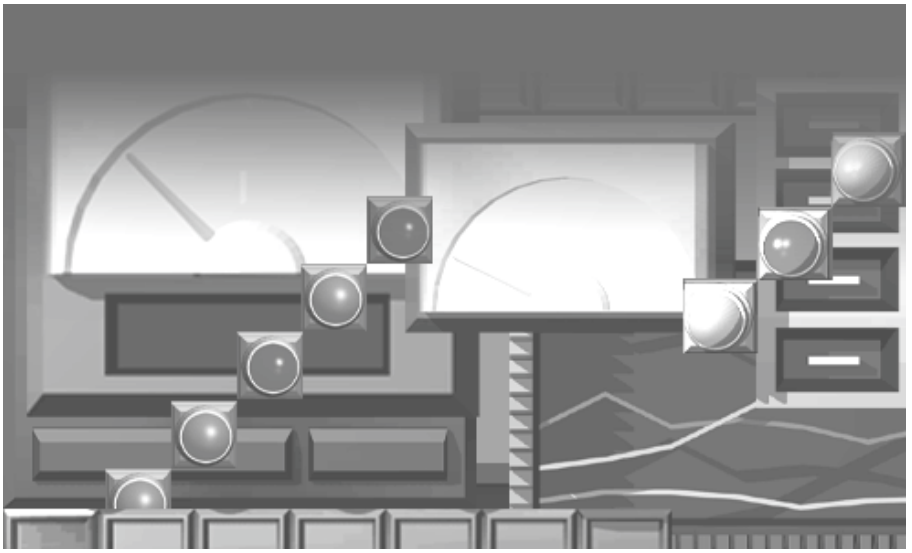
MITSUBISHI

GOT-A900 Series Operating Manual

(GT Works Version5/GT Designer Version5 compatible
Extended•Option Functions Manual)



Graphic Operation Terminal
900
series

• SAFETY PRECAUTIONS •

(Always read these instructions before using this equipment.)

Before using this product, please read this manual and the relevant manuals introduced in this manual carefully and pay full attention to safety to handle the product correctly.
The instructions given in this manual are concerned with this product. For the safety instructions of the programmable controller system, please read the CPU module user's manual.
In this manual, the safety instructions are ranked as "DANGER" and "CAUTION".

⚠ DANGER	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
⚠ CAUTION	Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage.

Note that the ⚠CAUTION level may lead to a serious consequence according to the circumstances. Always follow the instructions of both levels because they are important to personal safety.

Please save this manual to make it accessible when required and always forward it to the end user.

[PRECAUTION WHEN PERFORMING THE TEST OPERATION]

⚠ CAUTION

- Read the manual carefully and fully understand the operation before the test operation (ON/OFF of bit devices, modifying current value of a word device, modifying timer/counter setting, modifying the current value, or modifying the current value of a buffer memory) of system monitor, special function module monitor, and ladder monitor.
  In addition, never modify data in a test operation to a device which performs a crucial operation to the system.
  It may cause an accident by a false output or malfunction.

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REVISIONS

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

Print Date	* Manual Number	Revision
Aug., 2000	SH (NA)-080118-A	First edition
Oct., 2000	SH (NA)-080118-B	Partial additions Section 3.1, Section 3.2, Section 3.3, Section 3.4
Nov., 2000	SH (NA)-080118-C	Partial corrections Section 4.12 Partial additions Section 4.1, Section 4.5
Feb., 2001	SH (NA)-080118-D	Partial additions Chapter 1, Chapter 2, Section 3.1, Section 3.1.1, Section 3.2, Section 3.2.4, Section 3.3, Section 3.4, Section 3.5, Section 3.5.1, Section 3.5.4, Section 4.2, Section 4.3, Section 4.5, Section 6.1.1, Section 17.1.1, Section 17.2.1, Section 17.2.2, Section 17.2.3, Section 17.2.4, Section 17.3.1, Section 17.3.2, Section 17.3.3, Section 17.3.4, Section 17.3.5, Section 17.3.6, Section 17.3.7
May., 2001	SH (NA)-080118-E	Partial additions Section 1.1.2, Section 2.2, Section 2.3, Section 3.1.1, Section 3.4.3, Section 4.3, Section 4.5, Section 4.8, Section 5.2, Section 6.2.1, Section 6.2.4, Section 6.3.1, Section 6.3.5, Chapter 7, Section 9.1.3, Section 9.2.2, Section 9.3.2, Section 9.4.2, Section 9.5.2, Section 9.6.1, Section 12.1.1, Section 12.1.2 Additions Section 6.1
Aug., 2001	SH (NA)-080118-F	Partial additions Section 2.1, Section 2.2, Section 2.3, Section 3.1.1, Section 3.3.3, Section 3.4.3, Section 3.5.1, Section 4.1, Section 4.2, Section 6.2.1, Section 9.1.2, Section 9.1.3, Section 12.3, Section 17.1.1, Section 17.2.3 Additions Section 1.1.7, Section 3.6, Section 3.6.1, Section 3.6.2, Section 3.6.3, Section 3.6.4, Section 12.32, Chapter 22, Chapter 23, Chapter 24
May, 2002	SH (NA)-080118-G	Partial additions Section 1.1.1, Section 2.1, Section 2.2, Section 2.3, Section 3.1.2, Section 3.6.4, Section 4.1, Section 4.2, Section 4.3, Section 4.4, Section 4.5, Section 4.6, Section 4.12, Section 5.2, Section 6.1, Section 6.2.1, Section 6.2.3, Section 6.2.4, Section 6.2.5, Section 6.3.1, Section 6.3.5, Section 9.1.2, Section 23.5 Additions Section 1.1.8, Section 3.7, Chapter 25, Chapter 26, Chapter 27
Jul., 2003	SH (NA)-080118-H	Partial additions Section 2.3
Jun., 2004	SH (NA)-080118-I	Partial corrections Manuals MODEL CODE change Changed from 13JU08 to 1DM185

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

Print Date	* Manual Number	Revision
Jan., 2006	SH (NA)-080118-J	Partial corrections Section 9.1.2 Partial additions Section 6.3.2

Japanese Manual Version SH-080113-K

INTRODUCTION

Thank you for choosing the Mitsubishi Graphic Operation Terminal.
Please read this manual carefully so that equipment is used to its optimum.

CONTENTS

SYSTEM MONITOR FUNCTION

SPECIAL MODULE MONITOR FUNCTION

NETWORK MONITOR FUNCTION

LIST EDITOR FUNCTION

SERVO AMPLIFIER MONITOR FUNCTION

About Manuals

The following manuals are relevant to this product.
Refer to the following list and order the required manuals.

- Detailed manuals

Manual name	Manual number (Model code)
A985GOT/A975GOT/A970GOT/A960GOT User's Manual Explains the specifications, general system configuration, component devices, part names, option unit loading methods, installation and wiring methods, maintenance and inspection methods, and error codes of A985GOT/A975GOT/A970GOT/A960GOT unit. (Available as option)	SH-4005 (1DM099)
A950GOT/A951GOT/A953GOT/A956GOT User's Manual Explains the specifications, general system configuration, component devices, part names, option unit loading methods, installation and wiring methods, maintenance and inspection methods, and error codes of A950GOT/A951GOT/A953GOT/A956GOT unit. (Available as option)	SH-080018 (1DM103)

- Relevant Manuals

For relevant manual, refer to the PDF manual stored within the drawing software.

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Abbreviations and generic terms in this manual

Abbreviations, generic terms and special terms used in this manual are described as follows:

Abbreviations, generic terms and special terms		Description
GOT	A985GOT-V	Generic term of A985GOT-TBA-V and A985GOT-TBD-V
	A985GOT	Generic term of A985GOT-TBA, A985GOT-TBD and A985GOT-TBA-EU
	A975GOT	Generic term of A975GOT-TBA-B, A975GOT-TBD-B, A975GOT-TBA, A975GOT-TBD and A975GOT-TBA-EU
	A970GOT	Generic term of A970GOT-TBA-B A970GOT-TBD-B, A970GOT-TBA, A970GOT-TBD, A970GOT-SBA, A970GOT-SBD, A970GOT-LBA, A970GOT-LBD, A970GOT-TBA-EU and A970GOT-SBA-EU
	A97*GOT	Generic term of A975GOT and A970GOT
	A960GOT	Generic term of A960GOT-EBA, A960GOT-EBD and A960GOT-EBA-EU
	A956GOT	Generic term of A956GOT-TBD, A956GOT-SBD, A956GOT-LBD, A956GOT-TBD-M3, A956GOT-SBD-M3 and A956GOT-LBD-M3
	A956WGOT	Generic term of A956WGOT-TBD
	A953GOT	Generic term of A953GOT-TBD, A953GOT-SBD, A953GOT-LBD, A953GOT-TBD-M3, A953GOT-SBD-M3 and A953GOT-LBD-M3
	A951GOT	Generic term of A951GOT-TBD, A951GOT-SBD, A951GOT-LBD, A951GOT-TBD-M3, A951GOT-SBD-M3 and A951GOT-LBD-M3
	A951GOT-Q	Generic term of A951GOT-QTBD, A951GOT-QSBD, A951GOT-QLBD, A951GOT-QTBD-M3, A951GOT-QSBD-M3 and A951GOT-QLBD-M3
	A950GOT	Generic term of A950GOT-TBD, A950GOT-SBD, A950GOT-LBD, A950GOT-TBD-M3, A950GOT-SBD-M3 and A950GOT-LBD-M3
	A950 handy GOT	Generic term of A953GOT-SBD-M3-H, A953GOT-LBD-M3-H, A950GOT-SBD-M3-H and A950GOT-LBD-M3-H
	A95*GOT	Generic term of A956GOT, A953GOT, A951GOT, A951GOT-Q, A950GOT and A950 handy GOT
Communica-tion board	Bus connection board	Generic term of A9GT-QBUSS, A9GT-QBUS2S, A9GT-BUSS and A9GT-BUS2S
	Serial communication board	Generic term of A9GT-RS4, A9GT-RS2 and A9GT-RS2T
Communica-tion unit	Bus connection unit	Generic term of A9GT-QBUS2SU, A9GT-BUS2SU, A9GT-BUS2SU, A7GT-BUSS and A7GT-BUS2S
	Data link unit	Generic term of A7GT-J71AP23, A7GT-J71AR23 and A7GT-J71AT23B
	Network unit	Generic term of A7GT-J71LP23 and A7GT-J71BR13
	CC-Link communication unit	Generic term of A8GT-J61BT13 and A8GT-J61BT15
	Ethernet unit	Generic term of A9GT-J71E71-T
Option	Protection sheet	Abbreviation of A9GT-80PSC, A9GT-70PSC, A9GT-60PSC and A9GT-50PSC type transparent protection sheets
	Backlight	Abbreviation of A9GT-80LTT, A9GT-70LTTB, A9GT-70LTT, A9GT-70LTS and A9GT-50LT type backlights
	Debug stand	Abbreviation of A9GT-80STAND, A9GT-70STAND and A9GT-50STAND type debug stand
	PC card (memory card)	Abbreviation of PC card with PCMCIA Ver.2.1
	Flash PC card	Generic term of A9GTMEM-10MF, A9GTMEM-20MF and A9GTMEM-40MF
	Compact flash PC card	Compact flash PC card compliant with Compact FlashTM
	Memory board	Abbreviation of A9GT-FNB, A9GT-FNB1M, A9GT-FNB2M, A9GT-FNB4M, A9GT-FNB8M, A9GT-QFNB, A9GT-QFNB4M, A9GT-QFNB8M type option function memory board
	Attachment	Generic term of A77GT-96ATT/A85GT-95ATT/A87GT-96ATT/A87GT-97ATT attachments
	Ten-key Panel	Abbreviation of A8GT-TK ten-key Panel
	A7GT-CNB	Abbreviation of A7GT-CNB bus connector conversion box
	A9GT-QCNB	Abbreviation of A9GT-QCNB bus connector conversion box
Option unit	External I/O unit	Abbreviation of A9GT-70KBF and A8GT-50KBF type external I/O interface unit
	Printer interface unit	Abbreviation of A9GT-50PRF type printer interface unit
	Memory card interface unit	Abbreviation of A1SD59J-MIF memory card interface unit
	Video/RGB mixed input interface unit	Abbreviation of A9GT-80V4R1 type Video/RGB mixed input interface unit
	Video input interface unit	Abbreviation of A9GT-80V4 type Video input interface unit
	RGB input interface unit	Abbreviation of A9GT-80R1 type RGB input interface unit
Software	GT Works Version 5	Abbreviation of SW5D5C-GTWORKS-E software
	GT Designer Version 5	Generic term of SW5D5C-GOTR-PACKE software package and SW5D5C-GOTR-PACKEV software package
	GT Designer	Abbreviation of image creation software GT Designer for GOT900
	GT Simulator	Abbreviation of GT Simulator screen simulator GOT900
	GT Converter	Abbreviation of data conversion software GT Converter for GOT900
	GT Debugger	Abbreviation of debugging software GT Debugger
	GT Manager	Abbreviation of GT Manager data editing software for GOT900
	GT SoftGOT	Abbreviation of GT SoftGOT monitoring software
	GX Developer	Generic term of SW□D5C-GPPW-E/SW□D5F-GPPW-E software packages
	GX Simulator	Generic term of SW□D5C-LLT-E ladder logic test tool function software packages (SW5D5C-LLT-E or later)

