MITSUBISHI

PROGRAMMABLE CONTROLLER

MELSEC-A

Operating Manual

P-ROM writer unit

type A6WU

MITSUBISHI ELECTRIC

REVISIONS

※The manual number is given on the bottom left of the back cover.

Print Date	*Manual Number	Revision
Sep., 1990	IB (NA) 66262-A	First edition

INTRODUCTION

Thank you for choosing the Mitsubishi MELSEC-A Series of General Purpose Programmable Controllers.
Please read this manual carefully so that the equipment is used to its optimum.
A copy of this manual should be forwarded to the end User.

CONTENTS

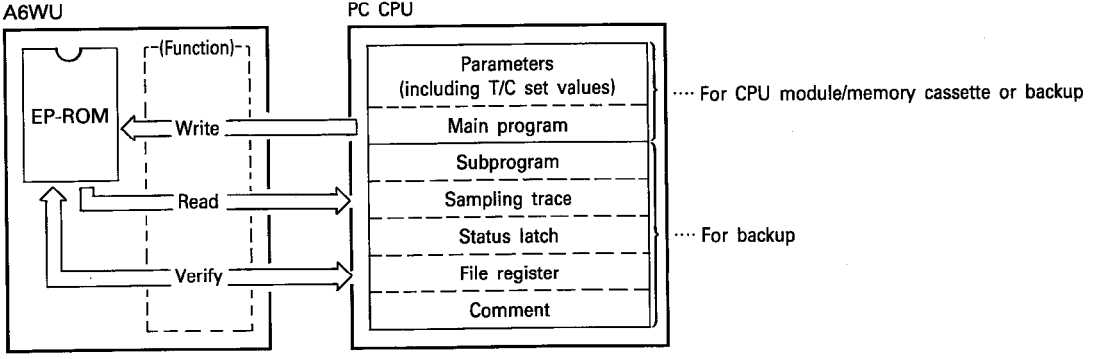
1. INTRODUCTION

This manual explains the specifications, handling, and operations of the A6WU P-ROM Writer Unit (hereafter referred to as A6WU).

The A6WU is a MELSEC A series peripheral device with functions to write and read MELSEC A series PC sequence programs and special function module data to and from an EP-ROM. All A6WU operations are executed in interactive form.

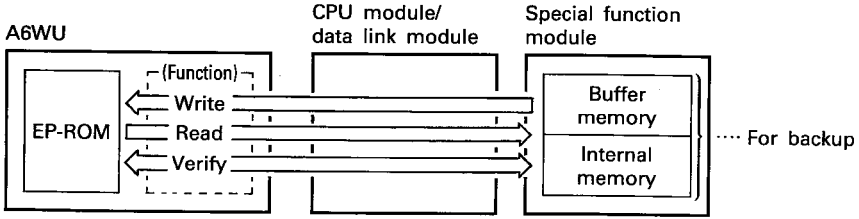
(1) MELSEC A series PC CPU

The A6WU can be operated by connecting it to the CPU module directly or by using a dedicated cable.



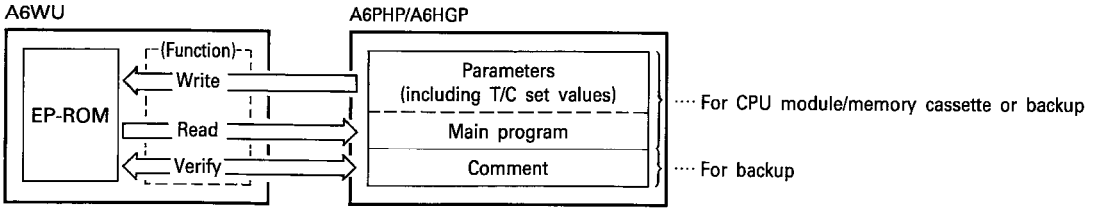
(2) MELSEC A series special function module

The A6WU can be operated by connecting it to the CPU module or to a data link module (remote I/O station) directly or by using a dedicated cable.

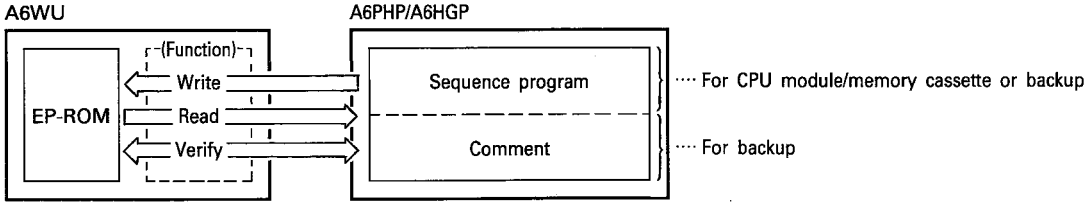


(3) A6PHP Plasma Handy Graphic Programmer
A6HGP Handy Graphic Programmer
The A6WU can be operated by connecting it to the A6PHP Plasma Handy Graphic Programmer or the A6HGP Handy Graphic Programmer using a dedicated cable.

(a) When using MELSEC A series PC CPU data

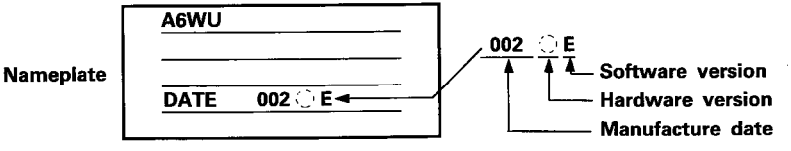


(b) When using MELSEC K series PC CPU data



POINT

The information in this manual is intended for the A6WU units using software version E or above. The software version is marked at the DATA column on the nameplate.



When using the A6WU with software version E or earlier, refer to the A6WU P-ROM Writer Unit Operation Manual.

The peripheral devices and MELSEC A series PC CPUs referred to in this manual are abbreviated as shown below. The generic term for PCs and peripheral devices is device.

(1) A6WU
A6WU P-ROM Writer Unit

(2) PHP/A6PHP
A6PHP Plasma Handy Graphic Programmer

(3) HGP/A6HGP
A6HGP Handy Graphic Programmer

(4) A series PCs

(a) ACPU

A0J2CPU(P23/R23)
A0J2HCPU
A1, A1NCPU(P21/R21)
A2(S1), A2N(S1)CPU(P21/R21)
A2N(S1)CPU(P21/R21)-F
A2A(S1)CPU(P21/R21)
A2CCPU
A3, A3NCPU(P21/R21)
A3NCPU(P21/R21)-F
A3HCPU(P21/R21), A3MCPU(P21/R21)
A3ACPU(P21/R21)
A73CPU(P21/R21)

(b) Remote I/O stations

A0J2P25/R25
AJ72P25/R25

(5) K series PCs
  (a) KCPU
    K0CPU
    K0J1, K0J1H, K0J2, K0J2PCPU
    K1(S1)CPU
    K2(S1, S2, S3,)CPU
    K2HCPU, K2NCPU, K2HCPU
    K3CPU, K3NCPU(P2)

In this manual, PCs with the link function, such as the "P21", "R21", "P25", "R25", etc., are abbreviated. (Ex: A3NCPUP21 is abbreviated A3NCPU.)

2. SYSTEM CONFIGURATION

System configurations applicable to the A6WU are explained below.

2.1 Overall Configuration

The overall system configuration for using the A6WU is explained below. The A6WU can be operated by connecting it to an ACPU or a PHP using either of the following connection systems.

Connection System	Description
Add-on	The A6WU is operated by direct connection to the main body of the applicable device.
Handheld	The A6WU is operated by using a dedicated cable to connect it to the applicable device.

(1) Overall configuration when connecting using the add-on system

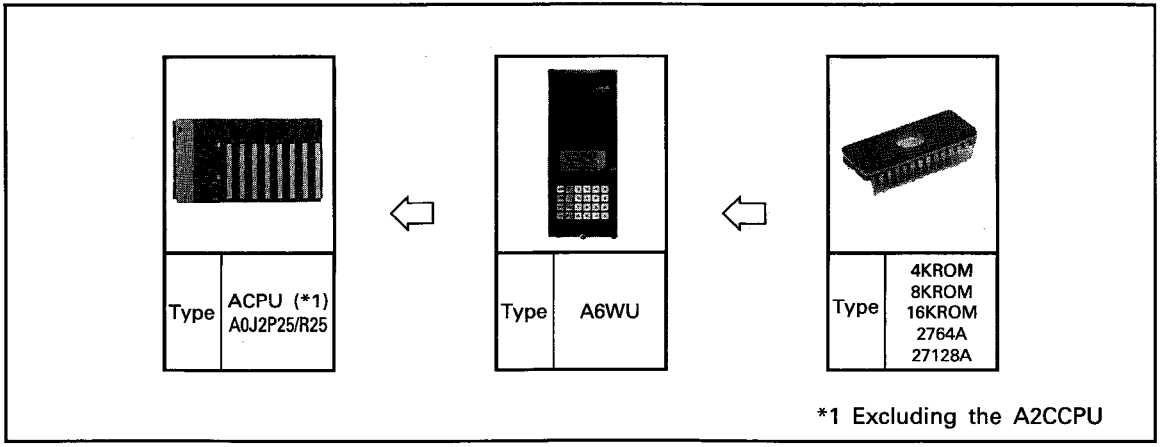


Fig. 2.1 System Configuration Example

(2) Overall configuration when connecting using the handheld system
(a) Connection to the CPU module (AC30R4 cable)

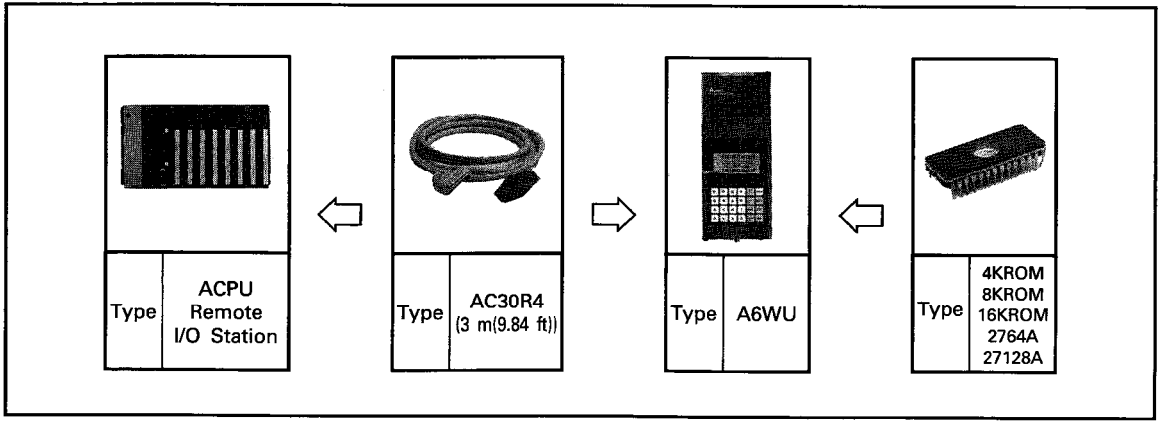


Fig. 2.2 System Configuration Example

(b) Connection to the A6PHP/A6HGP (AC03WU cable)

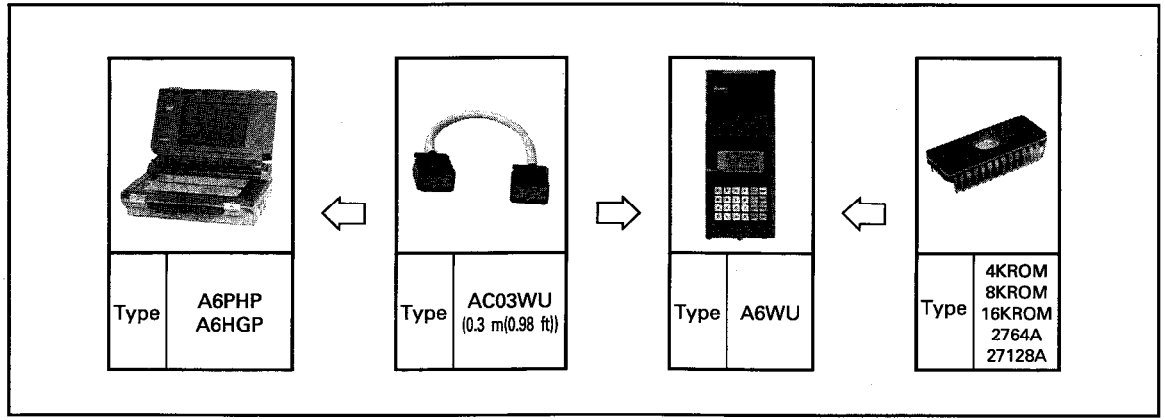


Fig. 2.3 System Configuration Example

2.2 Applicable Devices

Devices to which the A6WU can be connected are shown below.

