operations



＊
＊
PROG MODE
SET 8
クリア CLR
RESET 9
O: Can be done
A 0
書込 ENT
Clear the file register (file number 1)
X: Cannot be done
シフト SHIFT
F 5
Enter a file register number
書込 ENT
Clear the specified file register.

[4] Monitor program

When the JW300 is used, the index registers and file registers that are programmed will be displayed as follows.

(1) Monitor index register Z***

The index registers are fixed to word length operation (except as noted) and they will be displayed as words when monitoring a program.

[Display example]

```
F E D C B A 9 8 7 6 5 4 3 2 1 0
STR                000000□
F - 000              XFER
C - 000003        ▶ B: 000
> Z000        H      0000
```

Fixed to word length

- The code can be converted using the 変換 CONV key.

H (hexadecimal) → O (octal) → D (decimal) → Bit pattern → ASCII → H (hexadecimal)

(2) Monitor file register f********

When monitoring programs, they will always be displayed as bytes in hexadecimal.

[Display example]

```
STR                000000□
F - 000              XFER
C - 000003        ▶ B: 000
> f00000000        H  00
```

Fixed to hexadecimal bytes

[5] Parameter setting

When the JW300 is used, parameters (special I/O, options) can be set using the "edit" menu.

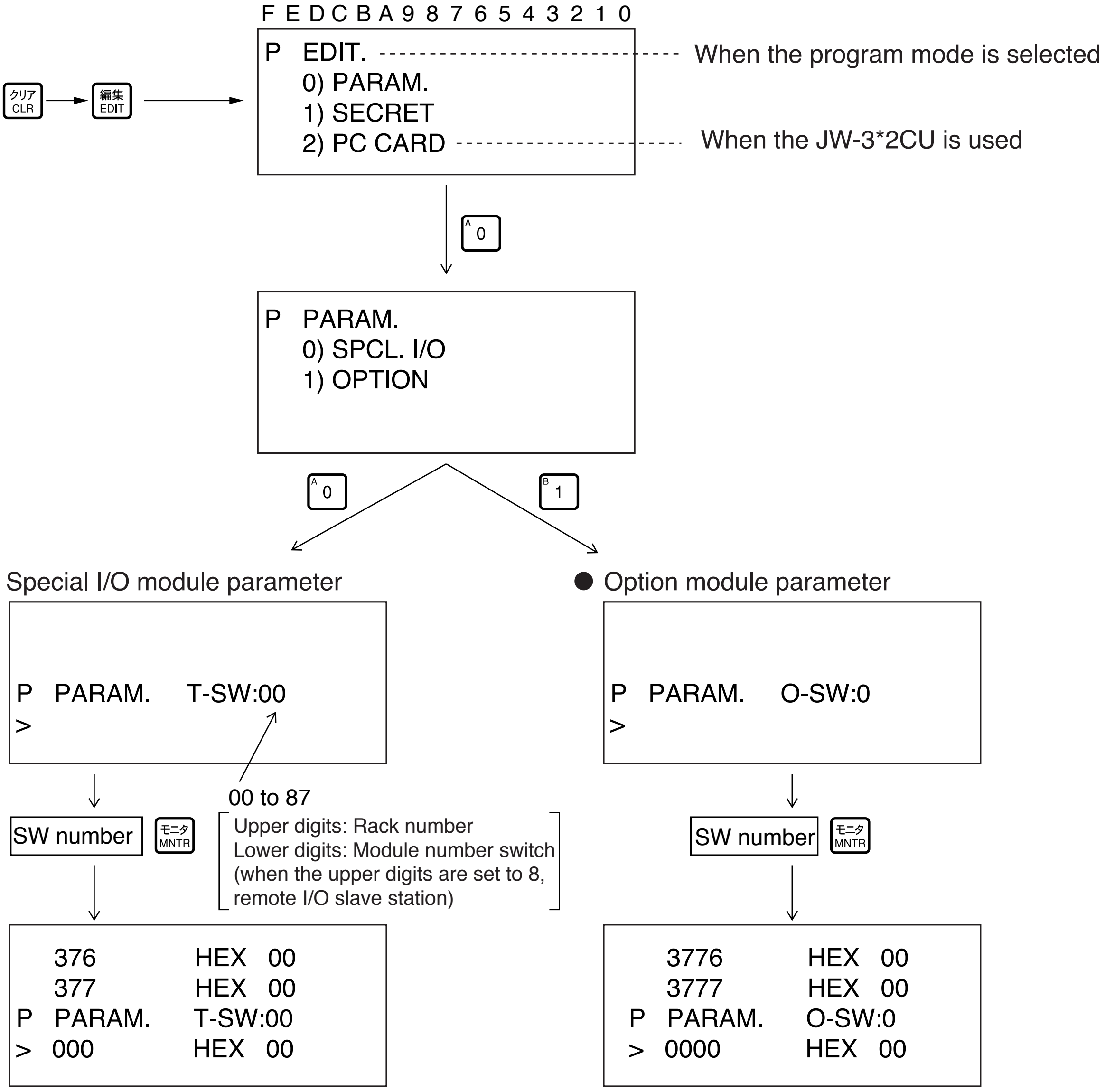
- You can monitor parameter data during operation of the program.
  However, you cannot change the parameter data while the program is running.
- In the JW30H, you can set the parameters on the "initial" menu.