Abbreviations, generic terms and special terms		Description
CPU	QCPU (Q Mode)	Generic term of Q00JCPU, Q00CPU, Q01CPU,Q02CPU, Q02HCPU, Q06HCPU, Q12HCPU, Q25HCPU, Q12PHCPU and Q25PHCPU CPU units
	QCPU (A Mode)	Generic term of Q02CPU-A, Q02HCPU-A and Q06HCPU-A CPU units
	QCPU	Generic term of QCPU (Q Mode) and QCPU (A Mode)
	QnACPU (Large Type)	Generic term of Q2ACPU, Q2ACPU-S1, Q3ACPU, Q4ACPU and Q4ARCPU CPU units
	QnACPU (Small Type)	Generic term of Q2ASCPU, Q2ASCPU-S1, Q2ASHCPU and Q2ASHCPU-S1 CPU units
	QnACPU	Generic term of QnACPU (Large Type) and QnACPU (Small Type)
	AnUCPU	Generic term of A2UCPU, A2UCPU-S1, A3UCPU and A4UCPU CPU units
	AnACPU	Generic term of A2ACPU, A2ACPU-S1 and A3ACPU CPU units
	AnNCPU	Generic term of A1NCPU, A2NCPU, A2NCPU-S1 and A3NCPU CPU units
	ACPU (Large Type)	Generic term of AnUCPU, AnACPU and AnNCPU CPU units
	A2US(H)CPU	Generic term of A2USCPU, A2USCPU-S1 and A2USHCPU-S1 CPU units
	AnS(H)CPU	Generic term of A1SCPU, A1SHCPU, A2SCPU and A2SHCPU CPU units
	A1SJ(H)CPU	Generic term of A1SJCPU-S3 and A1SJHCPU CPU units
	ACPU (Small Type)	Generic term of A2US(H)CPU, AnS(H)CPU and A1SJ(H)CPU CPU units
	ACPU	Generic term of ACPU (Large Type), ACPU (Small Type) and A1FXCPU CPU units
	FXCPU	Generic term of FX0 series, FX0N series, FX0S series, FX1 series, FX1N series, FX1S series, FX2 series , FX2C series, FX2N series, FXINS series and FX2NC series CPU unit
	Motion controller CPU	Generic term of A273UCPU, A273UHCPU, A273UHCPU-S3, A171SCPU-S3, A171SHCPU, A172SHCPU, Q172CPU, Q173CPU CPU unit
	FA controller	Generic term of LM610, LM7600, LM8000 CPU unit
Peripheral connection unit	G4	Abbreviation of AJ65BT-G4-S3
Ethernet unit	E71	Generic term of AJ71E71-S3, A1SJ71E71-B2-S3, A1SJ71E71-B5-S3, AJ71E71N-B2, AJ71E71N-B5T, A1SJ71E71N-B2 and A1SJ71E71N-B5T
	QE71	Generic term of AJ71QE71, A1SJ71QE71-B2, AJ71QE71-B5, A1SJ71QE71-B5, AJ71QE71N-B2, AJ71QE71N-B5T, A1SJ71QE71N-B2 and A1SJ71QE71N-B5T
	Q series-compatible E71	Generic term of QJ71E71, QJ71E71-B2 and QJ71E71-100
Other PLC	Omron PLC	Generic term of C200HS, C200H, C200Hα series(C200HX, C200HG, C200HE), CQM1, C1000H,C2000H,CV500, CV1000, CV2000, CVM1-CPU11, CVM1-CPU21, CS1, CJ1 CPU unit
	Yasukawa PLC	Generic term of GL60S, GL60H, GL70H, GL120, GL130, CP-9200SH, CP-9300MS, MP-920, MP-930, MP-940, CP-9200(H) and PROGIC-8 CPU unit
	SLC500 Series	Generic term of SLC500-20, SLC500-30, SLC500-40, SLC5/01 SLC5/02, SLC5/03, SLC5/04 SLC5/05
	MicroLogix1000 Series	Generic term of 1761-L10BWA, 1761-L10BWB, 1761-L16AWA, 1761-L16BWA, 1761-L16BWB, 1761-L16BBB, 1761-L32AWA, 1761-L32BWA, 1761-L32BWB, 1761-L32BBB, 1761-L32AAA, 1761-L20AWA-5A, 1761-L20BWA-5A, 1761-L20BWB-5A
	MicroLogix1500 Series	Abbreviation of 1764-LSP
	Allen-Bradley PLC	Generic term of SLC 500 Series, MicroLogix1000 Series, MicroLogix1500 Series
	Sharp PLC	Generic term of JW-21CU, JW-22CU, JW-31CUH, JW-32CUH, JW-33CUH, JW-50CUH, JW-70CUH, JW-100CUH CPU unit
	PROSEC T Series	Generic term of T2(PU224 type), T2E, T2N, T3, T3H CPU unit
	PROSEC V Series	Abbreviation of Model3000(S3) CPU unit
	Toshiba PLC	Generic term of PROSEC T Series and PROSEC V Series
	SIEMENS PLC	Generic term of SIMATIC S7-300 Series and SIMATIC S7-400 Series CPU unit
	Large type H series	Generic term of H-302(CPU2-03H), H-702(CPU2-07H), H-1002(CPU2-10H), H-2002(CPU2-20H), H-4010(CPU3-40H),.J-300(CPU-03Ha), H-700(CPU-07Ha), H-2000(CPU-20Ha)
	H200 to 252 Series	Generic term of H-200(CPU-02H, CPE-02H), H-250(CPU21-02H), H-252(CPU22-02H), H-252B(CPU22-02HB), H-252C(CPU22-02HC, CPE22-02HC)
	H Series board type	Generic term of H-20DR, H-28DR, H-40DR, H-64DR, H-20DT, H-28DT, H-40DT, H-64DT, HL-40DR, HL-64DR
	EH-150 Series	Generic term of EH-CPU104, EH-CPU208, EH-CPU308, EH-CPU316
	HITACHI PLC (HIDIC H Series)	Generic term of large type H series,H-200 to 252 Series H Series board type, EH-150 Series
	Matsushita Electric Works PLC	Generic term of FP0-C16CT, FP0-C32CT, FP1-C24C, FP1-C40C, FP2, FP3, FP5, FP10(S), FP10SH, FP-M(C20TC) and FP-M(C32TC)
Others	Memory	abbreviation of memory (flash memory) in the GOT
	OS	Abbreviation of GOT system software
	Object	Setting data for dynamic image
	Personal Computer	Personal computer where the corresponding software package is installed
	Servo amplifier	Generic term of the MR-J2S-□A, MR-J2S-□CP and MR-J2M A series

* In this manual, the following products are called by new names.

Old Name	New Name	Remarks
GPPW	GX Developer	Generic term of SW□D5C-GPPW-E/SW□D5F-GPPW-E software packages

MEMO

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CHAPTER1 OVERVIEW

This manual that can be used on a GOT with an operating system installed. These functions include the utility function, ladder monitor function, system monitor function, special module monitor function, network monitor function, list editor function, motion monitor function and servo amplifier monitor function.

POINT
Note that some functions cannot be performed depending on the used GOT and the target CPU/connection form. Refer to Chapter 2 for more information on the functions available for each GOT and the restrictions on the functions per target CPU and connection form.

1.1 Features

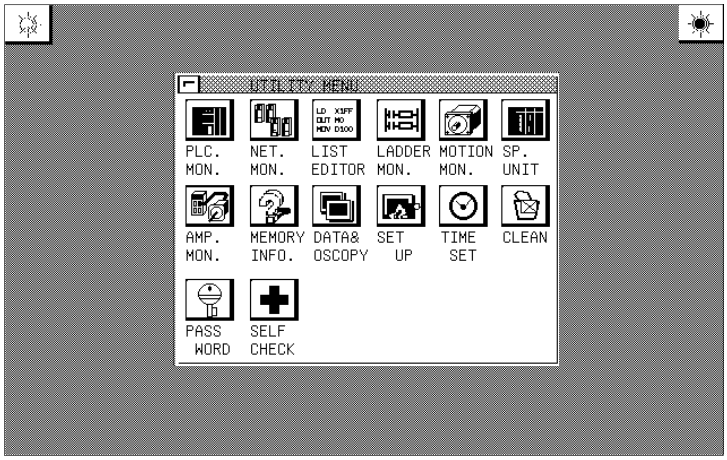
The monitor functions described in this manual are intended to improve the efficiency of trouble-shooting and maintenance operations for the PLC system.
The features of each monitor function are explained in the following sections.

1.1.1 Features of the utility function

The utility function enables you to use GOT setup and self-tests. To use the utility function, you need to install an operating system for the utility function on the GOT built-in internal memory by using GT Designer. The features of the utility function are shown below.

POINT
Some of the utility functions cannot be used with GT SoftGOT. Refer to the GT SoftGOT Version 5 Operating Manual for the utility functions available for GT SoftGOT.

(1) The brightness of a monitor screen can be adjusted (see Section 4.3 for details).