Connectable Devices *1		A6WU Version		Connection System	
		Version D or earlier	Version E or above	Handheld	Add-on
CPU module	A0J2CPU(P23/R23)	○	○	○	○
	A0J2HCPU	×	○	○	○
	A1, A2(S1), A3CPU(P21/R21) A1N, A2N(S1), A3NCPU(P21/R21)	○	○	○	○
	A2CCPU	×	○	○	×
	A3HCPU(P21/R21)	○	○	○	○
	A3MCPU(P21/R21)	○	○	○	○
	A2N, A3NCPU(P21/R21)-F	○	○	○	○
	A2A, A3ACPU(P21/R21)	○	○	○	○
	A73CPU(P21/R21)	○	○	○	○
Remote I/O unit	A0J2P25/R25	○	○	○	○
	AJ72P25/R25	○	○	○	×

Connectable Devices			*1	A6WU Version		Connection System	
				Version D or earlier	Version E or above	Handheld	Add-on
Peripheral device		CPU type name of data to be handled	Software				
	A6PHP	A0J2CPU(P23/R23) A1, A2(S1), A3CPU(P21/R21) A1N, A2N(S1), A3NCPU(P21/R21) A3HCPU(P21/R21) A3MCPU(P21/R21) A73CPU(P21/R21) A2N, A3NCPU(P21/R21)-F	SW3GP-GPPA	○	○	○	×
			SW4-GPPA	○	○		
		A0J2HCPU	SW3GP-GPPA	×	×		
		A2CCPU	SW4-GP-GPPA	×	○		
		A2A, A3ACPU(P21/R21)	SW3GP-GPPA *3	○	○		
			SW4GP-GPPA	○	○		
		KCPU	SW1GP-GPPK	○	○		

Connectable Devices			*1	A6WU Version		Connection System	
				Version D or earlier	Version E or above	Handheld	Add-on
Peripheral device	A6HGP	A0J2CPU(P23/R23) A1, A2(S1), A3CPU(P21/R21) A1N, A2N(S1), A3NCPU(P21/R21) A3HCPU(P21/R21) A3MCPU(P21/R21) A73CPU(P21/R21) A2N, A3NCPU(P21/R21)-F	SW3-HGPA	○	○	○	×
		KCPU	SW1-HGPK	○	○		

○: Used ×: Not used

* 1: The maximum current consumption of the A6WU is 0.8 A. Connect the A6WU taking into consideration the total internal current consumption and the current capacity of the power supply of the overall system of the connected device.
* 2: Use the AC30R4 cable (3 m) (9.84 ft) when connecting the A6WU using the handheld system. The AC300R4 cable cannot be used due to voltage drops.
* 3: Select the A3H CPU.

2.3 Applicable ROM

ROM chips which can be loaded into the A6WU are shown below.

4KROM(2764) ..... 8 bytes
8KROM(27128) ..... 16 bytes
16KROM(27256) ..... 32 bytes

(Introductory products: INTEL manufacture)
2764A ..... 8K bytes
27128A ..... 16K bytes

3. PARTS AND HANDLING

The names and handling of A6WU parts will be described.

3.1 Handling Precautions

A6WU handling precautions will be explained.

(1) Since the case of the A6WU is made of plastic, avoid dropping it or subjecting it to severe impact.

(2) Do not take the case apart as this will result in failure of the A6WU.

(3) When the A6WU is not in use, place the protective caps on the RS-422 connector and the ROM socket.

(4) Do not directly touch A6WU connectors as this will result in failure of the A6WU.

(5) Do not open the ROM storage or remove the internal ROM chips as this will result in failure of the A6WU.

(6) Press the CLR key before connecting and disconnecting the A6WU to and from connected devices or dedicated cables.

3.2 Parts

The parts of the A6WU are shown below.

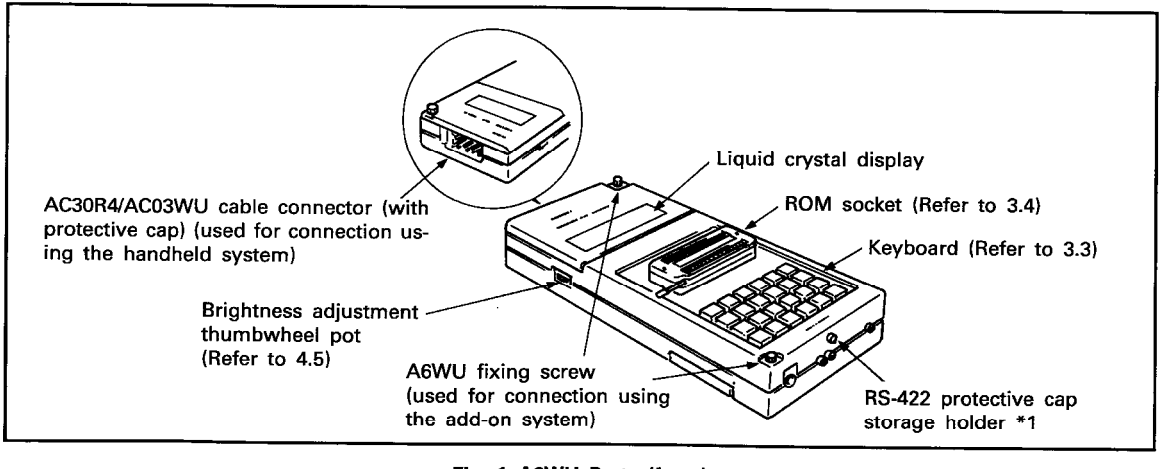


Fig. 1 A6WU Parts (front)

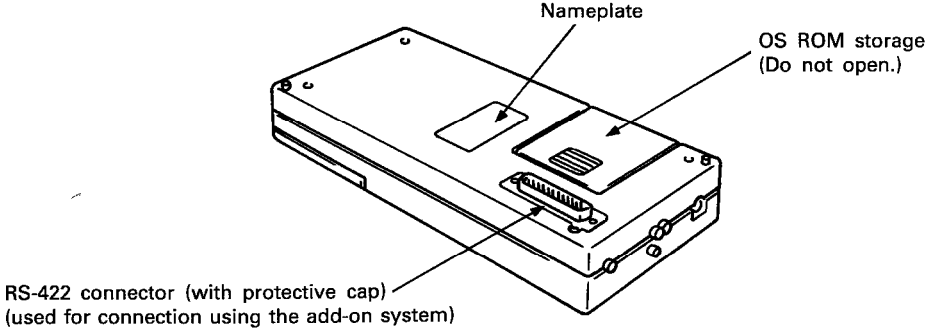
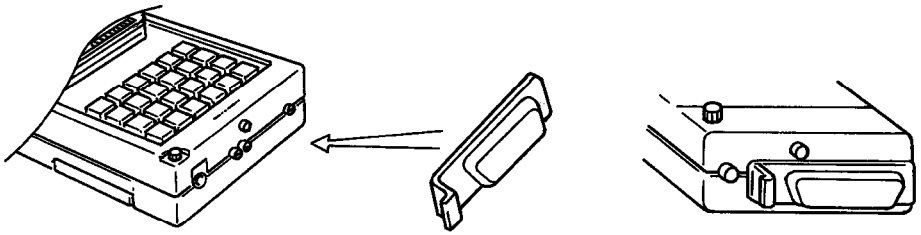


Fig. 2 A6WU Parts (rear)

* 1 Storing protective caps
(Example)



3.3 Keyboard Handling

3.3.1 Handling precautions

A6WU keyboard handling precautions will be explained.

(1) The keyboard is coated with polyurethane. Therefore, even though it may appear dirty, do not clean with thinner, alcohol or freon.

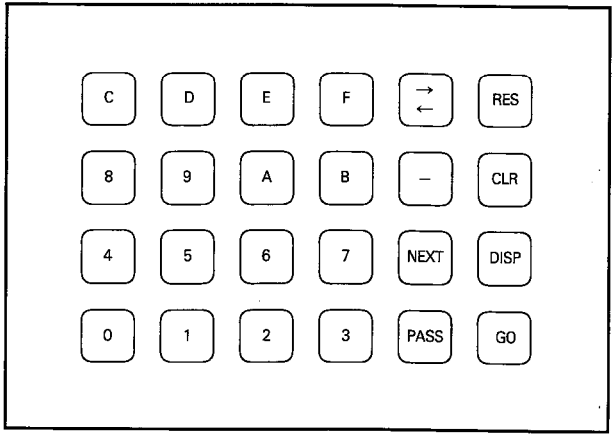
(2) Operate the keyboard only with your fingers. Pressing sharp instruments onto the keys will result in failure of the A6WU. When pressing keys, a buzzer will sound, confirming keyboard input.

(3) Key life is 5 million pressings.

3.3.2 Key arrangement and functions

The arrangement and functions of A6WU keys will be explained.

(1) Key arrangement



(2) Key functions

Key	Name	Purpose of Use
[0] to [9] [A] to [F]	Alphanumeric keys	To set steps and addresses.
[→] [←]	Arrow keys	To move the cursor.
[RES]	Reset key	To return the A6WU to the initial state. (Hardware reset)
[—]	Minus key	Used in combination with the [NEXT] and [PASS] keys to return to the previous display.
[CLR]	Clear key	To erase error displays and set values from the display.
[NEXT]	Next key	To display the next menu in the setting menus.
[DISP]	Display key	To verify set data.
[PASS]	Pass key	To complete the setting of the current setting menu.
[GO]	Go key	To complete settings for all items. The OS executes setting mode processing.

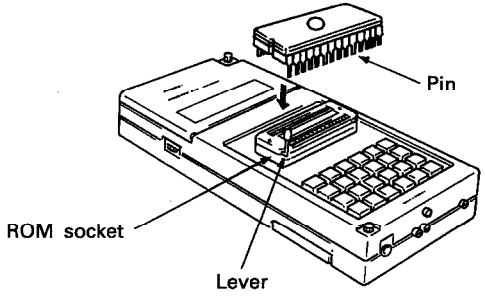
3.4 ROM Socket and ROM Handling Precautions

Precautions for handling the A6WU ROM socket and usable ROM will be explained.

(1) ROM socket

(a) Always place the ROM socket protective cap on the ROM socket when ROM is not being used.

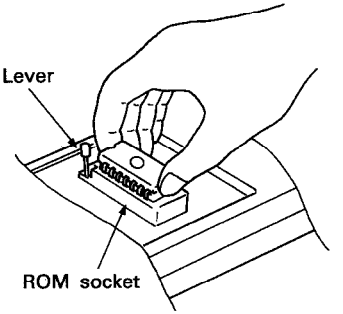
(b) When loading ROM, raise the ROM socket lever. (The lever is located at the ROM chip's pin number 1. When ROM is not loaded, lower the lever.



(2) ROM

(a) Only the EP-ROM shown in 2.3 and 5.2 can be used in the A6WU. Using any other ROM may result in ROM damage. The 4K EROM (E^2PROM) chip, for example, cannot be used.

(b) When holding a ROM chip, do not touch the ROM pins. Do not place ROM chips on metals which leak or may leak, or on wood, plastic, vinyl, fibers, cables, paper etc., charged with static electricity. Static electricity may cause memory damage.



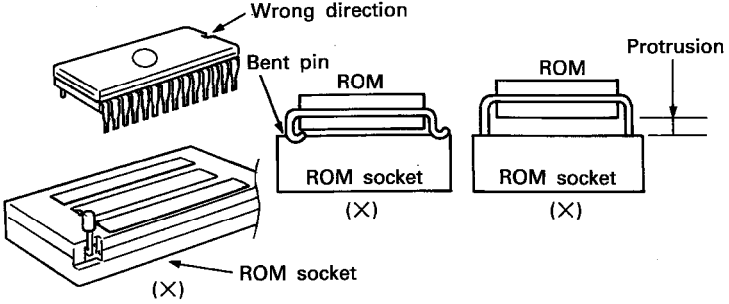
Proper way to hold ROM chip

(c) Use a ground band to prevent static electricity.

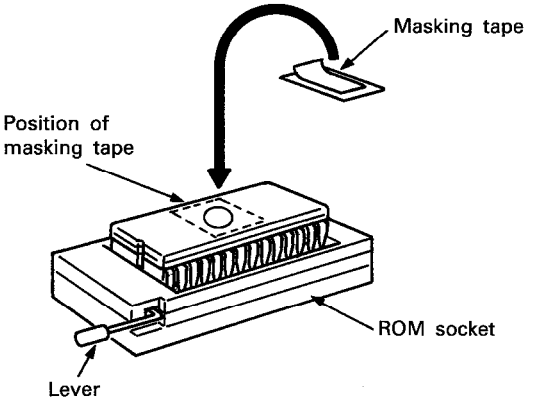
(d) Be sure to insert ROM correctly. Match the recess in the ROM chip and the socket's seal (red), then insert. Memory damage will result when the power is turned on with ROM inserted incorrectly.

(e) Take care not to bend the ROM pins when inserting. Inserting the ROM with bent pins will disable reading and damage memory.

(f) After loading, confirm that the ROM chip does not protrude upward.



(g) When writing data to ROM, place masking tape on the surface of the ROM chip to prevent erasure of written data.



(h) When loading ROMs whose written data has been divided into odd and even addresses into an ACPU or memory cassette, insert after verifying the socket to be loaded. If the loading position is incorrect, data cannot be read.

3.5 Maintenance

Except for the brightness adjustment thumbwheel pot, no special A6WU locations are designated for adjustment, inspection, or replacement. Regarding storage of the A6WU, refer to the items below.

(1) Avoid storage in locations and surroundings
   (a) in which the ambient temperature exceeds a range of 20°C (68°F) to 70°C (158°F)

   (b) in which the ambient humidity exceeds a range of 10 to 90% RH

   (c) in which condensation occurs due to sudden changes in temperature

   (d) exposed to wind, rain, and direct sunlight

   (e) in which dust, conductive powders such as iron dust, and/or corrosive gas, oil mist, salt, etc. are notably present.

(2) Be sure to place the protective caps on the RS-422 connector and the ROM socket.

4. FUNCTIONS AND OPERATING PROCEDURE

4.1 A6WU Function List

The A6WU function list is shown below. Table 4.1 shows the data which can be handled by the write, read, and verify functions.

Function	Description		Reference
ROM Erase Check	Checks whether data of ROM loaded into the A6WU has been erased.		4.9
Write to ROM	Writes parameters + main program data to ROM.	ACPU ➡ A6WU	4.10.1
		A6PHP/A6HGP ➡ A6WU	4.12
	Writes general data to ROM.	ACPU ➡ A6WU	4.10.2
		A6PHP/A6HGP ➡ A6WU	4.12
	Writes special function module data to ROM.	ACPU ➡ A6WU	4.10.3
		Remote I/O station ➡ A6WU	4.11

Table 4.1 A6WU Function List (Continue)

Function	Description			Reference
Read from ROM	Reads parameters + main program data from ROM.	ROM	➡ ACPU	4.10.1
		ROM	➡ A6PHP/A6HGP	4.12
	Reads general data from ROM.	ROM	➡ ACPU	4.10.2
		ROM	➡ A6PHP/A6HGP	4.12
	Reads special function module data from ROM.	ROM	➡ ACPU	4.10.3
		ROM	➡ Remote I/O station	4.11
ROM Verify	Verifies parameters + main program data.	ROM	⬌ ACPU	4.10.1
		ROM	⬌ A6PHP/A6HGP	4.12
	Verifies general data.	ROM	⬌ ACPU	4.10.2
		ROM	⬌ A6PHP/A6HGP	4.12
	Verifies special function module data.	ROM	⬌ ACPU	4.10.3
		ROM	⬌ Remote I/O station	4.11

Table 4.1 A6WU Function List

4.1.1 A6WU data list

Data which can be handled by the A6WU is shown below.