■ Setting mode

Program	Monitor	Change	Terminal	Initial
○	△	△	×	×
	(Unable to change data)			

2PG mode
×

■ Operations (menu display)



```
P  EDIT.
   0) PARAM.
   1) SECRET
   2) PC CARD
```

When the program mode is selected

When the JW-3*2CU is used

```
P  PARAM.
   0) SPCL. I/O
   1) OPTION
```

● Special I/O module parameter

```
P  PARAM.   T-SW:00
>
```

00 to 87

Upper digits: Rack number
Lower digits: Module number switch (when the upper digits are set to 8, remote I/O slave station)

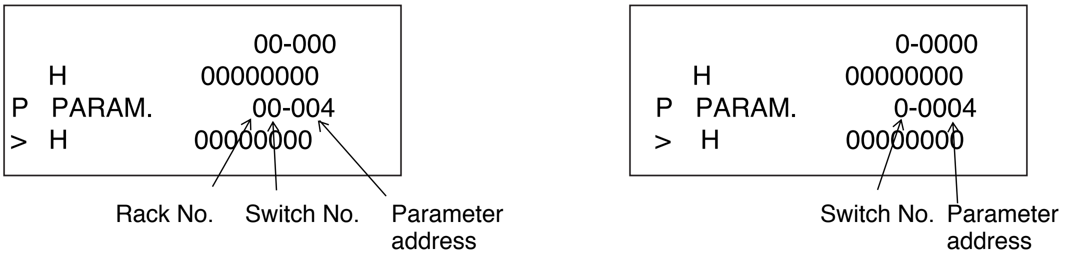
```
   376          HEX  00
   377          HEX  00
P  PARAM.       T-SW:00
>  000          HEX  00
```

● Option module parameter

```
P  PARAM.   O-SW:0
>
```

```
   3776         HEX  00
   3777         HEX  00
P  PARAM.       O-SW:0
>  0000         HEX  00
```

- By pressing the FORCE LNGTH key, the JW-15PG can display double-word data. In program mode you can change the data (both special I/O and option data).



```
                 00-000
   H           00000000
P  PARAM.        00-004
>  H           00000000
```

Rack No. Switch No. Parameter address

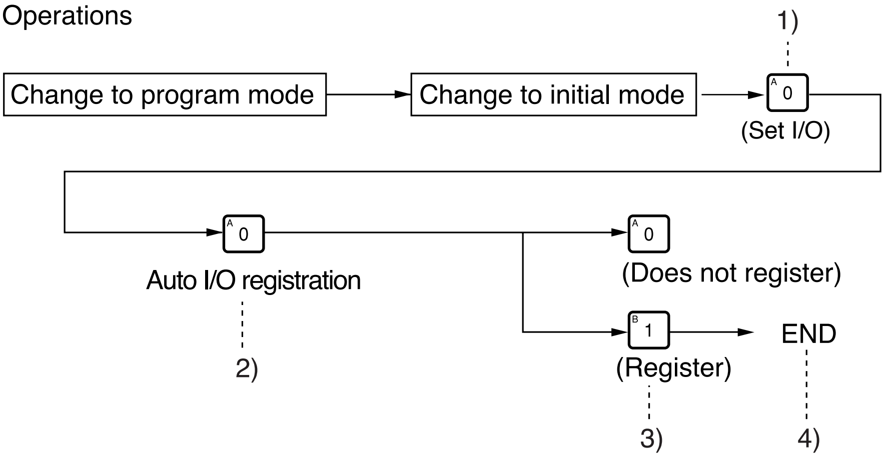
```
                 0-0000
   H           00000000
P  PARAM.        0-0004
>  H           00000000
```