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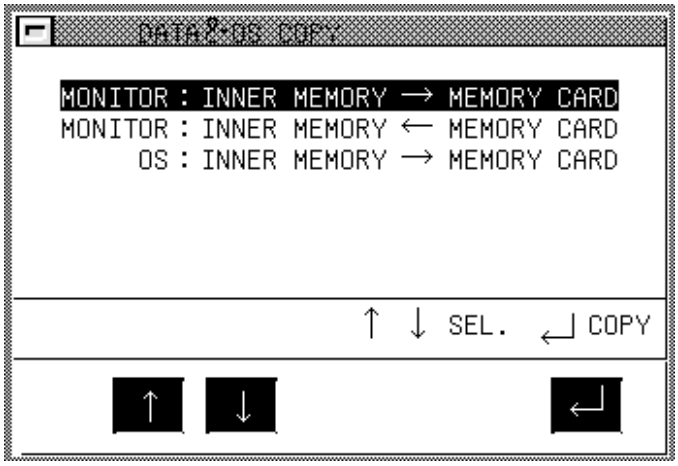
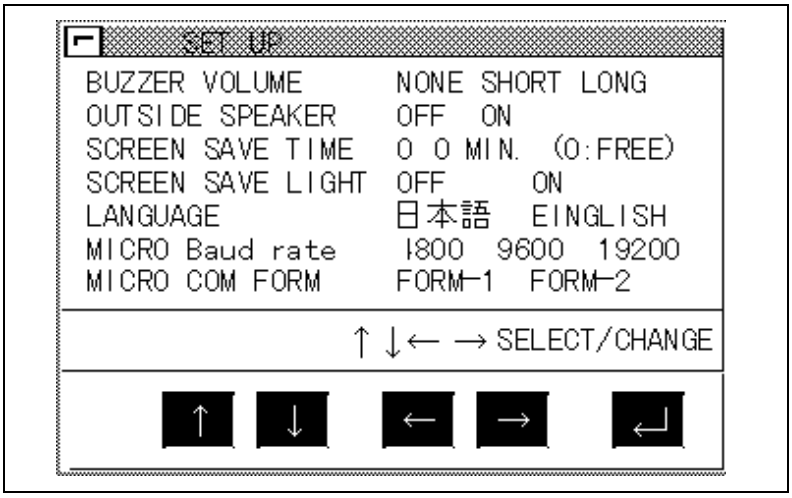
(2) The screen and OS data can be copied between the internal memory and memory card (see Section 4.4 for details).



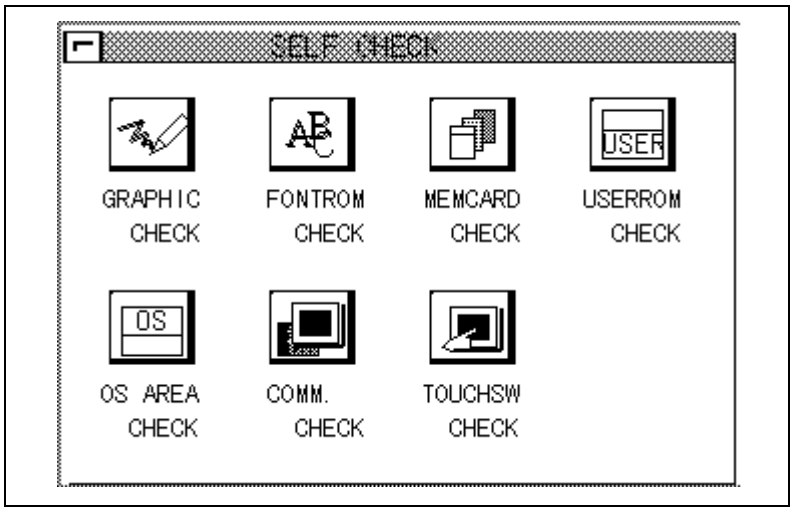
The data monitored can be copied to and from the GOT built-in internal memory or a memory card installed on the GOT.
The OS data can only be copied from the GOT to the memory card.

(3) Setting a use environment of the GOT (see Section 4.5 for details).



You can set the operating environment of the GOT such as the beep sound, message display language and screen saver's idle time. When using the A985GOT, you can also make settings on the Human sensor.

(4) Running diagnostic checks on GOT hardware (see Section 4.6).



You can run diagnostic checks on the GOT hardware, including the image check, font check, memory card check and so on.

(5) Other functions (see Section 4.7 for details)

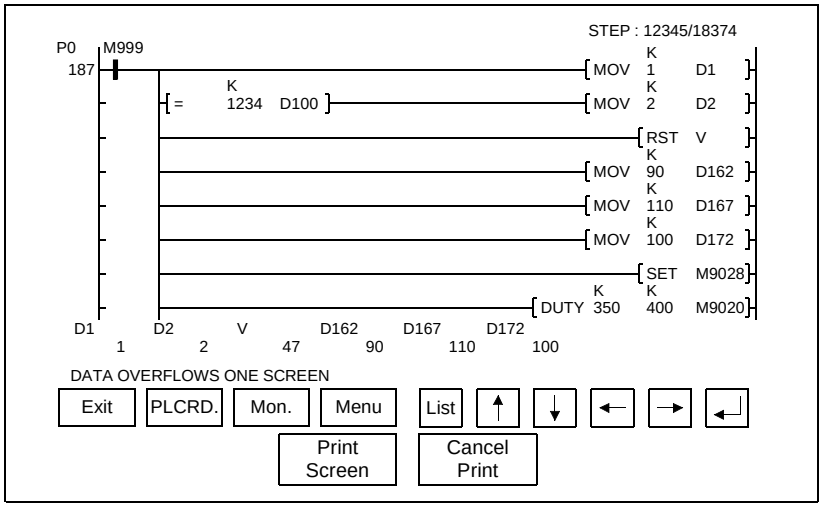
- Displaying data on available space in the GOT internal memory.
- Adjusting the clock of the PLC CPU.
- Displaying the display area cleanup screen.
- Changing security levels.
- Limiting access to the Utility Menu screen.

1.1.2 Features of the ladder monitor function

Installing the ladder monitor function operating system into the GOT built-in memory using the GT Designer enables ladder monitoring of the PLC CPU program as shown in a ladder diagram. The features of the ladder monitor function are shown below.

(1) Monitoring based on ladder symbols (see Section 6.3 for details)

(Sample display) Ladder monitor screen



REMARK

The Print Screen and Cancel Print buttons are not displayed on the A956WGOT or the GOT whose display screen type is the EL.

(1) Ladder monitor screen

A maximum of 8 lines (max. 11 contact points per line; with 12 contact points or more, the line returns) of a sequence program are displayed on one screen. Also, for the current values and other settings of word devices, a maximum of 8 devices are displayed (With 9 devices or more, use the arrow keys to switch displays.).

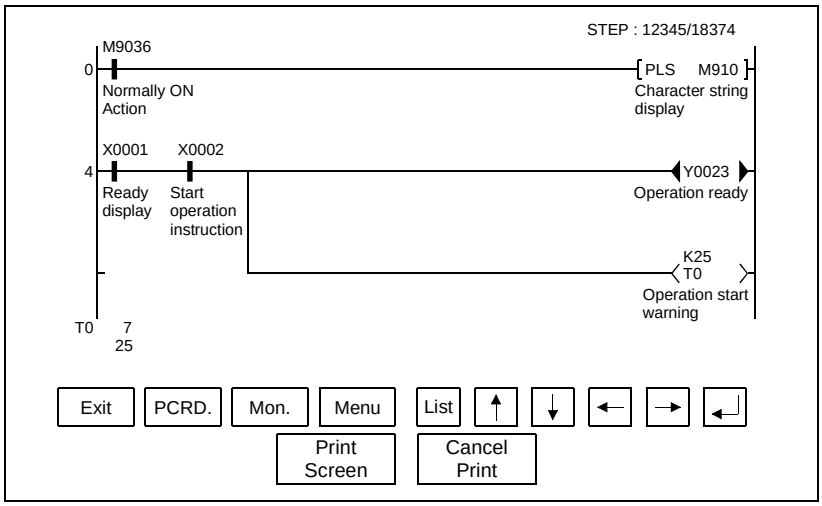
REMARK

Depending on the GOT model, a display is provided on the MELSEC-Q ladder monitor screen as indicated below.

- A985GOT(-V): Max. 15 lines displayed (1 line: Max. 11 contacts)
- A956WGOT: Max. 5 lines displayed (1 line: Max. 7 contacts)

(2) The display format can be changed to show comments for devices (see Section 6.2.2 for details).

(Sample display) Ladder monitor screen



1) Switching the display format

The current values monitor of the word devices at the bottom of the screen are executed in decimal or hexadecimal format.

2) Displaying device comments

Comments of for the device used in the PLC program (comments that are written into the PLC CPU) are displayed.

(3) Monitoring other stations

Other stations in data link systems, network system or CC-Link system, including the GOT (or stations connected to the GOT), can be monitored.

1.1.3 Features of the system monitor function

Installing the screen monitor function operating system into the GOT built-in memory using the GT Designer enables monitoring and testing of the buffer memory for the PLC CPU program and the special functions module. The features of the system monitor function are shown below.

(1) Any desired device can be monitored, using 4 dedicated screens
The system monitor function provides an entry monitor, a batch monitor, and a buffer memory monitor, enabling monitoring of any device, for complete flexibility in any application.

Entry monitor

DEVICE MONITOR	TEST	MENU	FORM	SET
NETWK No. [0]	STATION[FF]			
D 15	-2147483648	DW		
D 10	-32767			
X 001	●			
M 25	○			
Y 70	●			
W 200	43			
R 50	68378428	DW		
D 300	30000			

- Up to 8 points for a PLC CPU device registered by the user can be monitored in one window (see Section 9.2).

Batch monitor

BATCH MONITOR	TEST	MENU	FORM	SET
NETWK No. [0]	STATION[FF]			
D 10	32767	D 18	-500	
D 11	0	D 19	3234	
D 12	0	D 20	0	
D 13	-1	D 21	0	
D 14	0	D 22	0	
D 15	3	D 23	-32768	
D 16	0	D 24	0	
D 17	0	D 25	0	

- Up to 16 points subsequent to a PLC CPU device specified by the user can be monitored in one window (see Section 9.3).

T/C monitor

TC MONITOR	TEST	MENU	FORM	SET
NETWK No. [0]	STATION[FF]			
T 0 PV	0 SV	0		
[Production line A]				
T 1 PV	0 SV	0		
[Production line B]				
T 2 PV	150 SV	150		
[Production line C]				
T 3 PV	0 SV	0		
[Production line D]				

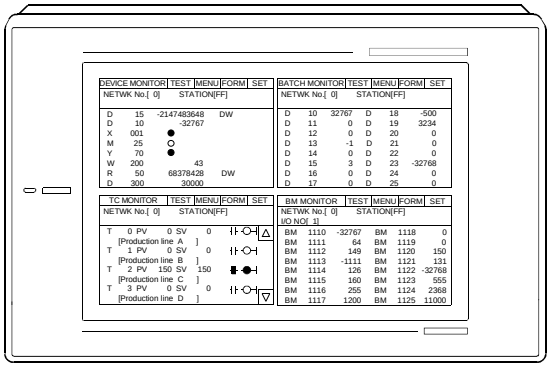
- Up to 8 points, including the current value, set value, contact point, and coil can be monitored in a window subsequent to a PLC CPU timer (T)/counter (C) specified by the user (see Section 9.4).

Buffer memory monitor

BM MONITOR	TEST	MENU	FORM	SET
NETWK No. [0] I/O NO[1]	STATION[FF]			
BM 1110	-32767	BM 1118	0	
BM 1111	64	BM 1119	0	
BM 1112	149	BM 1120	150	
BM 1113	-1111	BM 1121	131	
BM 1114	126	BM 1122	-32768	
BM 1115	160	BM 1123	555	
BM 1116	255	BM 1124	2368	
BM 1117	1200	BM 1125	11000	

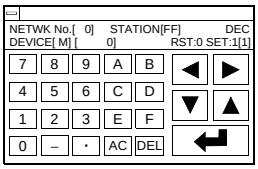
- Up to 16 points subsequent to the buffer memory of a special function module specified by the user can be monitored in one window (see Section 9.5).