Applicable Data Setting Selection Item *1		"PARA +MAIN"				"OTHER DATA" *3					"SP UNIT MEM"		"OTHER DATA"		Remarks
Data / A6WU operation / Device connected to A6WU		A0J2 CPU		ACPU (except A0J2CPU)		ACPU					Special function module		KCPU		
		Comments (F0 to F14) T/C set values	Main program	Parameter	Main program	Subprogram	Sampling trace	Status latch	File register	Comment	Buffer memory data	Internal memory data	Sequence program (K series)	Comments (K series)	
Connection to ACPU (except A0J2CPU, A0J2HCPU, A2CCPU)	Write	×		○		○					○		×	×	Buffer memory and internal memory data are supported only by special function modules in the ACPU station.
	Read	×		○		○					○		×	×	
	Verify	×		○		○					○		×	×	

Table 4.2 A6WU Data List (Continue)

Applicable Data Setting Selection Item *1		"PARA +MAIN"				"OTHER DATA" *3					"SP UNIT MEM"		"OTHER DATA"		Remarks
Device connected to A6WU / A6WU operation / Data		A0J2 CPU		ACPU (except A0J2CPU)		ACPU					Special function module		KCPU		
		Comments (F0 to F14) T/C set values	Main program	Parameter	Main program	Subprogram	Sampling trace	Status latch	File register	Comment	Buffer memory data	Internal memory data	Sequence program (K series)	Comments (K series)	
Connection to A0J2CPU, A0J2HCPU, A2CCPU *2	Write	○		×		○					×	×	×	×	Buffer memory and internal memory data are not supported by special function modules in A0J2CPU, A0J2HCPU, or A2CCPU stations.
	Read	○		×		○					×	×	×	×	
	Verify	○		×		○					×	×	×	×	

Table 4.2 A6WU Data List (Continue)

Applicable Data Setting Selection Item *1			"PARA +MAIN"				"OTHER DATA" *3					"SP UNIT MEM"		"OTHER DATA"		Remarks
Device connected to A6WU / A6WU operation / Data			A0J2 CPU		ACPU (except A0J2CPU)		ACPU					Special function module		KCPU		
			Comments (F0 to F14) T/C set values	Main program	Parameter	Main program	Subprogram	Sampling trace	Status latch	File register	Comment	Buffer memory data	Internal memory data	Sequence program (K series)	Comments (K series)	
Connection to remote I/O station		Write	×		×				×			○	×	×	×	Buffer memory data is supported only by special function modules in remote I/O stations.
		Read	×		×				×			○	×	×	×	
		Verify	×		×				×			○	×	×	×	
Connection to A6PHP	Start-up by A series	Write	○		○			×			○	×	×	×	×	—
		Read	○		○			×			○	×	×	×	×	
		Verify	○		○			×			○	×	×	×	×	

Table 4.2 A6WU Data List (Continue)

Applicable Data Setting Selection Item *1			"PARA +MAIN"				"OTHER DATA" *3					"SP UNIT MEM"		"OTHER DATA"		Remarks
Device connected to A6WU / A6WU operation / Data			A0J2 CPU		ACPU (except A0J2CPU)		ACPU					Special function module		KCPU		
			Comments (F0 to F14) T/C set values	Main program	Parameter	Main program	Subprogram	Sampling trace	Status latch	File register	Comment	Buffer memory data	Internal memory data	Sequence program (K series)	Comments (K series)	
Connection to A6PHP	Start-up by K series	Write	×		×				×			×	×	○	○	–
		Read	×		×				×			×	×	○	○	
		Verify	×		×				×			×	×	○	○	
Connection to A6HGP	Start-up by A series	Write	○		○			×			○	×	×	×	×	A0J2HCPU and A2CCPU data cannot be handled.
		Read	○		○			×			○	×	×	×	×	
		Verify	○		○			×			○	×	×	×	×	

Table 4.2 A6WU Data List (Continue)

Applicable Data Setting Selection Item *1			"PARA +MAIN"				"OTHER DATA" *3					"SP UNIT MEM"		"OTHER DATA"		Remarks
Data / A6WU operation / Device connected to A6WU			A0J2 CPU		ACPU (except A0J2CPU)		ACPU					Special function module		KCPU		
			Comments (F0 to F14) T/C set values	Main program	Parameter	Main program	Subprogram	Sampling trace	Status latch	File register	Comment	Buffer memory data	Internal memory data	Sequence program (K series)	Comments (K series)	
Connection to A6HGP	Start-up by K series	Write	×		×				×			×	×	○	○	—
		Read	×		×				×			×	×	○	○	
		Verify	×		×				×			×	×	○	○	

Table 4.2 A6WU Data List

○ : Indicates data which can be handled.
× : Indicates data which cannot be handled.

* 1: Indicates the item to be selected when setting applicable data in the A6WU.
* 2: When connecting to the A0J2CPU, A0J2HCPU, or A2CCPU, data of special function modules loaded into a CPU station cannot be handled.
* 3: Data which can be handled in "OTHER DATA" is called "general data".

4.2 A6WU Precautions

Precautions when using the four functions of the A6WU will be explained.

(1) The A6WU is an offline device.
Therefore, from the moment the A6WU is connected to an ACPU or a data link module until it is disconnected, set the ACPU to STOP and the data link module mode to OFFLINE.
(a) When the A6WU is connected to an ACPU
Set the connected ACPU to STOP.

(b) When the A6WU is connected to a data link module
Set the data link module mode to OFFLINE. (Press the RESET switch when switching modes.)

(2) The capacities of the ROM which can be loaded into the A6WU are given below. Read and write data within these capacities.

ROM	ROM Capacity	Number of Applicable Steps (*1)	Applicable Address Range
4KROM(2764)	8K bytes	4K steps	1000H/2000H addresses
2764A			
8KROM(27128)	16K bytes	8K steps	2000H/4000H addresses
27128A			
16KROM(27256)	32K bytes	16K steps	4000H/8000H addresses

2 bytes/step
2 bytes/address for buffer memory and 1 byte/address for general data and internal memory

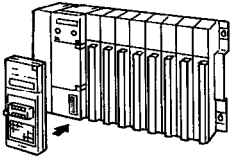
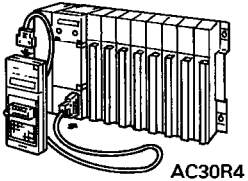
* 1: Refer to 4.8 for the number of steps to be set in the A6WU when reading and writing the main program of an ACPU.

(3) Take the following precautions when connecting the A6WU to the A6PHP or A6HGP.
Match the A6WU to the CPU of the data to be handled and select the ROM mode after starting up the A6PHP or A6HGP.
Read applicable data to the A6PHP or A6HGP memory when "WRITE" or "VERIFY" is the first A6WU operation executed.
After completing A6WU operations, disconnect the A6WU from the A6PHP or A6HGP, and press the OTHER key of the A6PHP or A6HGP to switch from the ROM mode to another mode.

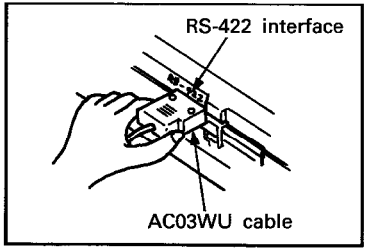
4.3 Connection to Applicable Devices

The RS-422 connector can be connected to 2 locations in the A6WU differently according to the system of connection to applicable devices.

Refer to the following page for possible systems of connection to applicable devices.

Add-on System	Handheld System
(Example) Connection to ACPU  (1) Insert the A6WU RS-422 connector into the RS-422 connector of the applicable device, making sure to tighten the fixing screw on the A6WU. (2) Place the protective cap on the A6WU RS-422 connector after connection.	(Example) Connection to ACPU  AC30R4 cable

*1



Handheld System

(Example)
Connection to PHP

*1
AC03WU
cable

(1) Connect the A6WU RS-422 connector to the RS-422 connector of the applicable device using a dedicated cable.
(2) Place the protective cap on the A6WU RS-422 connector after connection.
(3) The following dedicated cables can be used.
- AC03WU cable for connection to the PHP/HGP
- AC30R4 cable for connection to an ACPU/data link module

REMARK

The protective caps placed on A6WU connectors used for connection to applicable devices can be stored in the A6WU RS-422 protective cap storage holder. Refer to 3.2.

(1) Connection to an ACPU

Connection to the CPU modules shown in 2.2 (1) is possible. All are MELSEC A series CPU modules, and except for the A2CCPU, can be connected using the add-on system or the handheld system (using the AC30R4 cable).

(2) Connection to a data link module

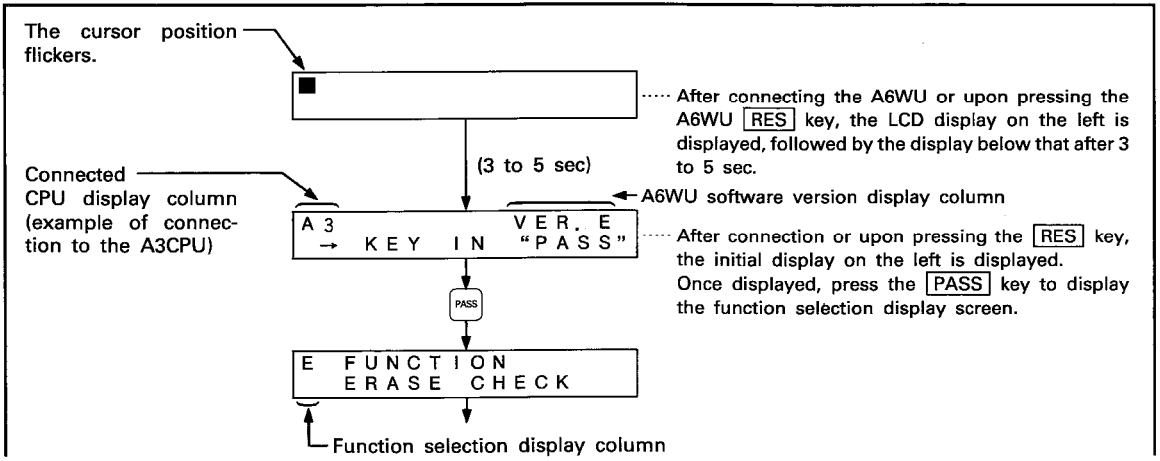
Connection to the data link modules (for remote I/O stations) shown in 2.2 (2) is possible. The A0J2P25/R25 can be connected using the add-on system or the handheld system (using the AC30R4 cable). The AJ72P25/R25 can be connected only using the handheld system (using the AC30R4 cable).

(3) Connection to peripheral devices

Connection to the peripheral devices shown in 2.2 (3) is possible. All peripheral devices can be connected only using the handheld system (using the AC03WU cable).

4.4 Initial Display of the A6WU

When connecting the A6WU to applicable devices, or upon pressing the A6WU [RES] key after connection, the A6WU LCD initial display is as follows. Once displayed, press the [PASS] key to begin A6WU operations.



Connected CPU	Displayed
A0J2CPU(P23/R23)	A0J2
A0J2HCPU	A0J2H
A1,A1NCPU (P21/R21) A1NCPU(P21/R21)-H	A1
A2(S1), A2N(S1) CPU A2N(S1)CPU (P21/R21)-F	A2

Connected CPU	Displayed
A3, A3NCPU (P21/R21) A3NCPU(P21/R21) A73CPU(P21/R21)	A3
A2ACPU(P21/R21)	A2A
A3ACPU(P21/R21)	A3A
A2CCPU	A2C
A3HCPU(P21/R21)	A3H

Connected CPU	Displayed
A3MCPU(P21/R21)	A3M
AJ72P25/R25	AJ72
A0J2P25/R25	AJ72
KCPU	No display
Others	OTHERS

Function Selection	Function Display Column
Erase Check	E
Write	W
Read	R
Verify	V

POINT

The A6WU initial display procedure differs according to the applicable device connected.

(1) When the applicable device is a CPU, the initial display is displayed after connecting the A6WU to the CPU.

(2) When the applicable device is the A6PHP/A6GHP, the initial display is displayed when connecting the A6WU after switching to the ROM mode of the A6PHP/A6GHP.

REMARK

If the following error message is displayed on the A6WU LCD display after connecting the A6WU to the applicable device, press the A6WU [RES] key.

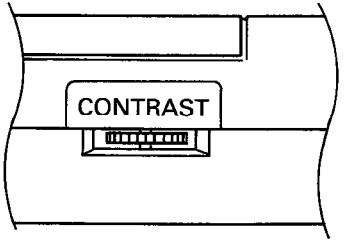
```
PC NOT RESPOND
```

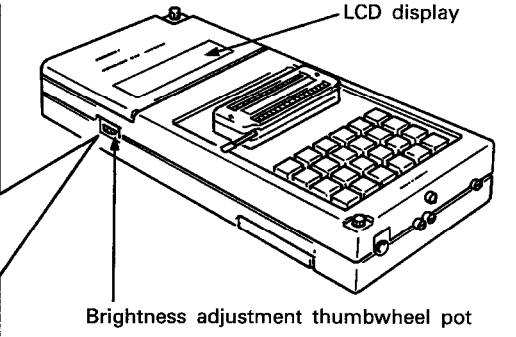
If the initial display is not displayed upon pressing the [RES] key, refer to 6.1 and execute processing accordingly.

4.5 Brightness Adjustment Method

Adjust the shading of the characters displayed in the LCD display by the brightness adjustment thumbwheel pot.

To adjust the brightness, turn the brightness adjustment thumbwheel pot in the direction shown below.