Switch No. Parameter address

[6] Assigning I/O address

The JW-15PG can only perform an "auto I/O registration" to register its I/O points on the JW300. (Free I/O registration is not allowed.)

- ■ Operations


1)
Change to program mode
Change to initial mode
A 0
(Set I/O)
A 0
Auto I/O registration
2)
A 0
(Does not register)
B 1
(Register)
END
3)
4)

```
     F E D C B A 9 8 7 6 5 4 3 2 1 0
    I  INTL
1)     0) I/O
```

- Select I/O (0)

```
    I  I/O SET
2)     0) AUTO REGIST
```

- Select auto registration (0).

```
    I  I/O
       AUTO REG. ?
3)  >  0) NO    , 1) YES
```

- Select register "Yes/No."

```
    I  I/O
       AUTO REG.
4)  >  OK
```

- Completes the auto registration.

[7] Write and read programs to and from ROM

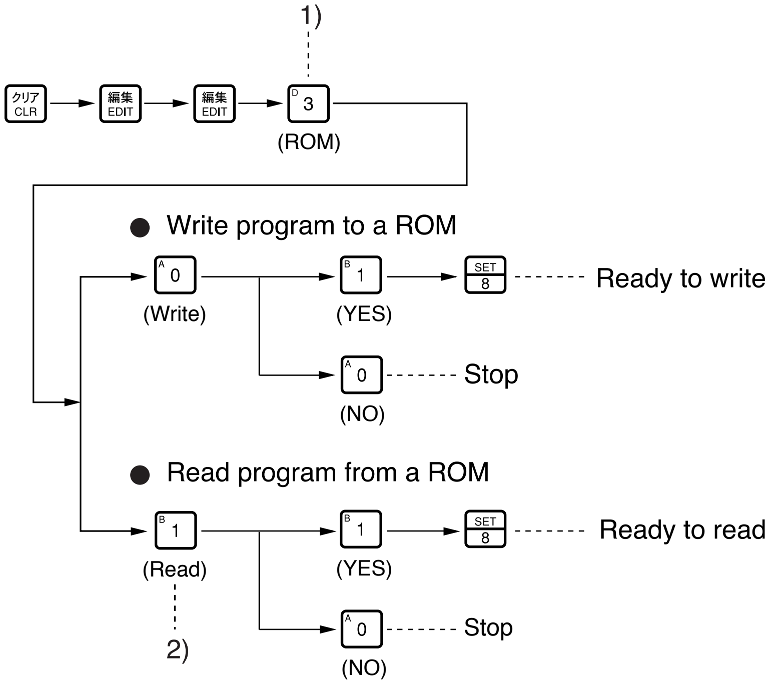
When the JW300 is used, press the 編集 EDIT key twice and the "ROM" selection menu will appear.

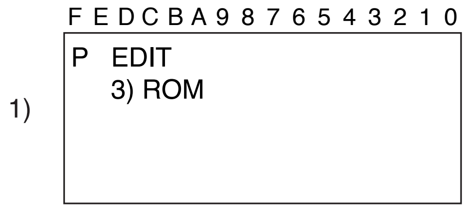
■ Set mode

Program	Monitor	Change	Terminal	Initial
○	×	×	×	×

2PG mode
×

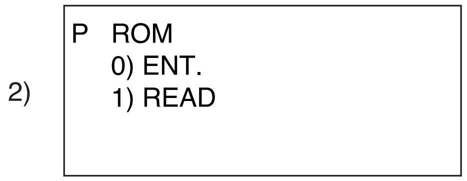
■ Operations


1)
クリア CLR
編集 EDIT
編集 EDIT
D 3
(ROM)
● Write program to a ROM
A 0
(Write)
B 1
(YES)
SET 8
Ready to write
A 0
(NO)
Stop
● Read program from a ROM
B 1
(Read)
2)
B 1
(YES)
SET 8
Ready to read
A 0
(NO)
Stop



```
F E D C B A 9 8 7 6 5 4 3 2 1 0
P  EDIT
   3) ROM
```