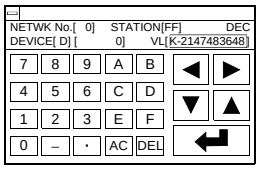
- With the GOT, the full screen can be divided into four windows and separate monitoring carried out in all four windows simultaneously.



(2) Data can be changed by test operation (see Section 9.6 for details).

(Test sample) When M0 is on When changing D0 present value

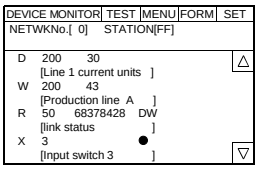


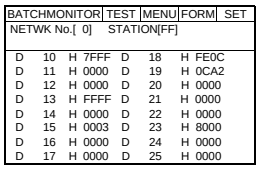


1) Test for bit device
   Device specified by user is turned on or off.
2) Test for word device
   Writes designated value into device specified by user.
3) Test for timer/counter
   Writes in designated value as current value or set values of device specified by user.
4) Test for buffer memory
   Writes designated value into buffer memory specified by user.

(3) Display format can be changed and device comments can be displayed (see Section 9.1.2 for details).

(Sample display) For entry monitor (comment display) For batch monitor (hexadecimal display)





1) Changing display format
   The word device values for the entry monitor, batch monitor, T/C monitor, and the buffer memory monitor are monitored in decimal or hexadecimal format.
2) Device comment display
   When the PLC CPU device is monitored, the comments written into the PLC CPU are displayed.

(4) Other stations can be monitored.
   Other stations in data link systems, network systems or CC-Link systems, including the GOT (or stations connected to the GOT), can be monitored.

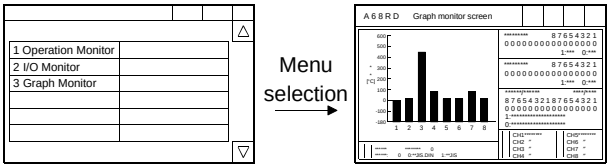
1.1.4 Features of the special module monitor function

Installing (or downloading) the special module monitor function operating system and special module monitor data into the GOT built-in memory using the GT Designer enables monitoring and changing of data in the special function module buffer memory, using dedicated screens.
Signal statuses of I/O modules can also be monitored.
The features of the special module monitor function are shown below.

(1) Monitoring can be done with dedicated screens (see Section 12.2 for details).
Monitoring is carried out using dedicated screens provided by the manufacturer for the special function module and I/O module.
It is not necessary for the user to create monitor screens.

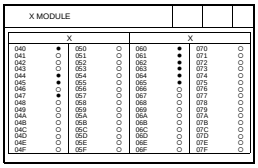
(Sample display 1: for special function module)

Menu screen after module selection　　Monitor screen after menu selection



(Sample display 2: for I/O module)

Monitor screen



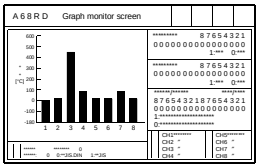
1) Menu screen
The menu is displayed classified into monitor items for the special function module only.
The object monitor screen is displayed by selecting the item from the menu.

2) Monitor screen
With the special function module, the buffer memory contents and the status of the PLC CPU I/O signals are monitored using text, numbers, and graphs.
With the I/O module, the status of I/O signals to and from an external module is monitored.

(2) Data can be changed by writing (see Section 12.1.5. for details).

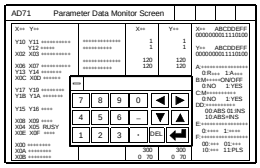
(Writing example)

Monitor screen



Menu selection

When changing channel that can be changed



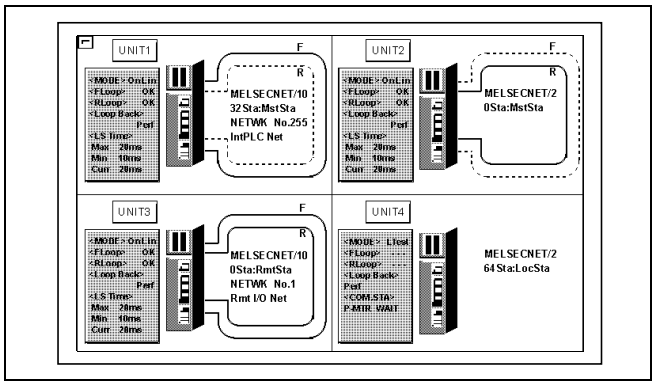
1) The designated values are written into the user-specified buffer memory by writing the values from the monitor.
2) When changing the buffer memory data, input the numeric value using the auto display key window and write it into the buffer memory.

(3) Special module monitor data can be allocated as user monitor screen data.
The special module monitor data installed in the computer can be allocated to serve as user monitor screen data. To do this, the steps below are required.
1) Using the Copy function, allocate special module monitor data from another project as user monitor screen data.
2) Correct the data to match the system used for the BM initial buffer memory number of the Object function which has been set.

1.1.5 Features of the network monitor function

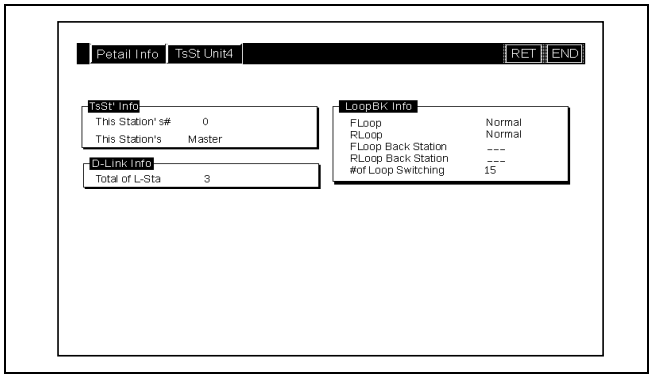
To use the network monitor function, you first must install an operating system (OS) for the network monitor function on your GOT by using GT Designer. This enables you to monitor the status of the MELSECNET/B, MELSECNET (II), and MELSECNET/10 networks. The following describes the features of the network monitor function.

(1) Network monitor screens are selectable on the own station monitor screen to monitor the own station and other stations on a network.
The own station monitor screen enables you to monitor the status of all the network lines connected to the own station.
A touch of the screen will guide you through various monitor screens to monitor the status of the own station and other stations on a network.



(2) Network information can be obtained from the own station monitor screen.
Dedicated monitor screens are available for each category of station classification, depending on the role that is played by the own station.
Network category: MELSECNET/B, MELSECNET (II) master station
MELSECNET/B, MELSECNET (II) local station
MELSECNET/10 control station/ordinary station
MELSECNET/10 remote master station

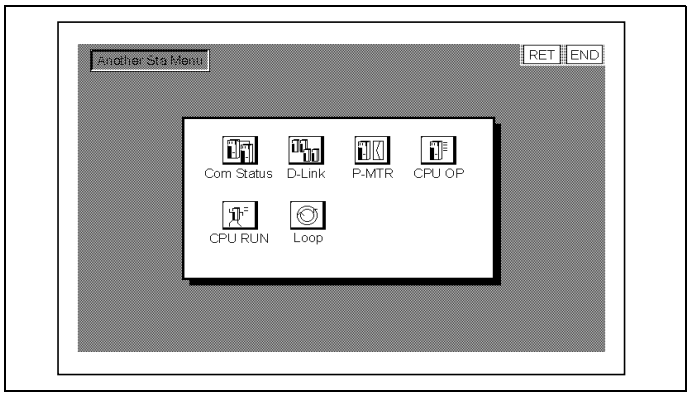
(Sample display) MELSECNET/B, MELSECNET (II) master station



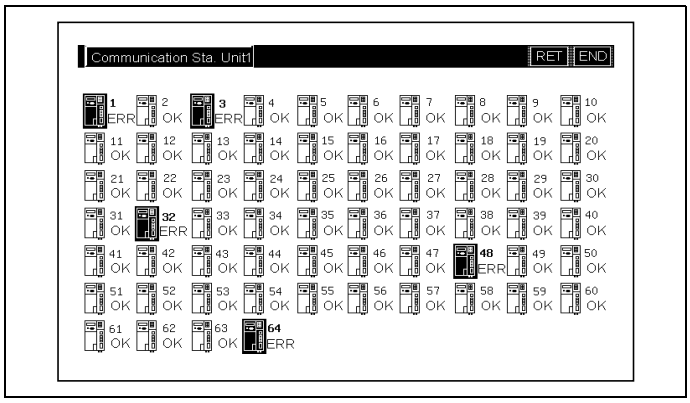
(3) The status of other stations can be monitored on the other-station monitor screen.
The other-station monitor screen provides the following type of information on the status of other stations connected on a network:

- Communications status of each station
- Data link status of each station
- Parameters status of each station
- CPU action status of each station
- CPU RUN status of each station
- Loop status of each station

(Sample display) Other station monitor menu screen



Other station's communications status monitor screen

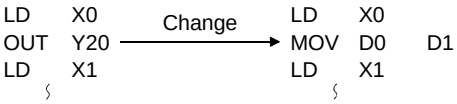


1.1.6 Features of the List editor function

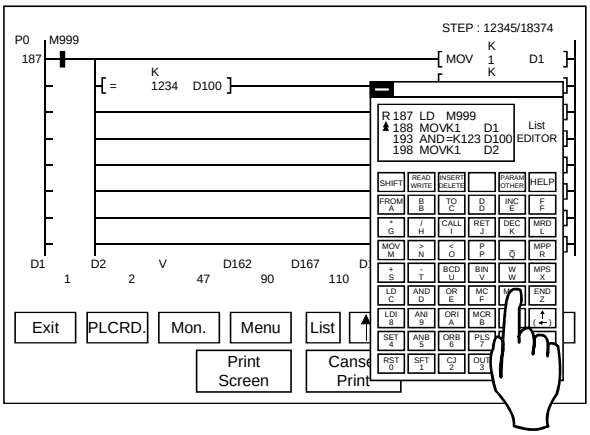
Installation of the List editor function OS into the memory with the GT Designer allows for list edit of the sequence program in the ACPU.
The following shows features of the List editor function.

(1) Easy parameters and sequence program maintenance
Simple key operations allow checks, partial modifications, changes and additions of the parameters and the sequence program in the PLC CPU.
Without peripheral equipment other than the GOT, the sequence program can be simply edited.

Example of command change in the sequence program



(2) Interlock with the ladder monitor function (only when A985/97*/960GOT is used)
The list edit window can be started from the ladder monitor screen with a single touch. The list can be edited while viewing the ladder.
The list can also be displayed from the step line displayed on the ladder monitor.

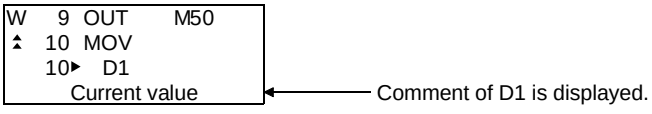


(3) The list edit screen can be recorded.
The hard copy function allows recording the edit screen of the list program.

(4) Access to other station is available.
The sequence program of the PLC CPU in other station can be list edited.