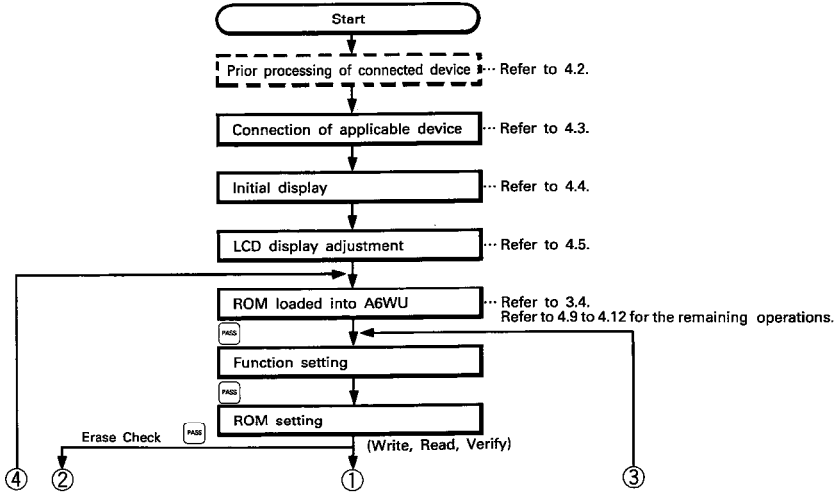


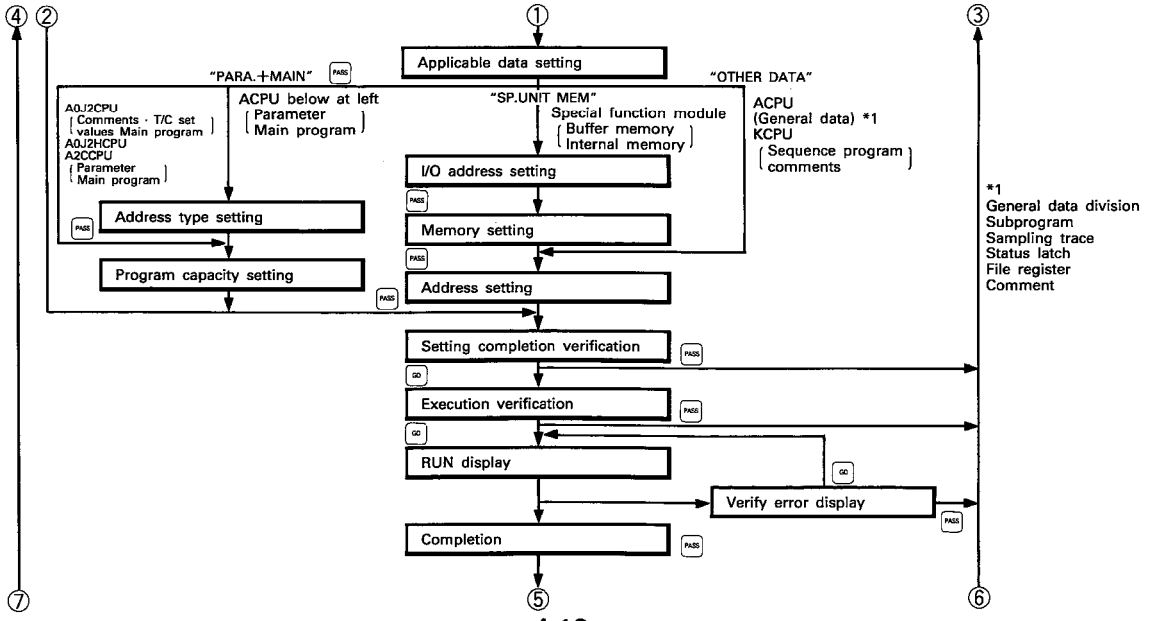


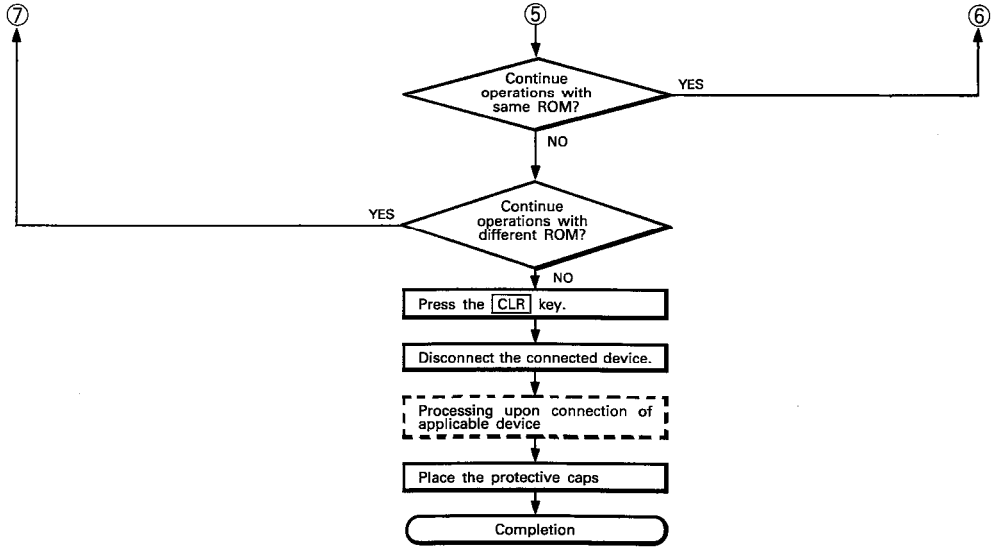
IB (NA) 66262-A

4.6 Basic Operating Procedure

The basic operating procedure of the A6WU is shown below.




④ ②
①
③
Applicable data setting
"PARA.+MAIN"
PASS
"OTHER DATA"
A0J2CPU
Comments · T/C set values Main program
A0J2HCPU
A2CCPU
Parameter
Main program
ACPU below at left
Parameter
Main program
"SP.UNIT MEM"
Special function module
Buffer memory
Internal memory
ACPU
(General data) *1
KCPU
Sequence program
comments
I/O address setting
Address type setting
Memory setting
Program capacity setting
Address setting
Setting completion verification
GO
Execution verification
RUN display
Verify error display
Completion
⑦
⑤
⑥
*1
General data division
Subprogram
Sampling trace
Status latch
File register
Comment


⑦
⑤
⑥
Continue operations with same ROM?
YES
NO
Continue operations with different ROM?
YES
NO
Press the CLR key.
Disconnect the connected device.
Processing upon connection of applicable device
Place the protective caps
Completion

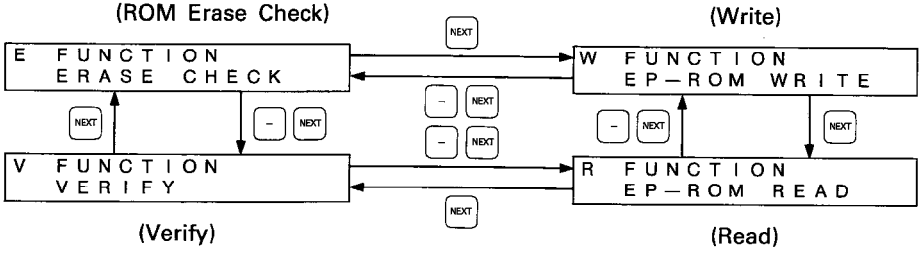
4.7 General Key Operations

General key operations when switching setting menus and executing data settings at the start of A6WU operations will be explained. For keys other than those shown below, refer to 3.3.2.

(1) Returning the A6WU to the initial state
To return the A6WU to the initial state, press the [RES] key. The CPU name and A6WU software version are re-displayed.

(2) Switching to the previous or next menu within the current setting menu
To display the previous or next menu within the current setting menu, press the [NEXT] key or the [—] [NEXT] keys.
[NEXT] : displays the next menu
[—] [NEXT] : displays the previous menu

(Example) When executing the function setting



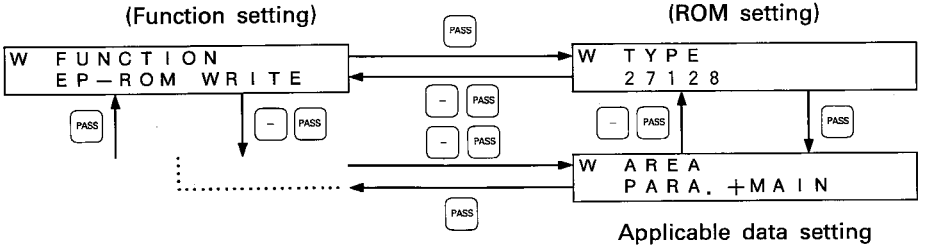
(3) Switching to the previous or next setting menu

To display the previous or next setting menu, press the PASS key or the — PASS keys.

PASS : displays the next setting menu

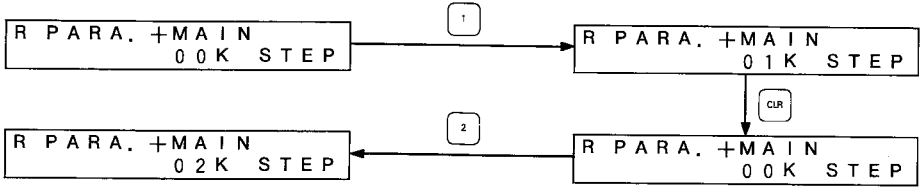
— PASS : displays the previous setting menu

(Example) Switching between function setting and applicable data setting menus



(4) Changing input values or set values in the current setting menu
To clear changed input or set values or an error message at error occurrence, press the CLR key, enabling data to be re-input. Re-input set values.

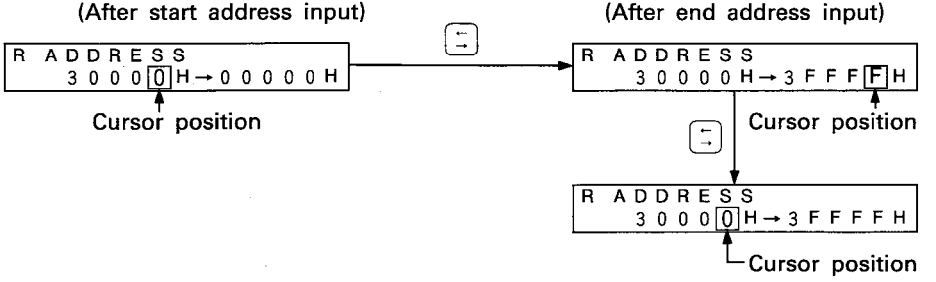
(Example) Changing program capacity setting input value



(5) Changing data input areas

To move the cursor from the present input area to another input area when there are 2 input areas per menu, press the [⇄] key.

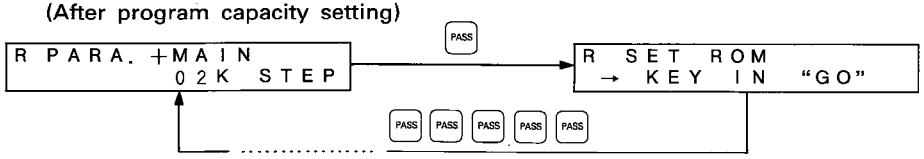
(Example) Changing address setting input areas.



(6) Confirming setting data

To display the set value of each setting menu, display the previous or next setting menu by pressing the [PASS] key or the [—] [PASS] keys. Refer to (4). To display each setting menu in order, press the [DISP] key.

(Example)



4.8 Program Capacity Setting

The relationship between applicable data and ROM when setting "PARA. + MAIN" in applicable data settings will be explained. When handling a microcomputer program in program capacity setting operations, set a value in which the microcomputer program capacity is added to the main program capacity.

(Example) When the sequence program = 6K steps with the microcomputer program = 4K steps:

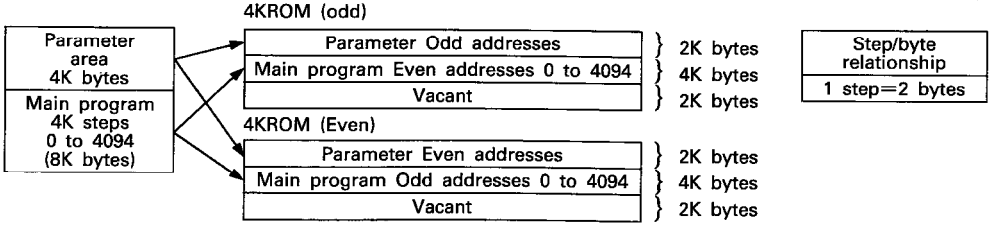
$$6\text{K steps} + \frac{4\text{K bytes}}{2\text{ bytes/step}} = 6\text{K steps} + 2\text{K steps} = 8\text{K steps}$$

Thus the program capacity becomes 8K steps.

4.8.1 A0J2, A0J2HCPU, and CPUs other than the A2CCPU

When storing parameters + main program onto ROM, since 16-bit building block type CPUs are used, 2 ROM chips are required for odd and even addresses. Determine the ROM to be used with parameters of 4K bytes in mind.

Exercise: Storing a main program of 4K steps onto ROM



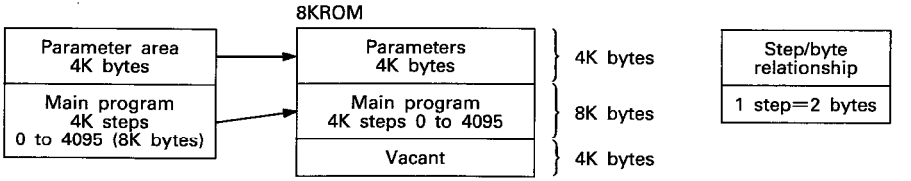
The possible memory range setting with the ROM to be used is according to the following.

Number of main program steps ≦ capacity of ROM to be used − 2K bytes for parameters

4.8.2 A0J2HCPU or A2CCPU

When storing parameters + main program onto ROM, separate ROM chips for odd and even addresses are not necessary. Determine the ROM to be used with parameters of 4K bytes in mind.