1) - Select ROM (3)



```
P  ROM
   0) ENT.
   1) READ
```

2) - Select "write/read"

[8] Deleted functions

When the JW300 is used, the following functions cannot be used. (However, they can be performed with the JW30H)

- Set and monitor the timer time
- Read and write internal memory in hexadecimal
- Free I/O registration
- Octal/decimal/hexadecimal display of values
- Device functions
- 2PG2 mode for a remote link

Chapter 10. Table of Messages

This chapter explains the messages that are displayed by the JW-15PG while checking programs or when an error occurs.

[1] Messages seen while checking programs

Message	Error address displayed	Meaning	Possible countermeasures
Check results are OK	00000	No syntax errors were found while programming	————
STACK OVER *1	Stack over address	Excessive use of STR (NOT) instruction.	Delete the STR (NOT) instruction or insert an AND (OR) STR instruction.
STACK UNDER *1	Stack under address	Shortage of STR (NOT) instruction or excessive use of AND (OR) STR instruction.	Insert a STR (NOT) instruction or delete an AND (OR) STR instruction.
STACK EXIST *2	END (F-40) instruction address	Data remains in the stack even though the F-40 (END) instruction is reached.	Add or delete an instruction.
MCR ERROR	MCR error detected address	F-31 (MCR) is used where an F-30 (MCS) condition does not exist.	Delete F-31 (MCR) instruction or insert F-30 (MCS) instruction.
MCS EXIST *3	END (F-40) instruction address	F-30 (MCS) is not reset even though the F-40 (END) instruction is reached.	Insert F-31 (MCR).
JCS ERROR	F-41 (JCS) used twice	F-41 (JCS) is used within the range of an F-41 (JCS). F-41 (JCS) cannot be nested.	Delete F-41 (JCS).
JCR ERROR	JCR error detected address	F-42 (JCR) is used where an F-41(JCS) condition does not exist.	Delete F-42 (JCR) or insert F-41 (JCS).
JCS EXIST *3	END (F-40) instruction address	F-41 (JCS) is not reset even though the F-40 (END) instruction is reached.	Insert F-42 (JCR).
DOUBLE OUT	Same output instruction number detected	Duplicate use of the same relay number for an output instruction (OUT).	Change the output instruction relay number.
DOUBLE NUMBER	Data memory used twice	Duplicate use of a TMR, CNT or MD number.	Change TMR/CNT/MD number.
NO END ERROR	Last address	F-40 (END) does not exist in the program.	Write an END (F-40) instruction.
LEVEL ERROR *4	Level error occured address	F-47 (ONLS) is used within the range of an F-47 (ONLS).	Delete F-47 (ONLS) instruction.
		F-48 (ONLR) is used where an F-47 (ONLS) condition does not exist.	Delete F-48 (ONLR) or insert F-47 (ONLS).
NO LABEL	No label F-141 (JMP), F-142 (CALL) instruction address	No jump destination label for F-141 (JMP) or subroutine label for F-142 (CALL).	Insert F-140 (LABL).
DOUBLE LABEL	Same label reused address	Same label number is use for F-140 (LABL).	Correct label number.
FOR/NEXT ERROR	"FOR-NEXT" error occurred address	F-144 (FOR) is use within the range of an F-144 (FOR).	Delete F-144 (FOR).
		F-145 (NEXT) is used where an F-144 (FOR) condition does not exist.	Delete F-145 (NEXT) or insert F-144 (FOR).
CHNNL NOT OPEN (For JW50H/70H/100H)	F-204 (SEND), F-205 (RCV) instruction address	Used F-204 (SEND) or F-205 (RCV) where there was no F-202/F-203 (OPCH) instruction.	Insert F-202/F-203 (OPCH) instruction.

*1: For details about correcting the stacks, see the "Application instruction and stack" section in the manual for each PLC.

*2: When a W10 or W16/51 is used, the JW-15PG checks "STACK EXIST."

*3: When a JW300, JW30H, J-board (Z500) or W10/16/51 is used, the JW-15PG checks "MCS EXIST" and "JCS EXIST."