(5) Useful help functions
Help functions for read, write, insert and delete are available on the interactive menu selection system. Simple operation is facilitated.

(6) Comment for each device can be displayed.
Comment of the device at the cursor position can be displayed.



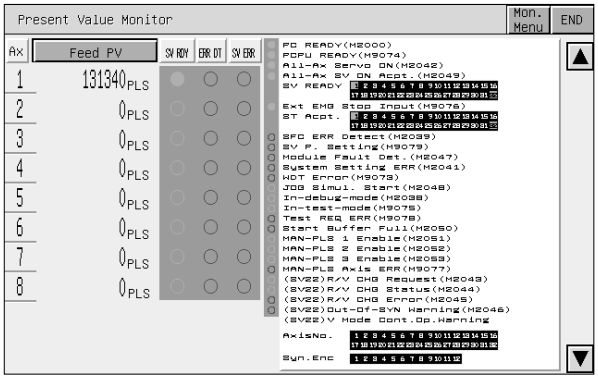
1.1.7 Features of the motion monitor function

Installation of the motion monitor function OS or downloading of motion monitor data into the built-in memory of the GOT using GT Designer enables the servo monitoring and parameter setting of the motion controller CPU (Q172CPU, Q173CPU).
The following are the features of the motion monitor function.

(1) Various servo monitor data can be displayed on multiple monitor screens (refer to Section 23.3 for details)
The motion monitor function has multiple monitor screens, on which you can monitor servo data in a variety of patterns.

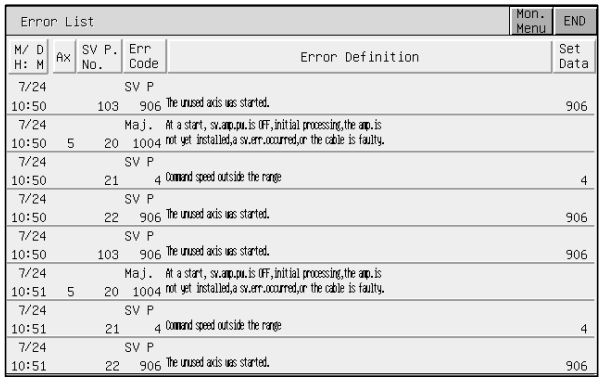
(Display examples)

Present Value Monitor



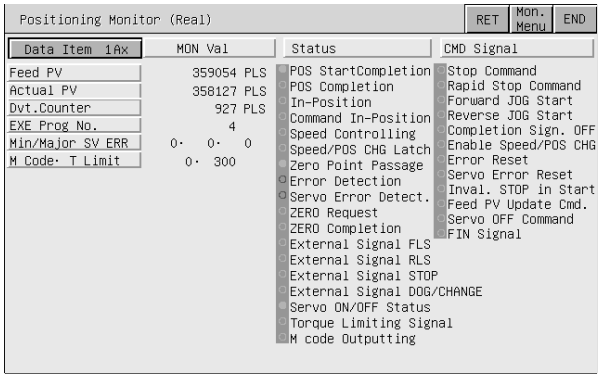
- Monitors and displays the feed current values and actual current values of all running axes. (Refer to Section 23.3.3)

Error List



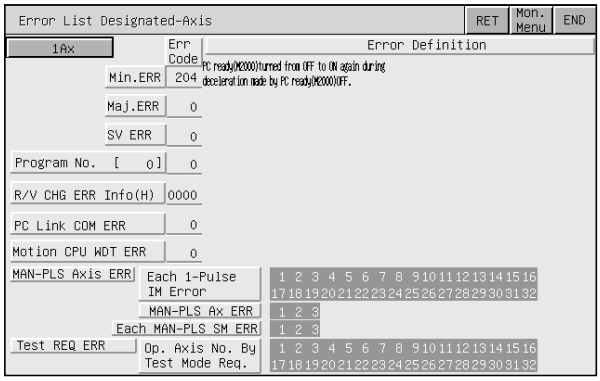
- Displays the history of errors that occurred on and after the leading edge of PLC ready (M2000). (Refer to Section 23.3.3)

Positioning Monitor



- Monitors the details of the positioning data set to any axis. (Refer to Section 23.3.5)

Error List Designated-Axis

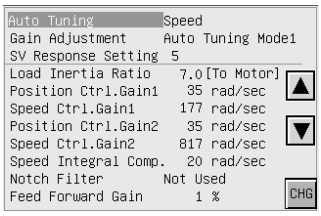


- Displays the latest errors that occurred on the specified axis. (Refer to Section 23.3.4)

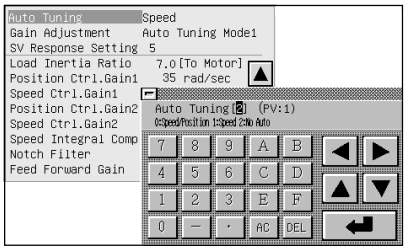
(2) Servo parameters can be set by write operation (refer to Section 23.4 for details)

(Write example: Making the auto tuning function invalid)

Parameter setting screen

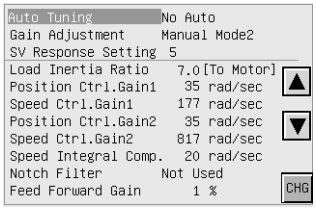


Parameter setting window appears



Change auto tuning from "1" to "2" (No Auto).

Parameter setting screen



Parameter setting is changed.

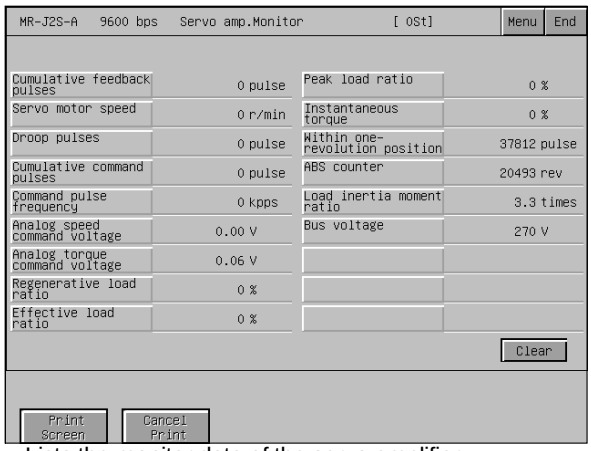
1) By performing write operation from the parameter setting screen, write the servo parameter setting (basic parameters/adjustment parameters) to the motion controller CPU.
2) When changing any servo parameter setting, enter the necessary numeral or option number from the automatically displayed key window to change the servo parameter setting, and write it to the motion controller CPU.

1.1.8 Features of the servo amplifier monitor functions

You can perform various monitor functions, parameter setting changes, test operations and others for the servo amplifier connected to the GOT.
The features of the servo amplifier monitor functions are described below.

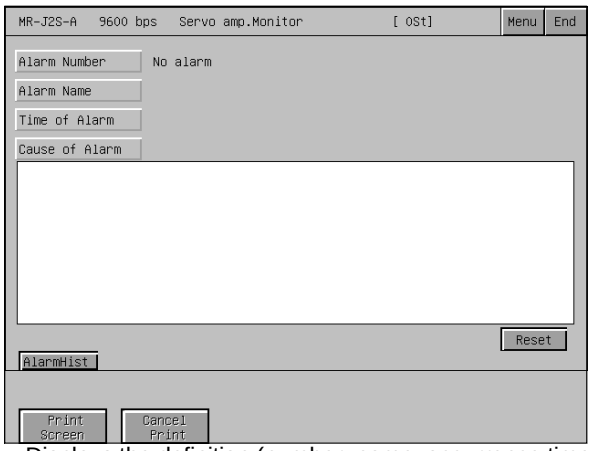
(1) Servo amplifier status is displayed in real time
(detailed description: Section 26.4, Section 26.5)
The status and alarm definition of the servo amplifier connected to the GOT can be listed in real time.
(Display example: A975GOT)

Monitor



- Lists the monitor data of the servo amplifier. (Refer to Section 26.4.1.)

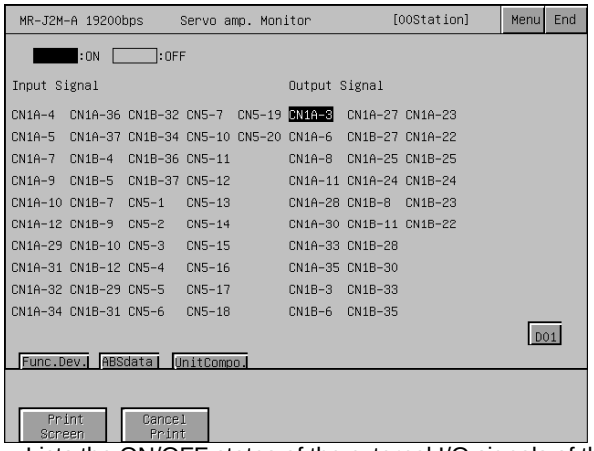
Alarm display



- Displays the definition (number, name, occurrence time, occurrence factor) of the alarm currently occurring in the servo amplifier.
  It also allows the alarm to be reset. (Refer to Section 26.5.1.)

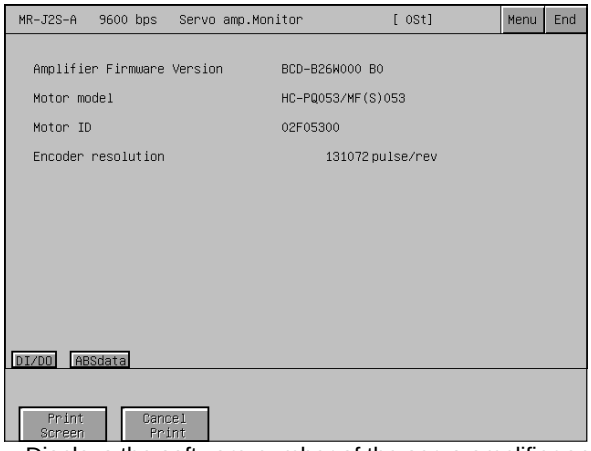
(2) Various diagnostics can be run on the servo amplifier
(detailed description: Section 26.6)
There are multiple diagnostic functions to run various diagnostics on the connected servo amplifier.
(Display example)

DI/DO display



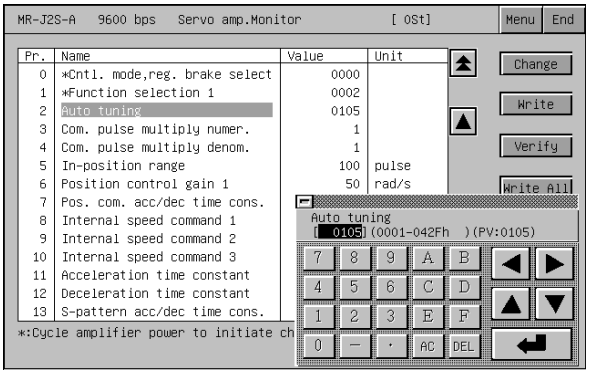
- Lists the ON/OFF states of the external I/O signals of the servo amplifier. (Refer to Section 26.6.1.)