Exercise: Storing a main program of 4K steps onto ROM



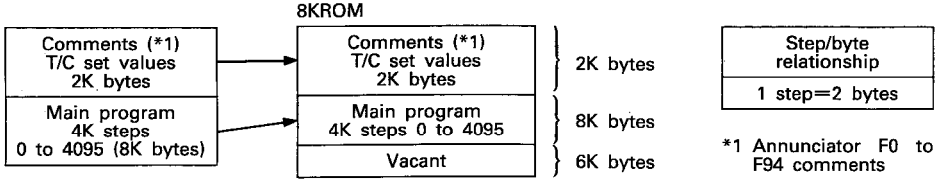
The possible memory range setting with the ROM to be used is according to the following.

Number of main program steps × 2 ≦ capacity of ROM to be used − 4K bytes for parameters

4.8.3 A0J2CPU (P23/R23)

When storing comments and T/C set values with the main program onto ROM, since the 8-bit A0J2CPU is used, separate ROM chips for odd and even addresses are not necessary. Determine the ROM to be used with comments and T/C set values of 2K bytes in mind.

Exercise: Storing a main program of 4K steps onto ROM



The possible memory range setting with the ROM to be used is according to the following.

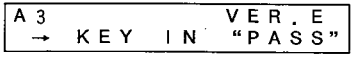
Number of main program steps × 2 ≦ capacity of ROM to be used − 2K bytes for comments and T/C set values.

4.9 ROM Erase Check

ROM Erase Check checks if data of the ROM loaded into the A6WU has been cleared. ROM Erase Check can be executed when the A6WU is connected to any peripheral device (refer to 2.2) and applicable ROM is loaded into the A6WU.

BASIC OPERATION

(1) Initial display



(When connected to the A3NCPU)

(2) Function setting operations

···To execute ROM Erase Check, select "ERASE CHECK".

- To switch to the "(4) Setting completion verification operations" display, press the [—] [PASS] keys.

(3) ROM setting operations

```
E  TYPE
   2764
```

···Select the ROM to be cleared.

Display	Applicable ROM
2764	4KROM
2764A	2764A (Introductory product)
27128	8KROM
27128A	27128A (Introductory product)
27256	16KROM

(4) Setting completion verification operations

```
E  SET  ROM
  →  KEY  IN  "GO"
```

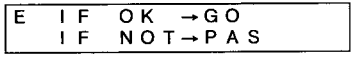
···Load ROM and press the GO key.
(If the ROM is already loaded, press the GO key.)

- To verify and change the Erase Check set value, press the PASS key.
(The "(2) Function setting operations" display returns.)

(Key operations)

PASS , — PASS NEXT , — NEXT	: sets the selected menu (goes to the next or previous setting menu). : selects the menu to be set in each setting item.
DISP	: displays the set value of each setting menu in order.
RES	: returns the A6WU to the initial state. (The initial display returns.)
GO	: goes to "(5) Execution verification operations".

(5) Execution verification operations



···Execute the following key operations.

GO : executes Erase Check (goes to the next operation, "(6) RUN display").

PASS : verifies and changes the Erase Check set value. ("(2) Function setting operations" returns.)

(6) RUN display

● When Erase Check begins, the asterisks are removed one at a time. After all asterisks have been removed, the "(7) Completion display" is displayed.

(7) Completion display (at normal completion)

···Execute the following key operations.

PASS : ●completes Erase Check. ("(2) Function setting operations" returns, allowing selection of another function.)
●verifies and changes the Erase Check set value. ("(2) Function setting operations" returns.)

GO : re-executes Erase Check. ("(5) Execution verification operations" returns.)

●COMPLETION is displayed at Erase Check completion.
●If an error occurs at Erase Check, refer to the Error Message List.

(Key operations)

PASS, — PASS : sets the selected menu (goes to the next or previous setting menu).
NEXT, — NEXT : selects the menu to be set in each setting item.
DISP : displays the set value of each setting menu in order.
CLR : clears the error display from the display area.
RES : returns the A6WU to the initial state. (The initial display returns.)

4.10 Read, Write, Verify Operations with A6WU Connected to ACPU

Read, write, and verify operations for data which can be handled (parameter + main program, general data, and special function module data) when the A6WU is connected to an ACPU will be explained.

4.10.1 Read, write, verify operations when handling parameter + main program

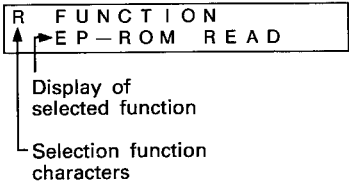
BASIC OPERATION

(1) Initial display

A 3	V E R . E
→ K E Y I N	" P A S S "

(When connected to the A3NCPU)

(2) Function setting operations

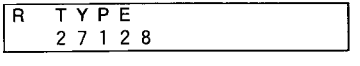


···Select the following functions. (The display to the left indicates selection of READ from ROM to the ACPU.)

Selection Function Characters	Selection Function Display	Selection Function Description
R	EP-ROM READ	Read from ROM to the ACPU
W	EP-ROM WRITE	Write from the ACPU to ROM
V	VERIFY	Verify data between ROM and the ACPU

● To switch to "(7) Setting completion verification operations", press the [—] [PASS] keys.

(3) ROM setting operations



···Select the ROM whose applicable data will be written, read, or verified.

Display	Applicable ROM
2764	4KROM
2764A	2764A (Introductory product)
27128	8KROM
27128A	27128A (Introductory product)
27256	16KROM

(4) Applicable data setting operations

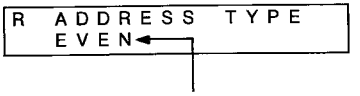
```
R  AREA
   PARA.+MAIN
```

···Select "PARA + MAIN" for handling the ACPU parameter + main data.

(Key operations)

PASS, — PASS : sets the selected menu (goes to the next or previous setting menu).
NEXT, — NEXT : selects the menu to be set in each setting item.
DISP : displays the set value of each setting menu in order.
RES : returns the A6WU to the initial state. (The initial display returns.)
GO : goes to "(8) Execution verification operations".

(5) Address type setting operations (N/A to A0J2, A0J2H, A2CCPU)



···Select odd or even addresses for the data to be handled. (The display to the left indicates selection of even addresses.)

Displayed Address Type	Applicable Addresses
ODD	Odd
EVEN	Even

● Refer to 4.8 for details.

(6) Program capacity setting operations

```
R PARA. +MAIN
        03K STEP
```

···Set the total capacity of the main program and microcomputer program to be handled (refer to 4.8) in K steps according to the number of steps within the setting ranges shown below. (The display to the left indicates specification of 3K steps.)

Applicable ROM	Applicable CPU	Setting Range Number of K Steps (number of steps)
4KROM or 2764A	A0J2CPU	01 to 03 (3071)
	A0J2HCPU A2CCPU	01 to 02 (2046)
	ACPU except above types	01 to 06 (6142)
8KROM or 27128A	A0J2CPU	01 to 07 (7167)
	A0J2HCPU A2CCPU	01 to 06 (6142)
	ACPU except above types	01 to 14 (14334)
16KROM	A0J2CPU	—
	A0J2HCPU A2CCPU	01 to 08 (8190)
	ACPU except above types	01 to 30 (30718)

1 step = 2 bytes

- The initial value of the program capacity is 0K steps.

IB (NA) 66262-A

(7) Setting completion verification operations

···Load ROM and press the GO key. (If ROM is already loaded, press the GO key.)

- To verify and change the set value, press the PASS key. (The "(2) Function setting operations" display returns.)

(Key operations)

PASS , — PASS	: sets the selected menu (goes to the next or previous setting menu).
NEXT , — NEXT	: selects the menu to be set in each setting item.
DISP	: displays the set value of each setting menu in order.
0 to 9	: sets the number of program steps.
CLR	: clears the error display and set value from the display area.
RES	: returns the A6WU to the initial state. (The initial display returns.)
GO	: goes to "(8) Execution verification operations".

(8) Execution verification operations

```
R  I F  O K  →G O
   I F  N O T→P A S S
```

···Execute the following operations.

GO : reads, writes, or verifies applicable data (goes to the next operation, "(9) RUN display").

PASS : verifies and changes set value. ("(2) Function setting operations" returns.)

(9) RUN display

```
R  R U N ( R E A D )
                  * * * *
```

Display of executed function

Flickering

- When write, read, or verify of applicable data begins, the asterisks are removed one at a time. (The display to the left indicates execution of READ from ROM.)
- The display of each function during RUN is shown below.

Execution Function Display	Function Description
READ	Read from ROM to the ACPU
WRITE	Write from the ACPU to ROM
VERIFY	Verify data between ROM and the ACPU

- Data is automatically verified once it has been written to ROM.

(10) Completion display (at normal completion)

···● Execute the following operations.

PASS : ● completes read, write, or verify of applicable data. ("(2) Function setting operations" returns, allowing selection of another function.)

● verifies and changes set value. ("(2) Function setting operations" returns.)

GO : reads, writes, or verifies applicable data a second time. ("(8) Execution verification operations" returns.)

● COMPLETION is displayed at normal completion.

● If an error occurs, refer to the Error Message List.

(Key operations)

DISP : displays the set value of each setting menu in order.

CLR : clears the error display from the display area.

RES : returns the A6WU to the initial state. (The initial display returns.)

4.10.2 Read, write, verify operations when handling general data

BASIC OPERATION

(1) Initial display

```
A 3                    VER.E
  →  KEY  IN  "PASS"
```

(when connected to the A3NCPU)

(2) Function setting operations

```
V  FUNCTION
↑ ►VERIFY
```

Display of selected function

Selection function characters

- Select the following functions. (The display to the left indicates selection of VERIFY between ROM and the ACPU.)

Selection Function Characters	Selection Function Display	Selection Function Description
R	EP-ROM READ	Read from ROM to the ACPU
W	EP-ROM WRITE	Write from the ACPU to ROM
V	VERIFY	Verify data between ROM and the ACPU

- To switch to "(6) Setting completion verification operations", press the [—] [PASS] keys.

(3) ROM setting operations

```
V  TYPE
   2 7 1 2 8
```

···Select the ROM whose applicable data will be written, read, or verified.

Display	Applicable ROM
2764	4KROM
2764A	2764A (Introductory product)
27128	8KROM
27128A	27128A (Introductory product)
27256	16KROM

(4) Applicable data setting operations

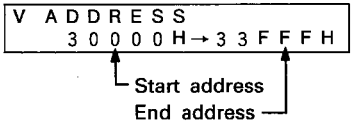
```
V  AREA
   OTHER  DATA
```

···Select "OTHER DATA" for handling ACPU general data.

(Key operations)

[PASS], [—] [PASS] : sets the selected menu (goes to the next or previous setting menu).
[NEXT], [—] [NEXT] : selects the menu to be set in each setting item.
[DISP] : displays the set value of each setting menu in order.
[RES] : returns the A6WU to the initial state. (The initial display returns.)

(5) Address setting operations



···Set general data start and end addresses in hexadecimal within the memory capacity ranges shown below. (The display to the left indicates a start address setting of 30000_H, and an end address setting of 33FFF.)

Applicable ROM	Memory Capacity
4KROM or 2764A	8K bytes (possible 2000H address setting)
8KROM or 27128A	16K bytes (possible 4000H address setting)
16KROM	32K bytes (possible 8000H address setting)

● The address initial value is 0000_H.

(6) Setting completion verification operations

···● Load ROM and press the GO key. (If ROM is already loaded, press the GO key.)

● To verify and change the set value, press the PASS key. ("(2) Function setting operations" returns.)

(7) Execution verification operations

```
V  IF  OK  →GO
   IF  NOT→PASS
```

···Execute the following operations.

GO : reads, writes, or verifies applicable data (goes to the next operation, "(8) RUN display").

PASS : verifies and changes set value. ("(2) Function setting operations" returns.)

(Key operations)

PASS , — PASS : sets the selected menu (goes to the next or previous setting menu).

NEXT , — NEXT : selects the menu to be set in each setting item.

DISP : displays the set value of each setting menu in order.

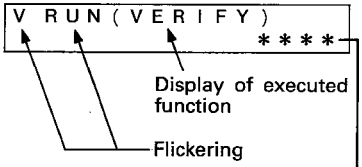
0 to 9 , A to F : sets program addresses. (Max. 5 digits)

← → : moves the cursor.

CLR : clears the error display and set value from the display area.

RES : returns the A6WU to the initial state. (The initial display returns.)

(8) RUN display



···The display of each function during RUN is shown below.

Execution Function Display	Function Description
READ	Read from ROM to the ACPU
WRITE	Write from the ACPU to ROM
VERIFY	Verify data between ROM and the ACPU

- Data is automatically verified once it has been written to ROM.

When write, read, or verify of applicable data begins, the asterisks are removed one at a time. (The display to the left indicates execution of ROM-ACPU data verification.)

(9) Completion display (at normal completion)

···Execute the following operations.

PASS : ●completes read, write, or verify of applicable data. ("(2) Function setting operations" returns, allowing selection of another function.)

●verifies and changes set value. ("(2) Function setting operations" returns.)

GO : reads, writes, or verifies applicable data a second time. ("(7) Execution verification operations" returns.)

●COMPLETION is displayed at normal completion.

●If an error occurs, refer to the Error Message List.

(Key operations)

DISP : displays the set value of each setting menu in order.

RES : returns the A6WU to the initial state. (The initial display returns.)

4.10.3 Read, write, verify operations when handling special function module data

BASIC OPERATION

(1) Initial display

```
A 3                VER.E
  →  KEY  IN  "PASS"
```

(when connected to the A3NCPU)

(2) Function setting operations

```
W  FUNCTION
  ►EP-ROM  WRITE
```

Display of selected function

Selection function characters

···Select the following functions. (The display to the left indicates selection of WRITE from the ACPU to ROM.)

Selection Function Characters	Selection Function Display	Selection Function Description
R	EP-ROM READ	Read from ROM to the ACPU
W	EP-ROM WRITE	Write from the ACPU to ROM
V	VERIFY	Verify data between ROM and the ACPU

● To switch to "(8) Setting completion verification operations", press the [—] [PASS] keys.