*4: When a W10 or W16/51 is used, the JW-15PG does not check for a "LEVEL ERROR." (Unable to use F-47 and F-48)

Message	Error address displayed	Meaning	Possible countermeasures
DOUBLE SFS	F-380 (SFS) used twice address	An F-380 (SFS) was used within an F-380 (SFS) range. An F-380 (SFS) cannot be nested.	Delete one F-380 (SFS).
SFE ERROR	SFE error detected address	An F-381 (SFE) was used where there was no F-380 (SFS) condition.	Delete F-381 (SFE) or insert F-380 (SFS).
STEP ERROR	STEP error detected address	There is no step, branch, connection, or confluence instruction to execute next.	Insert F-391 (LINE) or F-390 (STEP).
DOUBLE MANU	F-389 (MANU) detected address	An F-389 (MANU) was used more than one time in a single process.	Delete F-389 (MANU).
DOUBLE STEP	Same step number detected address	The F-390 (STEP) used the same step number more than once within the same process.	Change the step number of the F-390 (STEP).
DOUBLE PROC	Same process number detected address	The same process number was used twice for F-382 (PROC). *	Change the F-382 (PROC) process number.
SF INST ERROR	SF INST error detected address	Used an F-30 (MCS), F-31 (MCR), F-41 (JCS) or F-42 (JCR) other than F-389 (MANU) within an SF instruction process.	Delete the F-30 (MCS), F-31 (MCR), F-41 (JCS) or F-42 (JCR).

* An error will also occur when a F-383 (PRCE) is used where there is no F-382 (PROC).
As a countermeasure, delete a F-383 (PRCE) or insert a F-382 (PROC).

- Some messages may not be displayed on the JW-15PG when using a PLC model that does not have corresponding instructions.

[2] Error messages

<table>
<tr><th colspan="2" rowspan="2">Item and contents</th><th rowspan="2">Special relay</th><th rowspan="2">Error code</th><th rowspan="2">Message
(16 characters 2 lines)</th><th colspan="7">PLC models</th></tr>
<tr><th>JW300</th><th>JW50H/
70H/100H
JW50/70
/100</th><th>JW30H
J-board
(Z500)</th><th>JW20H
JW20
J-board
(Z300)</th><th>JW10</th><th>W100
W70H
W100H</th><th>W10
W16
W51</th></tr>
<tr><td rowspan="9">Memory error</td><td>System ROM</td><td rowspan="9">07370
(670)</td><td>20</td><td>>SYSTEM ROM ERROR</td><td rowspan="2">×</td><td>×</td><td rowspan="2">×</td><td>×</td><td rowspan="4">○</td><td>×</td><td>×</td></tr>
<tr><td>Check parity</td><td>21</td><td>>MEMORY ERROR
(PARITY)</td><td rowspan="8">○</td><td rowspan="5">○</td><td rowspan="3">○</td><td>○</td></tr>
<tr><td>Check instruction code</td><td>24</td><td>>MEMORY ERROR
(INST.CD.)</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="6">×</td></tr>
<tr><td>Check system memory set</td><td>23</td><td>>MEMORY ERROR
(CK.CODE #257)</td></tr>
<tr><td>Check program ROM</td><td>25</td><td>>MEMORY ERROR
(PROGRAM ROM)</td><td>*1
○</td><td rowspan="3">W100
×
W70H
W100H
○</td></tr>
<tr><td>Check data ROM size</td><td>26</td><td>>MEMORY ERROR
(DATA ROM)</td><td>*4
○</td><td>*4
○</td><td>×</td><td>*2
○</td></tr>
<tr><td>Check program ROM size</td><td>27</td><td>>MEMORY ERROR
(PRG.ROM SIZE)</td><td>×</td><td>×</td><td>○</td><td>*3
○</td></tr>
<tr><td>Check I/O registration table</td><td>28</td><td>>MEMORY ERROR
(I/O TABLE)</td><td>○</td><td>○</td><td rowspan="2">×</td><td rowspan="2">×</td><td rowspan="2">×</td></tr>
<tr><td>Check I/O table parity</td><td>29</td><td>>MEMORY ERROR
(I/O TABLE PRTY.)</td><td>×</td><td>×</td></tr>
<tr><td rowspan="5">CPU error</td><td>Check RAM (R/W)</td><td rowspan="5">07371
(671)</td><td>32</td><td>>CPU ERROR
(RAM (R/W))</td><td>○</td><td rowspan="3">○</td><td>○</td><td rowspan="3">○</td><td rowspan="3">×</td><td rowspan="3">○</td><td>○</td></tr>
<tr><td>Check parity</td><td>33</td><td>>CPU ERROR
(PARITY)</td><td>×</td><td>×</td><td rowspan="2">W10
×
W16
W51
○</td></tr>
<tr><td>Check hardware</td><td>35</td><td>>CPU ERROR
(HARDWARE)</td><td>○</td><td>○</td></tr>
<tr><td>Watchdog timer</td><td>31</td><td>>CPU ERROR
(WATCHDOG TIMR.)</td><td>○</td><td rowspan="2">×</td><td>○</td><td>○</td><td>○</td><td rowspan="2">×</td><td rowspan="2">○</td></tr>
<tr><td>Check ROM</td><td>34</td><td>>CPU ERROR
(ROM)</td><td>×</td><td>×</td><td>×</td><td>×</td></tr>
</table>