Amplifier information display



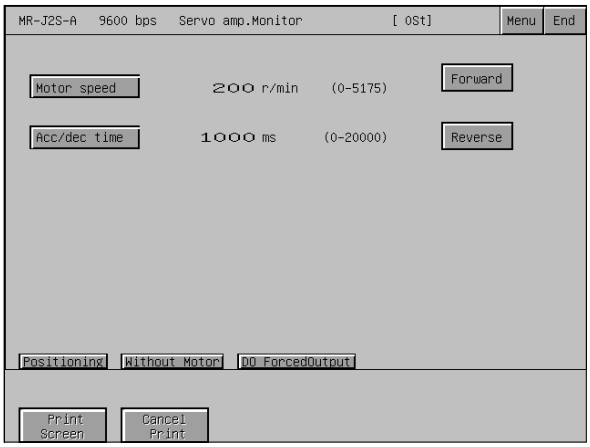
- Displays the software number of the servo amplifier and the information (model, ID, encoder resolution) of the servo motor.
  (Refer to Section 26.6.3.)

(3) Servo parameters can be written (detailed description: Section 26.7)
The parameter values of the servo amplifier can be read, changed and written to the servo amplifier.



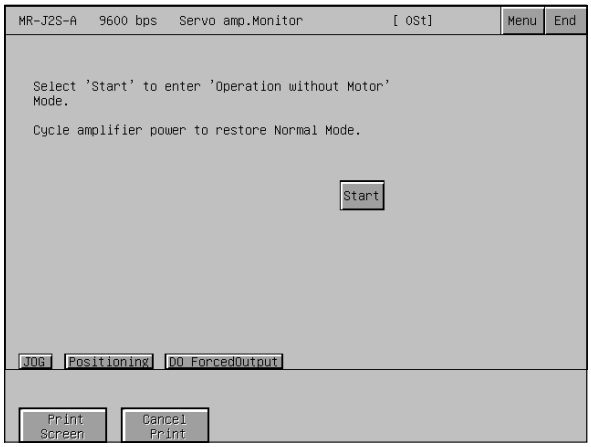
(4) Various test operations can be performed (detailed description: Section 26.8)
Various test operations can be performed for the connected servo amplifier.
(Display example)

JOG operation



- While the Forward/Reverse key is touched, the servo amplifier runs. (Refer to Section 26.8.3.)

Motorless operation



- Simulates the operation of the servo motor in the servo amplifier if the servo motor is not connected. (Refer to Section 26.8.5.)

CHAPTER2 BEFORE BEGINNING OPERATION

The required equipment for using the monitor functions in this manual are described in this section.

2.1 Before getting started with various functions

To use in this manual, such as the utility function, ladder monitor function, system monitor function, special module monitor function, network monitor function,motion monitor function and servo amplifier monitor function, an operating system (OS) for each function must be installed first on your GOT by using GT Designer.
To install an OS for your desired function on your GOT, see GT Works Version5/GT Designer Version5 Reference Manual.

2.2 Required equipment

The chart below shows the equipment required for using the monitor functions.

○: Required ×: Not required

Required equipment	Application		Utility function	Ladder monitor function	System monitor function	Special function module monitor function	Network monitor function	List editor function	Motion monitor function	Servo amplifier monitor function
GOT main unit (A95*GOT-*BD-M3)	• It is required to use the option function installed on the A95*GOT.		×	×	×	×	○	○	○	○
Memory board *1	• Needed to execute the option functions installed in the GOT.	A985/97*/960 GOT		○		○				
		A956WGOT		○*3		×				
PLC GT Designer *2	• Required for installing the object monitor function OS into the GOT and downloading the special module monitor data. • It is necessary to install the GT Designer into the PLC.		○						○	
Connecting cables *2	• Required for connecting the above PLC and the GOT when installing the object monitor function OS into the GOT and downloading the special module monitor data.		○						○	

*1 The table below shows the types of memory boards available for using the option functions. To use the ladder monitor function requires the memory board compatible with the PLC CPU to be monitored.

Name	Model	Contents
Memory board for option functions	A9GT-FNB	For option function (applicable for MELSEC-A/FX ladder monitor)
	A9GT-QFNB	For option function (applicable for MELSEC-Q/QnA/A/FX ladder monitor)
Expanded memory board for option functions	A9GT-FNB1M	Option function (applicable for MELSEC-A/FX ladder monitor) + internal memory extension 1MB
	A9GT-FNB2M	Option function (applicable for MELSEC-A/FX ladder monitor) + internal memory extension 2MB
	A9GT-FNB4M	Option function (applicable for MELSEC-A/FX ladder monitor) + internal memory extension 4MB
	A9GT-FNB8M	Option function (applicable for MELSEC-A/FX ladder monitor) + internal memory extension 8MB
	A9GT-QFNB4M	Option function (applicable for MELSEC-Q/QnA/A/FX ladder monitor) + internal memory extension 4MB
	A9GT-QFNB8M	Option function (applicable for MELSEC-Q/QnA/A/FX ladder monitor) + internal memory extension 8MB

*2 For information about the PLC on which to install and use GT Designer and the cable to be connected between the PLC and the GOT, see GT Works Version5/GT Designer Version5 Reference Manual.

*3 Only MELSEC-Q ladder monitor may be used.

2.3 Precautions before use

Precautions before using each function are described as follows:

(1) There are unavailable functions depending on the GOT.

Function category	Function	A985GOT A97*GOT A960GOT	A956WGOT	A95*GOT	GT SoftGOT
Basic function	Utility function	○	○	○	○
Extension function	System monitor function	○	○	○	×*2
Option function	Ladder monitor function	○ (Memory board required*1)	○ (Memory board required*1, *3)	×	×*2
	Special unit monitor function	○ (Memory board required*1)	×	×	×*2
	Network monitor function	○ (Memory board required*1)	○ (Memory board required*1)	○ (Use A95*GOT-*BD-M3)	×*2
	List editor function	○ (Memory board required*1)	○ (Memory board required*1)	○ (Use A95*GOT-*BD-M3)	×*2
	Motion monitor function	○ (Memory board required*1)	○ (Memory board required*1)	○*4 (Use A95*GOT-*BD-M3)	×
	Servo amplifier monitor function	○ (Memory board required*1)	○ (Memory board required*1)	○*4 (Use A95*GOT-*BD-M3)	×

*1 Refer to Section 2.2 for details of the memory board designed to perform the option functions.
*2 Using GT SoftGOT and GX Developer on the same personal computer enables the equivalent functions to be performed.
*3 Only MELSEC-Q ladder monitor may be used.
*4 Unusable for Present Value History Monitor.

(2) Note that some functions are unavailable depending on the connection target CPU and connection form. There are the following restrictions on each function depending on the connection target CPU and connection form.
Refer to Chapter 2 of the GOT-A900 Series User's Manual (GT Works Version5/GT Designer Version5 compatible Connection System Manual) for the connectable CPU names and the access range for monitoring per connection form.

(a) Connection with QCPU (Q mode)

BT13 : Indicates that the A8GT-J61BT13 is used (intelligent device station).
BT15 : Indicates that the A8GT-J61BT15 is used (remote device station).
G4 : Indicates that the A9GT-RS4 or A9GT-50WRS4 is used (via G4).

○: Usable △: Partly restricted ×: Unusable

Functions			Ref. Section	QCPU(Q Mode)							
				Bus connection	CPU direct connection	Computer link connection	MELSEC NET connection	CC-Link connection			Ethernet connection
								BT13	BT15	G4	
Utility function			Section 4	○			△*1	○	△*2	○	○
Ladder monitor function	Ladder monitor	Sequence program monitoring using ladder signals	Section 6.3.1	○			×	△*6	×	○	○
	Display switching	Decimal and hexadecimal display of word device values	Section 6.3.3								
		Device comment display									
	Device changing	Changing of device values	Section 6.3.4	○			×	△*6	×	○	○
	Print out	Printing of ladder	Section 6.3.5								
System monitor function	Entry monitor	Monitoring of current values by pre-registering monitor devices	Section 9.2	○			×	○	△*3	○	○
	Batch monitor	Monitoring of n points of current values subsequent to specified device	Section 9.3								
	T/C monitor	Monitoring of m points of current values, set values, contact points, and coils subsequent to specified device	Section 9.4	△*9			×	△*4	×	○	○
	BM monitor	Monitoring of x points of current values subsequent to specified buffer memory of specified special module	Section 9.5	△*9			×	○	×	○	○
	Data editing using test operation	Setting/resetting of bit device	Section 9.6	○			×	○	×	○	○
		Changing of current value for buffer memory of word device		○		△*5	×	○	×	○	○
		Changing of current value for T/C (can be used while monitoring T/C)		○			×	○	×	○	○
		Changing of set value for T/C (can be used while monitoring T/C)		○			×	△*6	×	○	○
	Quick test	Changing of device values using quick test	Section 9.6.2	○			×	○			○
	Display switching	Device comment display	Section 9.1.2	○			×	△*6	×	○	○
		Decimal and hexadecimal display of word device values and buffer memory values		○			×	○			○
Special module monitor function		Monitoring of buffer memory of special module on special screen	Ch. 11	○			○	○	×	○	○
Network monitor function		Monitoring of network status of MELSECNET/B, (II) or /10	Ch. 15	○							
List editor function		Sequence program in the ACPU is list edited.	Ch. 19	×							
Motion monitor function	Servo monitor	Monitoring of servo-related items, such as current values and positioning errors, on various monitor screens.	Ch. 22	△*8			×				
	Parameter setting	Changing of servo parameter values.									
Servo amplifier monitor function		Servo amplifier monitor, servo parameter setting change, test operation.	Ch. 25	○							

*1 Clock setting cannot be used when the connection target CPU is the Q00JCPU, Q00CPU or Q01CPU for MELSECNET/10 connection.
*2 Clock setting cannot be used when the A8GT-J61BT13 is used (intelligent device station).
*3 When the A8GT-J61BT15 is used (in the remote device station), only the link devices assigned to the GOT can be monitored.
*4 The T/C set values cannot be monitored if the software version of the A8GT-J61BT13 used is version W or earlier.
*5 Can't change V or Z current values.
*6 Cannot be monitored if the software version of the A8GT-J61BT13 used is version W or earlier.
*7 If you modified the set value for T/C using the ladder monitor test function, you need to repeat the PC readout procedure to enable the display of the modification.
*8 The target CPUs of the motion monitor function are only the Q172CPU and Q173CPU.
*9 Cannot be monitored when the Q172CPU or Q173CPU is monitored.