(3) ROM setting operations

```
W  TYPE
   2 7 1 2 8
```

···Select the ROM whose applicable data will be written, read, or verified.

Display	Applicable ROM
2764	4KROM
2764A	2764A (Introductory product)
27128	8KROM
27128A	27128A (Introductory product)
27256	16KROM

(4) Applicable data setting operations

```
W  AREA
   SP. UNIT MEM.
```

···Select "SP UNIT MEM" for handling special function module data.

(Key operations)

[PASS], [—] [PASS] : sets the selected menu (goes to the next or previous setting menu).
[NEXT], [—] [NEXT] : selects the menu to be set in each setting item.
[DISP] : displays the set value of each setting menu in order.
[RES] : returns the A6WU to the initial state. (The initial display returns.)

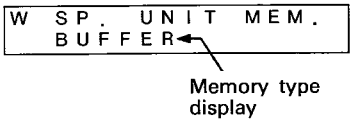
(5) I/O address setting operations

```
W  I/O  ADDRESS
        H07
```

···Set the I/O addresses of the special function module's loaded position within the possible I/O address setting ranges shown below. Refer to Appendix 3 for I/O address setting details.

Connected Device	Possible I/O Address Setting Range
A1CPU (P21/R21)	00H to 0FH
A1NCPU (P21/R21)	
A2CPU (P21/R21)	00H to 1FH
A2NCPU (P21/R21)	
A2NCPU (P21/R21)-F	
A2ACPU (P21/R21)	
A2CPU-S1 (P21/R21)	00H to 3FH
A2NCPU-S1 (P21/R21)	
A2NCPU-S1 (P21/R21)-F	
A2ACPU-S1 (P21/R21)	
A3CPU (P21/R21)	00H to 7FH
A3NCPU (P21/R21)	
A3NCPU (P21/R21)-F	
A3HCPU (P21/R21)	
A3MCPU (P21/R21)	
A3ACPU (P21/R21)	
A73CPU (P21/R21)	

(6) Memory setting operations



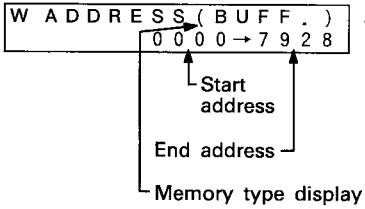
···Select the applicable memory to be handled by the special function module as follows. (The display to the left indicates selection of BUFFER memory as the applicable memory.)

Memory Type Display	Applicable Memory
BUFFER	Buffer memory
INTERNAL	Internal memory

(Key operations)

[PASS], [—] [PASS] : sets the selected menu (goes to the next or previous setting menu).
[NEXT], [—] [NEXT] : selects the menu to be set in each setting item.
[DISP] : displays the set value of each setting menu in order.
[0] to [9], [A] to [F] : sets special function module I/O addresses. (Max. 2 digits)
[CLR] : clears the error display and set value from the display area.
[RES] : returns the A6WU to the initial state. (The initial display returns.)

(7) Address setting operations



…Set the start and end addresses of the special function module's applicable memory within the address ranges shown below. (The display to the left indicates a buffer memory start address setting of 0, and an end address setting of 7928.)

Applicable ROM	Possible Address Size Settings (max. value)	
	Buffer memory	Internal memory
4KROM or 2764A	4096	2000_H
8KROM or 27128A	8192	4000_H
16KROM	8192	8000_H

※Refer to the buffer memory explanation in the applicable special function module's user's manual.

(8) Setting completion verification operations

…● Load ROM and press the GO key. (If ROM is already loaded, press the GO key.)

● To verify and change the set value, press the PASS key. ("(2) Function setting operations" returns.)

(9) Execution verification operations

```
W  I F  O K  →G O
   I F  N O T→P A S S
```

···Execute the following operations.

GO : reads, writes, or verifies applicable data (goes to the next operation, "(10) RUN display").

PASS : verifies and changes set value. ("(2) Function setting operations" returns.)

(Key operations)

PASS, — PASS : sets the selected menu (goes to the next or previous setting menu).

NEXT, — NEXT : selects the menu to be set in each setting item.

DISP : displays the set value of each setting menu in order.

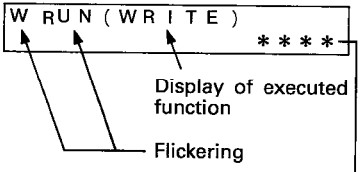
0 to 9, A to F : sets the applicable memory's addresses.

⇄ : moves the cursor.

CLR : clears the error display and set value from the display area.

RES : returns the A6WU to the initial state. (The initial display returns.)

(10) RUN display



···The display of each function during RUN is shown below.

Execution Function Display	Function Description
READ	Read from ROM to the ACPU
WRITE	Write from the ACPU to ROM
VERIFY	Verify data between ROM and the ACPU

- Data is automatically verified once it has been written to ROM.

When write, read, or verify of applicable data begins, the asterisks are removed one at a time. (The display to the left indicates execution of ROM-ACPU data verification.)

(11) Completion display (at normal completion)

···Execute the following operations.

PASS : ● completes read, write, or verify of applicable data. ("(2) Function setting operations" returns, allowing selection of another function.)

● verifies and changes set value. ("(2) Function setting operations" returns.)

GO : reads, writes, or verifies applicable data a second time. ("(9) Execution verification operations" returns.)

● COMPLETION is displayed at normal completion.

● If an error occurs, refer to the Error Message List.

(Key operations)

DISP : displays the set value of each setting menu in order.

RES : returns the A6WU to the initial state. (The initial display returns.)

4.11 Read, Write, Verify Operations at A6WU and Remote I/O Station Connection

By connecting the A6WU to a remote I/O station (AJ72P25/R25), data of the special function module loaded into the remote I/O station is written from the remote I/O station to ROM, read from ROM to the remote I/O station, and verified between ROM and the remote I/O station.

These functions can be executed when the A6WU is connected to a remote I/O station and applicable ROM is loaded into the A6WU. The special function module data written to ROM is handled as storage data.

POINT

(1) When the A6WU is connected to a remote I/O station, only special function module data can be written, read and verified. Parameter and T/C set value + main program, and general data cannot be handled.

(2) Since the A6WU is an offline device, set the remote I/O station mode to offline when connecting the A6WU. (To switch modes, press the reset switch.)

BASIC OPERATION

Operations which handle special function module data at A6WU and remote I/O station connection are executed following the same procedure as that for A6WU and ACPU connection shown in 4.10.3, except for I/O address settings.
Follow the A6WU operations in 4.10.3. Possible special function module I/O address setting ranges are shown below.

Refer to Appendix 4 for I/O address setting details.

Connected device	Possible I/O Address Setting Range
A0J2P25/R25	00_H to $1F_H$
AJ72P25/R25	

4.12 Read, Write, Verify Operations at A6WU and A6PHP/A6HGP Connection

By connecting the A6WU to the A6PHP or A6HGP, data in ROM loaded into the A6WU is read, written, and verified.

POINT

When operating the A6WU connected to the A6PHP or A6HGP after starting up with MELSEC A series software versions other than those listed below, adhere to the set values shown in the corresponding software version manual.

- **SW□-GPP or SW□-HGP system FD**
- **SW□GP-GPP system FD**

4.12.1 Read, write, verify operations when handling ACPU data

ACPU data which can be handled are sequence programs (parameter + main program) and comments. When handling parameter + main program data, follow the ACPU data operations in 10.1. When handling comments, follow the operations in 4.10.2.

POINT

Take special care in handling data since A0J2HCPU and A2CCPU data cannot be handled by the A6HGP.

4.12.2 Read, write, verify operations when handling KCPU data

KCPU data operations are executed following the same procedure and set values as those for handling general data at A6WU and ACPU connection as shown in 4.10.2.

(a) Data which can handled are sequence programs (parameter + main program) and comments.

(b) Set sequence program and comment data as shown below.

Number of Sequence Program Steps		Address Setting Range		
		4KROM	8KROM	16KROM
1K to 4K	0 to 4095	10000 to 11FFF	10000 to 13FFF	10000 to 17CFF
5K to 8K	4096 to 8191	12000 to 13FFF		
9K to 12K	8192 to 12287	14000 to 15FFF	14000 to 17CFF	
13K to 16K	12288 to 15999	16000 to 17CFF		

Number of Comment Points	Address Setting Range		
	4KROM	8KROM	16KROM
0 to 529	18000 to 19FFF	18000 to 1BFFF	18000 to 1FCFF
531 to 1075	1A000 to 1BFFF		
1077 to 1621	1C000 to 1DFFF	1C000 to 1FCFF	
1623 to 2048	1E000 to 1FFFF		

POINT

(1) 530th, 1076th, and 1622th comments are stored in ROM as follows.
1) When using 4K ROM chips, these comments are stored on two ROM chips.
2) When using 8K ROM chips, 1076th comment is stored on two ROM chips.
(2) Data stored on two ROM chips (530th, 1076th, and 1622th comments) cannot be used as comments for data stored on a single ROM chip.

5. SPECIFICATIONS

General, performance, and cable specifications of the A6WU will be described.

5.1 General Specifications

A6WU general specifications are shown below.

Item	Specification					
Ambient temperature	Operating	0 to 40°C				
	Storage	−20 to 70°C				
Ambient humidity	Operating	85% RH or less (non-condensing)				
	Storage	10 to 90% RH or less (non-condensing)				
Vibration resistance	Conforms to *1 JIS-C0911		Frequency	Acceleration	Amplitude	Sweep count
			10 to 55Hz	—	0.075 mm	*2 10 times (1 octave/minute)
			55 to 150Hz	1G	—	
Shock resistance	Conforms to *1 JIS-C0912 (10 g, 3 times in directions X·Y·Z)					
Operating ambience	Free of corrosive gases. Dust should be minimal.					
Cooling method	Self-cooling					

*1 Note: JIS: Japanese Industrial Standard

*2 One octave is double the initial frequency or 1/2 frequency. All of the following frequency changes, for example, constitute 1 octave:

Table 5.1 A6WU General Specifications

5.2 Performance Specifications

A6WU performance specifications are shown below.

Item	Specification	
Connected device	ACPU, remote I/O station, A6PHP, A6HGP	
Power supply and current consumption	Received from connected device (5 VDC, 0.8 A or less)	
Connection system	Add-on	Connected directly to device
	Handheld	Connected using a dedicated cable
Display system	LCD display of 16 characters × 2 lines (with cursor), illuminated display	
Operating system	24 operation keys (polyurethane coated)	
Key operation verification	Buzzer	
ROM socket	28-pin lever type socket	
Applicable ROM	4KROM, 8KROM, 16KROM *1	
External dimensions mm(in)	188(7.40) (H) × 79(3.11) (W) × 44.5(1.75) (D) 37.5 with CPU loaded	
Weight kg(lb)	0.5(1.1)	

*1 In addition to the above, the following applicable ROM exist as introductory products:
2764A, 27128A (both INTEL manufacture)

Table 5.2 A6WU Performance Specifications

6. TROUBLESHOOTING

6.1 Error Message List

Error messages of errors detected in the A6WU and subsequent corrective actions will be explained. When an error message is displayed in the LCD display during A6WU operations, re-execute operations correctly after the cause of the error occurrence has been removed.

Display Message	Display Condition	Corrective Action
ADDRESS ERROR	An invalid memory address has been set	Re-check the memory map and correctly set the memory address.
CAPACITY OVER	The set capacity has exceeded the set ROM capacity.	Re-set the set capacity to within the ROM capacity or expand the capacity of the set ROM.
CASSETTE CHECK	The memory cassette is not loaded into the PC CPU at write, read, or verify or is defective.	Check the loading status of the memory cassette and load correctly. Exchange for new memory cassette.
NOT ERASED	ROM content has not been erased.	Erase the ROM content.
	ROM is incorrectly loaded or is defective.	Check the loading status and correctly load or exchange for new ROM.

Display Message	Display Condition	Corrective Action
	Cable is incorrectly connected or is defective.	Confirm existence of cable and re-connect. Exchange for new cable.
P C N O T R E S P O N D	An error has occurred in the ACPU and the RUN LED is flickering (off in the A3, A3N, A3H, or A3MA73 CPU) at write, read, or verify execution.	Correct the ACPU error, reset the ACPU, and re-execute A6WU operations.
P C R U N	A6WU operations have been executed with an ACPU or remote I/O station at RUN.	Stop the ACPU or remote I/O station and re-execute A6WU operations.
P R O T E C T E R R O R	The ACPU memory protect is turned ON at read execution.	Turn the ACPU memory protect OFF and re-execute read operations.
R O M A R E A E R R O R	The specified memory at read is not the ROM specification.	Change ROM specification to RAM and re-execute read.
	The set value is outside the possible setting range.	Set within possible setting range. (Confirm each CPU's parameters.)
	The set start address is greater than the set end address.	Set the set start address to less than the end address.
S E T T I N G E R R O R	A special function module is not loaded into the set I/O address location.	Re-confirm the address of the loaded special function module and set the correct I/O address.
	The special function module memory setting is incorrect (in the internal or buffer memory).	Correctly set the internal or buffer memory as the applicable memory of the special function module to be operated.

Display Message	Display Condition	Corrective Action
SP. NOT RESPOND	The special function module cannot communicate normally.	An error has occurred in the special function module or it is damaged. If an error, remove it; if damaged, exchange it.
V RUN(VERIFY) PARA. DATA ERROR	Data does not match at verification of parameter areas.	Confirm that the ROM loaded into the A6WU is the applicable ROM. Specify the same data (or same data range) as the data written to the ROM loaded into the A6WU and re-confirm. When the error is undetermined, erase the ROM content and re-write. *3
V RUN(VERIFY) STEP ▨▨▨▨▨▨▨▨ ▨▨▨-▨▨▨	Data does not match at verification of main program area. The step no. and data of the error occurrence are displayed in the ▨▨▨ area. *2	
V RUN(VERIFY) ADD. ▨▨▨▨▨▨▨▨ ▨▨▨-▨▨▨	Data does not match at verification of general data, internal memory area, or buffer memory area. The address and data of the error occurrence are displayed in the ▨▨▨ area. *1	
WRITE-IN ERROR	The loaded ROM and set ROM differ at write execution.	Correctly set the ROM type loaded into the ROM socket.
	ROM is incorrectly loaded or is defective.	Check the loading status and correctly load or exchange for new ROM.