O: Has an error code   X: Has no error code

*1, *2, *3 In case of JW10, second line of the display message is different.

	Error code	Second line of display message
*1	25	(Program)
*2	26	(User ROM)
*3	27	(RAM)

*4 In case of JW300, etc., it becomes program sum check.

- The numbers in parentheses ( ) in the relay number column are special relay numbers for the W10.
- If an error code is not found in the table above, see the user’s manual for the specific PLC.

Item and contents		Special relay	Error code	Message (16 characters 2 lines)	PLC models						
					JW300	JW50H/ 70H/100H JW50/70 /100	JW30H J-board (Z500)	JW20H JW20 J-board (Z300)	JW10	W100 W70H W100H	W10 W16 W51
I/O error	I/O data bus	07373 (673)	44	>I/O ERROR (I/O DATA BUS)	○	○	○	○	○	○	○
	I/O signal		45	>I/O ERROR (I/O SIGNAL)	×	○	×	×	×	○	W10○ W16 W51×
	Check input data parity		41	>I/O ERROR (IN DATA PRTY.)	×	○	×	×	×	×	×
	Check I/O data parity		42	>I/O ERROR (OUT DATA)	○	○	○	○	×	×	×
	Check installed module		40	>I/O ERROR (INSTALL CK.)	○	○	○	○	×	×	×
	Output module fuse blown		49	>I/O ERROR (OUT MODULE FUSE)	○	○	○	×	×	×	×
	I/O rack error		48	>I/O ERROR (I/O RACK)	○	×	○	○	×	×	×
	Special I/O error (hardware error)	07375	46	>SP.I/O ERROR (HARD)	○	○	○	○	×	×	×
	Number of I/O modules (JW10)	(673)		>I/O ERROR (I/O MODULE CNT.)	×	×	×	×	×	×	W10○ W16 W51×
	Special I/O error (parameter error)	07373	47	>SP.I/O ERROR (PARAM.)	○	×	○	○	×	×	×
	Table verify error		60	>I/O ERROR (TABLE VERIFY)	○	×	○	○	×	×	×
	Switch verify error		61	>I/O ERROR (SW VERIFY)	○	×	○	○	×	×	×
	Table registration error		70	>I/O ERROR (TABLE REG.)	○	×	○	○	×	×	×
	Missing module error		71	>I/O ERROR (MODULE NON)	○	×	○	○	×	×	×
	Number of I/O points over error		72	>I/O ERROR (POINT OVER)	○	×	○	○	×	×	×
	Switch set error		73	>I/O ERROR (SW SET)	○	×	○	○	×	×	×
Power supply error		07377 (677)	13	>PWR.ERROR	○	○	○	○	○	○	○
Expansion power supply error		07376	43	>EXP.PWR. ERROR	○	○	○	○	×	×	×
Option error		07374 (674)	53	>OPTION ERROR (HARD)	○	○	○	○	○	○	○
			52	>ERROR-52	×	○	×	×	×	×	×
Battery error		07372 (672)	22	>BATTERY ERROR	○	○	○	○	○	○	○

O: Has an error code   X: Has no error code