(b) Connection with QnACPU or ACPU / QCPU (A mode)

○: Usable △: Partly restricted ×: Unusable

Functions			Ref. Section	QnACPU						ACPU / QCPU (A mode)					
				Bus connection	CPU direct connection	Computer link connection	MELSEC NET connection	CC-Link connection	Ethernet connection	Bus connection	CPU direct connection	Computer link connection	MELSEC NET connection	CC-Link connection	Ethernet connection
Utility function			Ch. 4	○						○					
Ladder monitor function	Ladder monitor	Sequence program monitoring using ladder signals	Section 6.3.1	○			×	△*2	○	○		△*1	○	△*2	○
	Display switching	Decimal and hexadecimal display of word device values	Section 6.3.3												
		Device comment display													
	Device changing	Changing of device values	Section 6.3.4	○			×	△*2	○	○				△*2	○
	Print out	Printing of ladder	Section 6.3.5												
System monitor function	Entry monitor	Monitoring of current values by pre-registering monitor devices	Section 9.2	○			×	△*3	○	○				△*3	○
	Batch monitor	Monitoring of n points of current values subsequent to specified device	Section 9.3												
	T/C monitor	Monitoring of m points of current values, set values, contact points, and coils subsequent to specified device	Section 9.4	○			×	△*2	○	○				△*2	○
	BM monitor	Monitoring of x points of current values subsequent to specified buffer memory of specified special module	Section 9.5												
	Data editing using test operation	Setting/resetting of bit device	Section 9.6												
		Changing of current value for buffer memory of word device		○		△*5	×	△*2	○	○		△*5	○	△*2	○
		Changing of current value for T/C (can be used while monitoring T/C)		○			×	△*2	○	○				△*2	○
		Changing of set value for T/C (can be used while monitoring T/C)		○			×	△*2	○	○		×	○	△*2	○
	Quick test	Changing of device values using quick test	Section 9.6.2	○			×	○	○	○				○	○
	Display switching	Device comment display	Section 9.1.2	○			×	△*2	○	○				△*2	○
		Decimal and hexadecimal display of word device values and buffer memory values		○			×	○	○	○				○	○
Special module monitor function		Monitoring of buffer memory of special module on special screen	Ch. 11	○			×	△*2	○	○		×	○	△*2	○
Network monitor function		Monitoring of network status of MELSECNET/B, (II) or /10	Ch. 15	○			×	△*2	○	○			△*7	△*2	○
List editor function		Sequence program in the ACPU is list edited.	Ch. 19	×						△*8	○	×	△*8		
Motion monitor function	Servo monitor	Monitoring of servo-related items, such as current values and positioning errors, on various monitor screens.	Ch. 22	×						×					
	Parameter setting	Changing of servo parameter values.													
Servo amplifier monitor function		Servo amplifier monitor, servo parameter setting change, test operation.	Ch. 25	○											

*1 Subprograms 2, 3 of the A4UCPU (for computer link connection) cannot be monitored.

*2 Can be monitored only when the A8GT-J61BT13 is used (in the intelligent device station).

*3 When the A8GT-J61BT15 is used (in the remote device station), only the link devices assigned to the GOT can be monitored.

*4 Can't monitor T/C set values.

*5 Can't change V or Z current values.

*6 If you modified the set value for T/C using the ladder monitor test function, you need to repeat the PC readout procedure to enable the display of the modification.

*7 Monitor is disabled when the connection target CPU is the AnU type (MELSECNET/10 network card is fitted).

*8 Program write is disabled when the connection target is the ACPU and E^2PROM operation is being performed.

(c) Connection with FXCPU, third party PLC or microcomputer

○: Usable △: Partly restricted ×: Unusable

Functions			Ref. Section	FXCPU CPU direct connection	Other PLC connection	Microcomputer connection
Utility function			Ch. 4	△*1	△*2	△*3
Ladder monitor function	Ladder monitor	Sequence program monitoring using ladder signals	Section 6.3.1	○	×	×
	Display switching	Decimal and hexadecimal display of word device values	Section 6.3.3			
		Device comment display				
	Device changing	Changing of device values	Section 6.3.4			
	Print out	Printing of ladder	Section 6.3.5			
System monitor function	Entry monitor	Monitoring of current values by pre-registering monitor devices	Section 9.2	○	×	×
	Batch monitor	Monitoring of n points of current values subsequent to specified device	Section 9.3			
	T/C monitor	Monitoring of m points of current values, set values, contact points, and coils subsequent to specified device	Section 9.4	△*4	×	×
	BM monitor	Monitoring of x points of current values subsequent to specified buffer memory of specified special module	Section 9.5	×	×	×
	Data editing using test operation	Setting/resetting of bit device	Section 9.6	○	×	×
		Changing of current value for buffer memory of word device				
		Changing of current value for T/C (can be used while monitoring T/C)				
		Changing of set value for T/C (can be used while monitoring T/C)		×	×	×
	Quick test	Changing of device values using quick test	Section 9.6.2	○	×	×
	Display switching	Device comment display	Section 9.1.2	×	×	×
		Decimal and hexadecimal display of word device values and buffer memory values		○	×	×
Special module monitor function		Monitoring of buffer memory of special module on special screen	Ch. 11	×	×	×
Network monitor function		Monitoring of network status of MELSECNET/B, (II) or /10	Ch. 15	×	×	×
List editor function		Sequence program in the ACPU is list edited.	Ch. 19	×	×	×
Motion monitor function	Servo monitor	Monitoring of servo-related items, such as current values and positioning errors, on various monitor screens.	Ch. 22	×	×	×
	Parameter setting	Changing of servo parameter values.				
Servo amplifier monitor function		Servo amplifier monitor, servo parameter setting change, test operation.	Ch. 25	○		

*1 Clock setting cannot be made when the GOT is connected with the PLC CPU that does not have the clock function (FX0, FX0N, FX1, FX2NC, FX0S).
The FX2 and FX2C allows clock setting to be made only when the cassette for real-time clock is used.

*2 Clock setting cannot be made when the GOT is connected with the PLC CPU that does not have the clock function.

*3 You can set the clock function only when you are using A9GT-RS2T, which includes a clock element.

*4 T/C set values and coils cannot be monitored.

(3) If a system program (OS) for the expanded or option functions has been installed, the following space is required in the GOT built-in internal memory to store user-created monitor screen data. Hence, add the memory board as required.
Hence, installing the extended function OS into the GOT decreases the memory space (for monitor screen data storage) available for the user.
If the free space is insufficient, fit the extension memory board to increase the memory space.

(a) List of extended function and option function OSs installed

Expanded Function OS Name		Space Necessary for Installation in Terms of Memory Count	Remarks
Systm monitor		1	—
Ladder monitor	MELSEC-A ladder monitor	1	Only one may be installed.
	MELSEC-QnA ladder monitor *1	2	
	MELSEC-Q ladder monitor *1	2	
	MELSEC-FX ladder monitor	1	
Motion monitor *1		2	—
Special module, recipe, sound		1	—
Network monitor		1	—
List editor (MELSEC-A) *1		2	—
Gateway *1		2	—
Servo amplifier Monitor *1		2	—
Others	ESC printer, bar code, report, CSV file, external key input	1	Only one may be installed.
	PCL printer, bar code, report, CSV file, external key input	1	
	ESC printer, bar code, report, CSV file, proximity I/O	1	
	PCL printer, bar code, report, CSV file, proximity I/O	1	
	ESC printer, bar code, report, CSV file, video/RGB input	1	
	PCL printer, bar code, report, CSV file, video/RGB input	1	
	Chinese (Big 5) printer, bar code, report, CSV file, external key input	1	
	Chinese (Big 5) printer, bar code, report, CSV file, proximity I/O	1	
	Chinese (Big 5) printer, bar code, report, CSV file, video/RGB input	1	
	Chinese (GB) printer, bar code, report, CSV file, external key input	1	
	Chinese (GB) printer, bar code, report, CSV file, proximity I/O	1	
	Chinese (GB) printer, bar code, report, CSV file, video/RGB input	1	

*1 When installed into the GOT, this OS uses the memory space twice larger than that of the other extended function OS.

*2 Install the "Other" extended function OSs when using the following functions.

- Report function
- Operation panel function
- Printer function
- Barcode function
- Video display function
- RGB display
- External I/O function
- When object function is used to create CSV format files

For this extended function OS, refer to the following 1) and 2) and select the OS that meets the language to be output to the printer or CSV file and the optional device used.

1) Language to be output to the printer connected to the GOT or the CSV file (alarm history display function, recipe function)
   ESC printer : Output in Japanese
   PCL printer : Output in English
   Chinese (Big 5) printer : Output in Chinese (traditional language)
   Chinese (GB) printer : Output in Chinese (simplified language)
2) Used optional device
   External key input : Operation panel, ten-key panel (operation panel function)
   Proximity I/O : External I/O device (external I/O function)
   Video/RGB input : Video camera (video display function), personal computer (RGB display function)

(b) Number of extended function OSs installed and free space of GOT's built-in memory

Number of Extended functions OSs	Memory Space Used [k bytes]	Free Space (User area) [k bytes] *1
0	0	1152
1	256	896
2	384	768
3	640	512
4	768	384
5	1024	128
6	1152	0

*1 Since the A95*GOT-*BD-M3 has the built-in memory of 3200k bytes, the free space is the above value plus 2048k bytes.

POINT

Using the special module monitor/motion monitor/servo amplifier monitor function requires the built-in memory to have enough memory space to store the special module monitoring data/motion monitor, servo amplifier monitor screens. (Refer to Sections 3.3.3, 3.6.4 and 3.7.5.)

CHAPTER3 SPECIFICATIONS

In this chapter, the specifications of the ladder monitor function, system monitor function, special module monitor function, list editor function, motion monitor function and servo amplifier monitor are discussed separately.

3.1 Ladder monitor function specifications

POINTS
Refer to Section 2.3 for restrictions on the ladder monitor function.

3.1.1 PLC CPUs to be monitored

The PLC CPUs that allow ladder monitoring are the QCPU, QnACPU, ACPU, FXCPU and motion controller CPU (Except Q172CPU and Q173CPU). For details, refer to Section 2.3 (2).

3.1.2 Access ranges to be monitored

For access range for the ladder monitor function, see GOT-A900 Series User's manual (GT Works Version5/GT Designer Version5 compatible Connection system manual).

POINT
• When the capacity of parameter, PLC program, TC setting value, comment and extension comment is 144 kbytes or more, the comment will not be properly displayed. • The local device cannot be monitored on the QCPU(Q mode), QnACPU.

3.2 System monitor function specifications

POINT
Refer to Section 2.3 for restrictions on the system monitor function.

3.2.1 PLC CPUs to be monitored

The PLC CPUs that allow system monitoring are the QCPU, QnACPU, ACPU, FXCPU and motion controller CPU. For details, refer to Section 2.3 (2).

3.2.2 Access ranges to be monitored

For access range for the system monitor function, see GOT-A900 Series User's manual (GT Works Version5/GT Designer Version5 compatible Connection system manual).

3.2.3 Names of devices to be monitored

For the names of devices that can be monitored with the system monitor function, see GOT-A900 Series User's manual (GT Works Version5/GT Designer Version5 compatible Connection system manual).

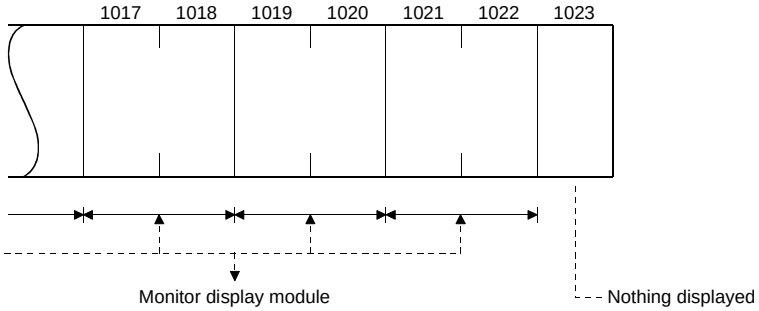
3.2.4 Precautions when using the system monitor function

The precautions to follow when using the system monitor function are shown below.

(1) Monitor and test of real number data
Real number data cannot be monitored or tested.
Monitoring of word devices that save real number data is all done by integer data (binary data).