*1 When errors occur during verification of CPU general data or a special function module's memory area, error contents are displayed as shown below.

• When an error occurs during verification of CPU general data or the internal memory area, the following screen is displayed.

CPU data
Special function module data
ROM data

The data of the error is displayed as a 2-digit hexadecimal.

The address where the error has occurred is displayed as a 5-digit hexadecimal.

(Example)

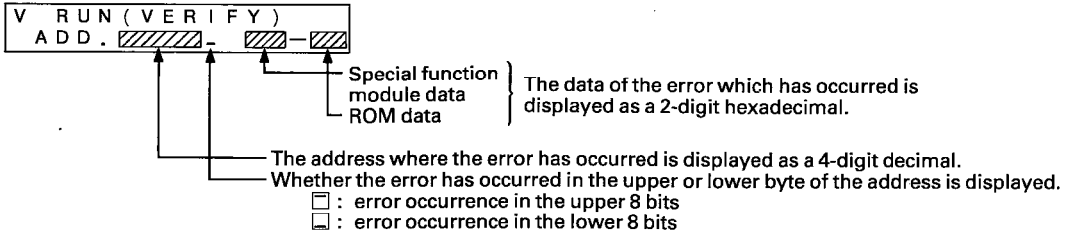
A verification error has occurred at address 8200 at internal memory verification.

Special function module data 54
ROM data D4

The data content of address 8200 where the error has occurred is displayed.

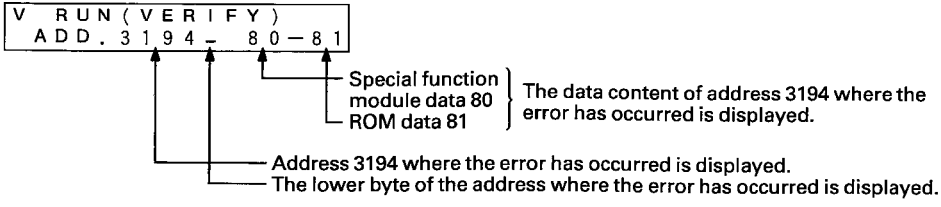
Address 8200 where the error has occurred is displayed.

• When an error occurs during verification of the buffer memory area, the following screen is displayed.



(Example)

An verification error has occurred at address 3194 at buffer memory area verification.

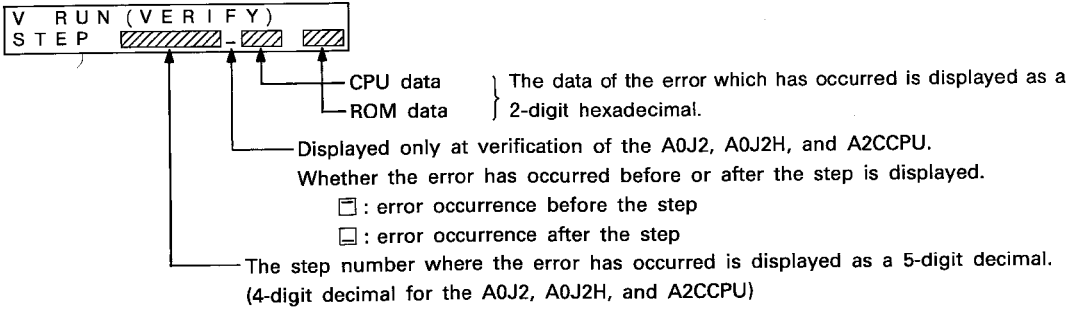


* 2 When errors occur during verification of "parameter + main program" data, error contents are displayed as shown below.

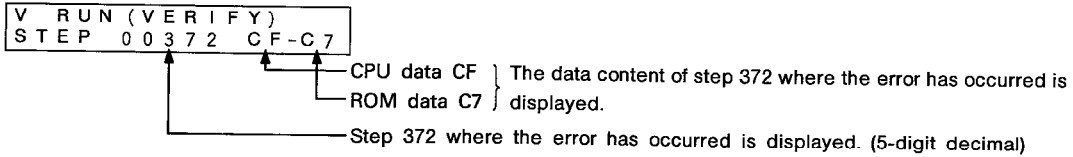
• When an error occurs during verification of parameter areas, the following screen is displayed.

```
V RUN (VERIFY)
PARA. DATA ERROR
```

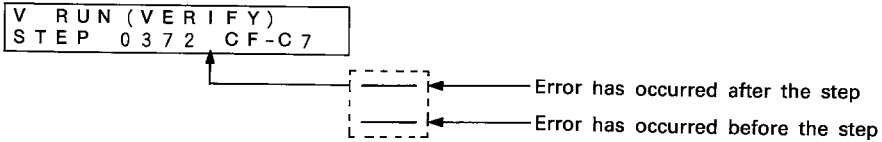
• When an error occurs during verification of the main program area, the following screen is displayed.



(Example)
An error has occurred at step 372
(at connection of A1, 2, 3, or 3HCPU).



(At connection of A0J2CPU)

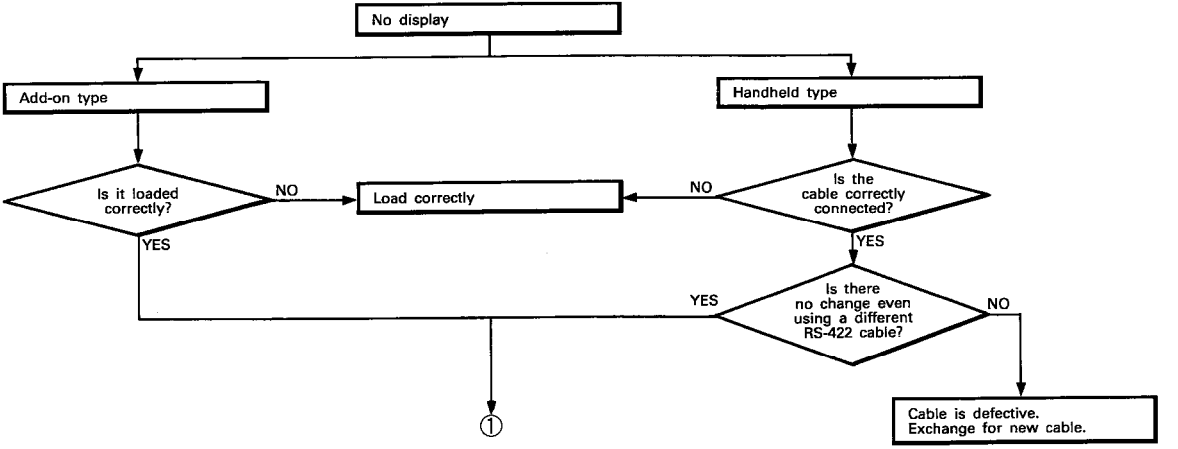


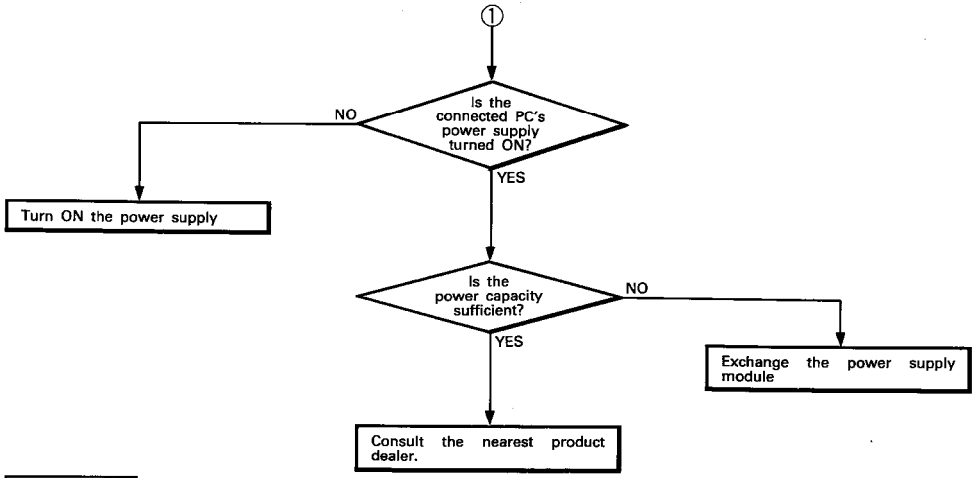
* 3 Valid keys at verification errors are as follows.
  PASS : stops verification and goes to function setting operations.
  GO : continues verification and the "RUN" display flickers.
  RES : returns the A6WU to the initial state and returns the initial display.

6.2 Troubleshooting Procedure

The troubleshooting procedure for the A6WU is shown as a flow chart.

6.2.1 Troubleshooting when error messages are not displayed

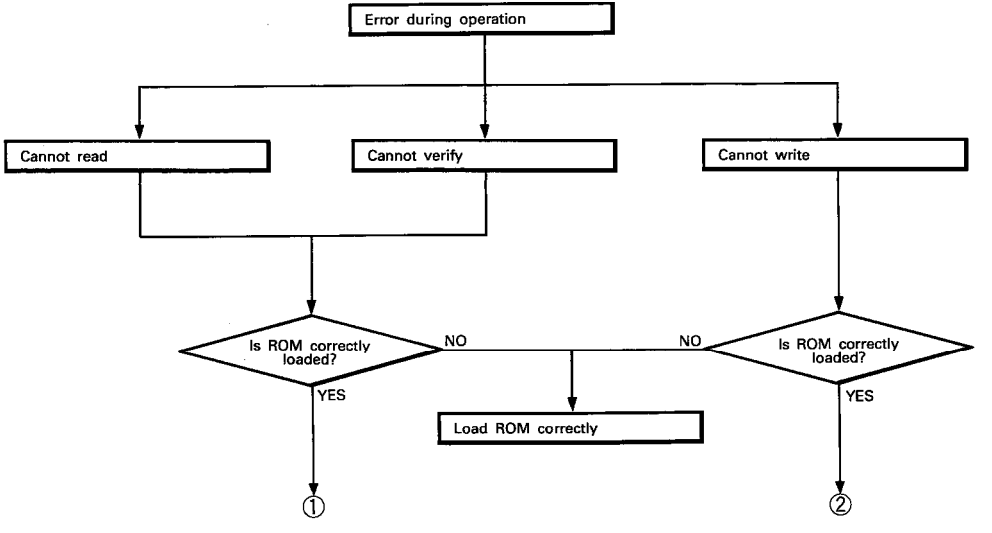


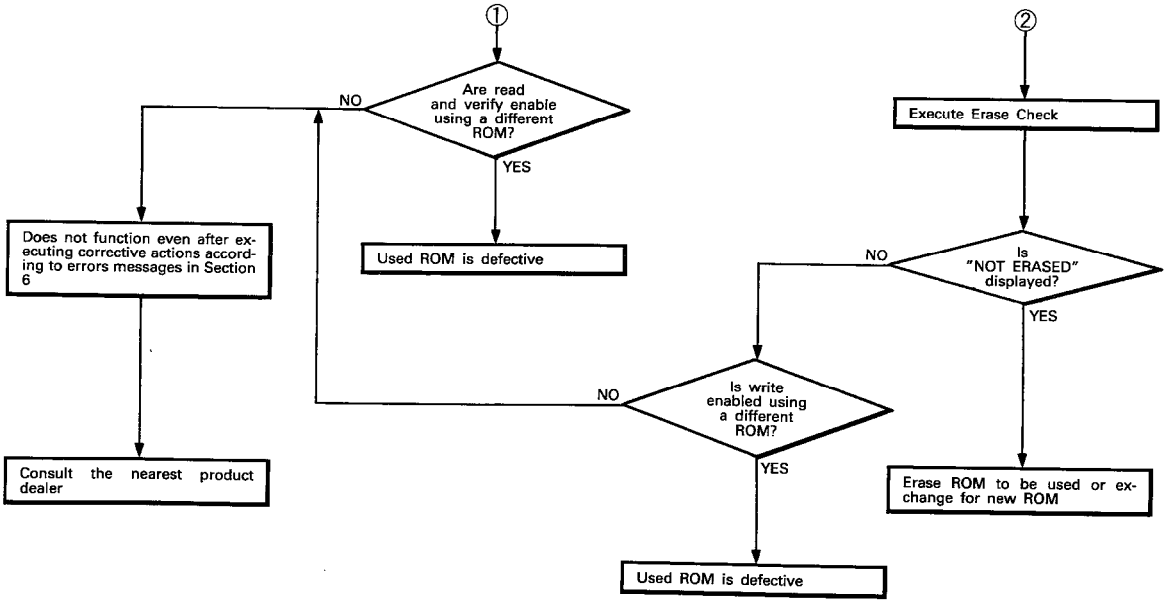


REMARK

When connecting the A6WU to applicable devices excepting those noted in Section 2, error messages are sometimes not displayed. Should this occur, correctly execute A6WU operations.

6.2.2 Troubleshooting during A6WU operations




①
Are read and verify enable using a different ROM?
NO
YES
Used ROM is defective
Does not function even after executing corrective actions according to errors messages in Section 6
Consult the nearest product dealer
②
Execute Erase Check
Is "NOT ERASED" displayed?
NO
YES
Erase ROM to be used or exchange for new ROM
Is write enabled using a different ROM?
NO
YES
Used ROM is defective

APPENDICES

Appendix 1 Processing Time List

Memory Capacity	Processing Time (sec)		
	Read	Write	Verify
8K bytes	68	109	46
16K bytes	135	216	91
23K bytes	264	373	176

REMARK

The processing times above are for the selection and execution of parameter + main program.

APP

Appendix 2 Functions Comparison of Software Versions D and E for the A6WU

Comparison Item \ Version	Version D	Version E
Applicable ROM	4KROM(2764) 8KROM(27128) 16KROM(27256)	4KROM(2764) 8KROM(27128) 16KROM(27256) (Introductory product) 2764A 27128A
Applicable ACPU	Except the CPUs below (Refer to 2.2.) A0J2HCPU A2CCPU	ACPU shown in 2.2

REMARK

- Data for the following ACPU can be handled if the software version marked on the A6WU nameplate is version E or above, and if the manufacture date is "002" or later. (For the appearance of the nameplate, refer to Section 1.)
  A0J2HCPU
  A2CCPU

- A0J2HCPU and A2CCPU are not supported by the A6HGP. When handling the above CPU data in peripheral devices, operate with the A6GPP or A6PHP started up by SW4GP-GPPA-2.

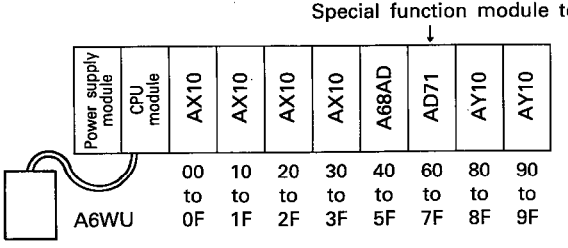
APP

Appendix 3 Idea Behind I/O Address Settings in Special Function Modules in an ACPU Station

The idea behind I/O address settings in special function modules loaded into an ACPU station will be explained.

3.1 I/O address settings in special function modules occupying 1 slot

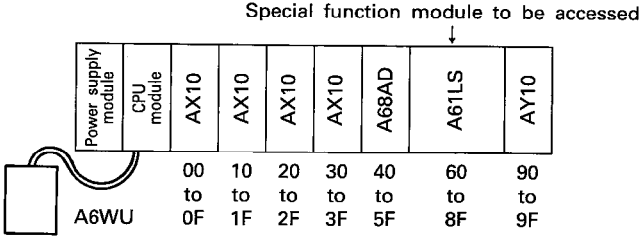
Special function modules which can be accessed are those modules in the connected stations.



(1) When the special function module to be accessed is the AD71 Positioning Module, it is set according to CPU I/O assignments.

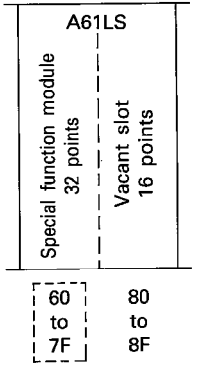
(2) Since 060_H to $07F_H$ is the AD71 I/O assignment in the above example, set "07" as the first 2 digits when expressing the second 16 points as 3 digits.

3.2 I/O address settings in special function modules occupying 2 slots (second slot is vacant)



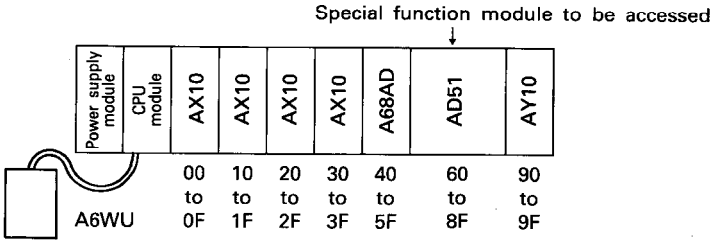
(1) When the special function module to be accessed is the A61LS Position Detection Module, it is set according to CPU I/O assignments.

(2) The I/O address assignment for the A61LS in the above example is 060_H to $08F_H$. Since the second slot is a 16-point vacant slot, however, set the I/O addresses as follows.



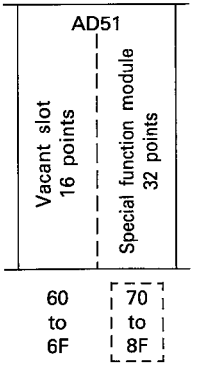
Set "07" as the first 2 digits of the second 16 points of the 32-point (060_H to $07F_H$) special function module.

3.3 I/O address settings in special function modules occupying 2 slots (first slot is vacant)



(1) When the special function module to be accessed is the AD51 Intelligent Communication Module, it is set according to CPU I/O assignments.

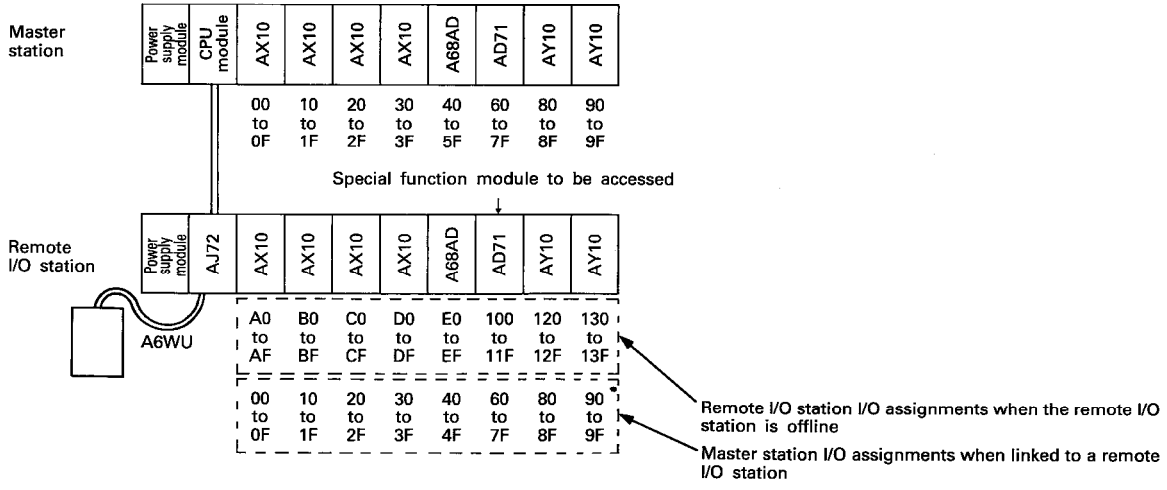
(2) The I/O address assignment for the AD51 in the above example is 060_H to $08F_H$. Since the first slot is a 16-point vacant slot, however, set the I/O addresses as follows.



Set "08" as the first 2 digits of the second 16 points of the 32-point (070_H to $08F_H$) special function module.

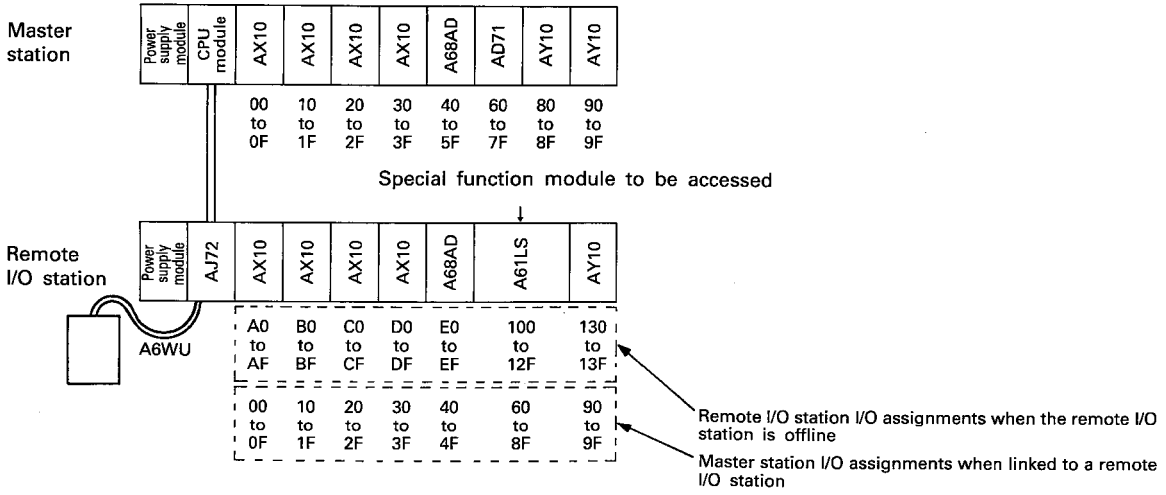
Appendix 4 I/O Address Settings in Special Function Modules in Remote I/O Stations

4.1 I/O address settings in special function modules occupying 1 slot

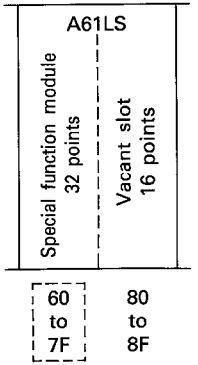


(1) The A6WU can access special function modules only when remote I/O stations are offline.
(2) When the special function module to be accessed is the AD71 Positioning Module, set according to remote I/O station I/O assignments.
(3) Since 060_H to $07F_H$ is the AD71 I/O assignment in the above example, set "07" as the first 2 digits of the second 16 points.

4.2 I/O address settings in special function modules occupying 2 slots (second slot is vacant)

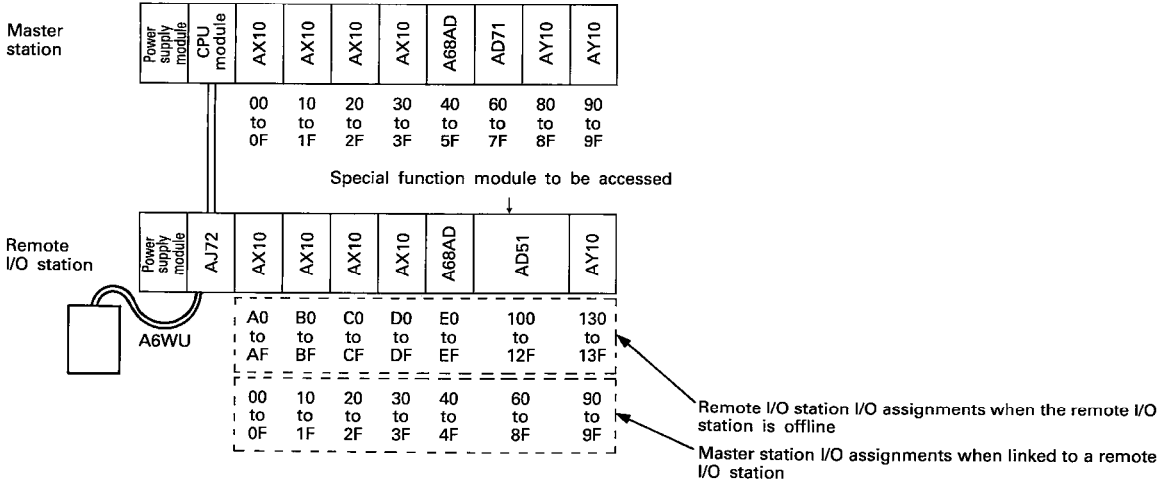


(1) The A6WU can access special function modules only when remote I/O stations are offline.
(2) When the special function module to be accessed is the A61LS Position Detection Module, set according to remote I/O station I/O assignments.
(3) The I/O address assignment for the A61LS in the above example is 060_H to $08F_H$. Since the second slot is a 16-point vacant slot, however, set the I/O addresses as follows.

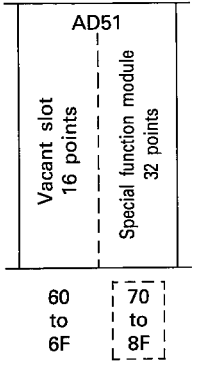


Set "07" as the first 2 digits of the second 16 points of the 32-point (060_H to $07F_H$) special function module.

4.3 I/O address settings in special function modules occupying 2 slots (first slot is vacant)

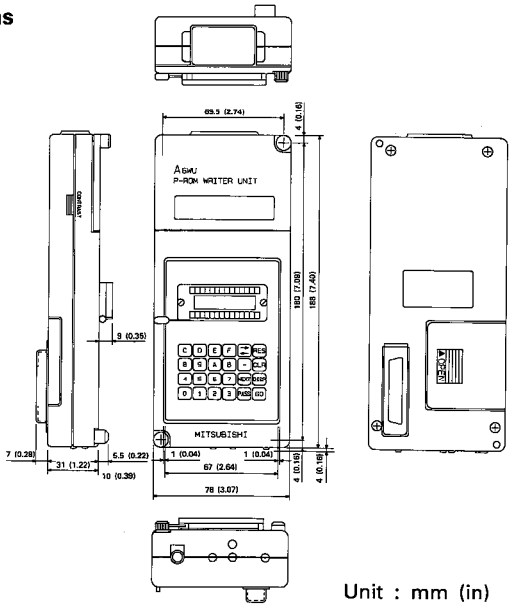


(1) The A6WU can access special function modules only when remote I/O stations are offline.
(2) When the special function module to be accessed is the AD51 Intelligent Communication Module, set according to remote I/O station I/O assignments.
(3) The I/O address assignment for the AD51 in the above example is 060_H to $08F_H$. Since the first slot is a 16-point vacant slot, however, set the I/O addresses as follows.



Set "08" as the first 2 digits of the second 16 points of the 32-point (07_0H to $08F_H$) special function module.

Appendix 5 External Dimensions



Unit : mm (in)

IMPORTANT

The components on the printed circuit boards will be damaged by static electricity, so avoid handling them directly. If it is necessary to handle them take the following precautions.

(1) Ground human body and work bench.

(2) Do not touch the conductive areas of the printed circuit board and its electrical parts with any non-grounded tools etc.

Under no circumstances will Mitsubishi Electric be liable or responsible for any consequential damage that may arise as a result of the installation or use of this equipment.

All examples and diagrams shown in this manual are intended only as an aid to understanding the text, not to guarantee operation. Mitsubishi Electric will accept no responsibility for actual use of the product based on these illustrative examples.

Owing to the very great variety in possible applications of this equipment, you must satisfy yourself as to its suitability for your specific application.

MODEL	A6WU-O-E
MODEL CODE	13J716
IB(NA)66262-A(9009)MEE	

When exported from Japan, this manual does not require application to the Ministry of International Trade and Industry for service transaction permission.

MITSUBISHI ELECTRIC CORPORATION

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