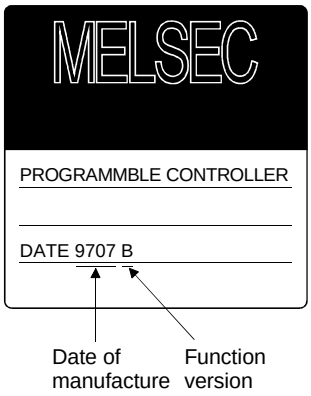
(2) Monitoring in 32-bit modules
When monitoring word devices (such as T, C, D, W) in 32-bit (2-word) modules, monitor up to the point where 32 bits remain in the monitor processing. A location where 16 bits (1 word) remain cannot be monitored.
This situation occurs when an odd number has been specified as the initial number in the monitor device.

(Example) When monitoring the A2NCPU data register in 32-bit modules beginning with an odd number (D1, D3...)



(3) The "Date" column of a Rated Plate shows the date manufactured and function version number. If it reads "9707 B" or a later notation, timer/counter settings can be changed and device comments can be displayed when using any of the large-scale QnACPUs or small-scale QnACPUs.
When changing the timer/counter setup value and performing the device comment display, use the CPU that is described above.

<Viewing the Rated Plate>



(4) Only the main program may be used to change the timer/counter set values on the AnNCPU, AnACPU and AnUCPU.

(5) Only the program of the file name displayed on the T/C monitor screen may be used to change the timer/counter set values on the QnA and QCPU (Q mode). Refer to Section 9.4.2 for details.

3.3 Special module monitor function specifications

POINTS
Refer to Section 2.3 for restrictions on the special unit monitor.

3.3.1 Access ranges to be monitored

(1) When using bus connection/CPU direct connection/computer link connection
- The special function modules on the bases of the connected station and other stations can be monitored.
- Special module monitoring for computer link connection is enabled for the systems of the following combinations.

PLC CPU used	Computer link/serial communication module used
QCPU (Q mode)	QJ71C24
QCPU (A mode)	A1SJ71UC24
QCPU (A mode)	AJ71QC24, A1SJ71QC24
QCPU (A mode)	AJ71UC24, A1SJ71UC24

(2) When using MELSECNET(II) connection/MELSECNET/B connection
- The special function module on the base of the master station can be monitored. (Cannot be monitored when the master station is the QnACPU.)
- The special function modules on the bases of local stations cannot be monitored.
- In a system configuration having remote I/O stations, special function modules cannot be monitored.

(3) When using MELSECNET/10 connection
- The special function modules on the bases of the control station and normal stations can be monitored.
  (Cannot be monitored when the stations are the QnACPU.)
- In a system configuration having remote I/O stations, special function modules cannot be monitored.

(4) When using CC-Link connection (remote device station)
- The special function modules cannot be monitored.

(5) When using CC-Link connection (intelligent device station / via G4)
- The special function modules on the bases of the master and local stations can be monitored.
- In a system configuration having remote I/O stations, special function modules cannot be monitored.

(6) When using Ethernet connection
The special function module on the base of the PLC CPU assigned the IP address can be monitored.
(The station assigned in the Ethernet setting of GT Designer can be monitored.)

3.3.2 Special function modules to be monitored

The modules for which special function monitoring can be done are only those types shown in Section 3.3.3.
Monitoring of special function modules other than those can be done with the system monitor function "BM Monitor".

3.3.3 Required memory spaces for use of special module monitor function

The following table indicates memory spaces for special module monitor data.
The memory spaces required for storing data into the internal memory of the GOT is the same as the memory spaces required for storing data into the hard disk of a personal computer.

For QCPU(A mode), QnACPU, ACPU		For QCPU(Q mode)	
Stored data	Memory space [k bytes]	Stored data	Memory space [k bytes]
Special module monitor data common information	13.4	Special module monitor data common information	13.4
A61LS	14.5	Q64AD	18.2
AD61	8.14	Q68ADV	
A62DA-S1	6.91	Q68ADI	
A62LS	69.8	Q62DA	12.9
A68AD(S2)	9.97	Q64DA	
A68ADN	15	QD62	16.2
A68RD3	17.8	QD62E	
A68RD4		QD62D	
A616AD	123	QD75P	313.5
A616DAI	33.5 *3	QD75D	
A616DAV		QD75M	473.8
A616TD	230	Input module	0.0
AD70	20.5	Output module	0.0
AD70D	29.3	—	—
AD71(S1/S2/S7)	546	—	—
AD72	562	—	—
A1SD71-S2(S7)		—	—
AD75P1(P2/P3) *1	520 *3	—	—
A1SD75P1(P2/P3) *2		—	—
AJ71PT32-S3	43.5	—	—
AJ71ID1(ID2)-R4	40.5	—	—
A1SJ71ID1(ID2)-R4		—	—
A84AD	20.2	—	—
A1SD61	36.9	—	—
A1S62DA	5.12	—	—
A1S62RD	12.5	—	—
A1S63ADA	16.4	—	—
A1S64AD	12.3	—	—
A1S68AD	9.75	—	—
A1S68DAI	25.8*3	—	—
A1S68DAV		—	—
A1SD70	21.1	—	—
A1SJ71JP132-S3	43.2	—	—
A1S64TCTT/RT-S1	45.7	—	—
Input module	0.0	—	—
Output module	0.0	—	—

*1: The AD75M1(M2/M3) can be monitored within the range of the AD75P1(P2/P3).
*2: The A1SD75M1(M2/M3) can be monitored within the range of the A1SD75P1(P2/P3).
*3: Downloading either data enables both special function modules to be monitored.

3.3.4 Precautions when using the special module monitor function

The precautions to follow when using the special module monitor function are discussed below.

(1) Special function modules that cannot be monitored
Modules displayed as "special" on the system configuration screen cannot be monitored using the special module monitor function.
To monitor these modules, use the system monitor function "BM Monitor".

(2) Display when connecting the small building-block type PLC CPU
This precaution pertains to a situation where an expansion base unit for a large building block type of setup is connected to a small building-block type CPU (such as the A1SCPU) in a station connected to the GOT.
In such a case, the special function module on the large expansion base unit is displayed on the system configuration screen with the same model name as that of the small building-block type special function module.
If there is no small building-block type special function module, "special" is displayed and the object module cannot be monitored.

(Example)

[Module Model]		[Model Name Displayed]
AD72	→	A1SD71
AJ71ID	→	A1SJ71ID
AJ71PT32-S3	→	A1SJ71PT32-S3
AD75P	→	A1SD75P
A68AND [CH1 to CH8]	→	A1S64AD [CH1 to CH4]
A68RD [CH1 to CH8]	→	A1S62RD [CH1 to CH4]

(3) Monitoring restricted special function modules
(a) When monitoring the AD71 (S1, S2, S7)
When the slot on front of the AD71 module is an empty slot, monitoring is done in the following way.
1) The AD71 is treated as the AD72, and "AD72" is displayed on the system configuration screen.
In this case, when monitoring the AD71, select the AD72 in the object display position.
2) The monitor screen that is displayed by 1) above is for the AD72.
The number obtained by subtracting 10H from the I/O signal number on the display is the number to be used when installing the AD71 in the 0 slot.
∗ If you do not want the AD1 to be treated as the AD72, execute "Shift the installation position of AD71 forward" or "In the I/O assignments, assign the empty slot in front of AD71 to the 16 X-Y points."

(b) When monitoring the A68AD, A68ADN or A68RD used with a small building block type PLC CPU

A special function module installed in a large building block type extension base unit connected to a small building block type PLC CPU (e.g. A1SCPU) is recognized and monitor-processed by the GOT as a small building block type special function module. Hence, there are the following instructions for use of the A68AD, A68ADN and A68RD.

Special function module	Instruction
A68AD	The A68AD cannot be displayed correctly because of the buffer memory map differences between the A68AD and A1S68AD.
A68ADN	Among CH1 to CH8 of the A68ADN, CH5 to CH8 cannot be displayed since the A1S64AD has only CH1 to CH4.
A68RD	Among CH1 to CH8 of the A68RD, CH3 to CH8 cannot be displayed since the A1S62RD has only CH1 and CH2.

The above special function modules can be monitored properly if they are installed in a base unit connected to a large building block type PLC CPU (e.g. AnUCPU)

(c) When monitoring the A1SD75M, AD75M

The A1SD75M/AD75M is displayed as A1SD75P/AD75P.
The A1SD75M/AD75M can be monitored within the monitoring range of the A1SD75P/AD75P.

(d) When monitoring the A81CPU

The A81CPU is monitored in the following way.

	64 points in first half	64 points in last half
Treatment of A81CPU	Change to module that cannot be monitored.	Change to input module.
System configuration screen	Display "Special X, Y ☐☐☐☐"	Display "Input 64 X ☐☐☐☐ "
Possibility of monitoring	Not possible	Can be monitored as input.

(e) When monitoring an I/O composite module

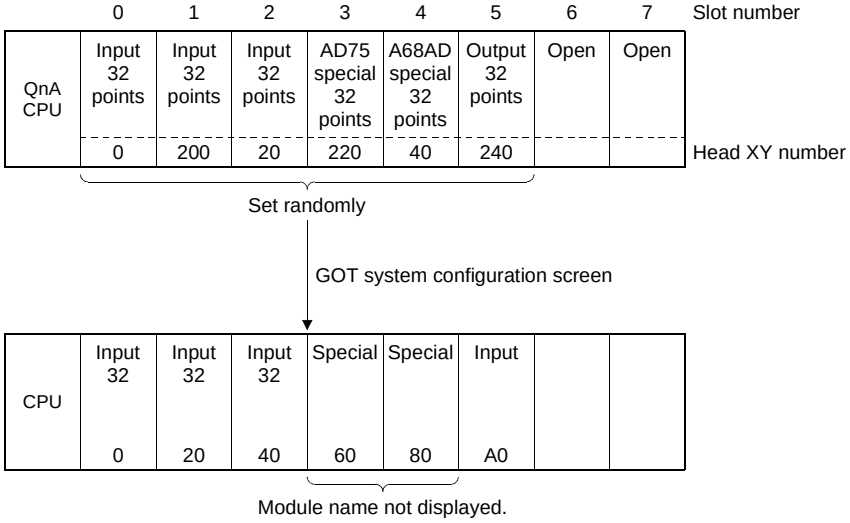
1) With an I/O composite module for which "Output ☐☐☐☐" is displayed on the system configuration screen, only the output signal can be monitored.
For the input signal, monitor X of the PLC CPU device with the system monitor function.

(4) Editing and allocating of special module monitor data

Data displayed on a special module monitor screen cannot be edited by modifying or adding an object, except that the data can be used on a user-created monitor screen.

(5) Precaution for I/O allocation setting

(a) When the QnACPU is connected, the head XY numbers are displayed in due order on the special module monitoring system configuration screen if the I/O allocation setting is random as shown below.
When performing special module monitoring, always perform the I/O allocation in order from slot 0.



(b) If the slot assigned to Output in I/O allocation is not fitted with a module, the GOT displays Input. (Common to ACPU and QnACPU)

(6) The system configuration including remote I/O stations cannot be monitored.

(7) Display provided when the QA1S6□ extension base unit is used with the QCPU(Q mode)

The following instruction is given for the case where the QA1S6□ extension base unit is connected to the QCPU(Q mode) which is a GOT-connected station.
In this case, any of the following special function modules is displayed as the abbreviated formats on the system configuration screen.
You can use the Unit datail infomation to confirm the formal format of the module which was displayed as the abbreviated format.
Unsupported special function modules are displayed as "Special" and the corresponding modules cannot be monitored.

Loaded module	Displayed format
A1S63ADA	63ADA
A1SJ71PT32-S3	J71PT32-
A1SJ71ID1-R4	J71ID
A1SJ71ID2-R4-S1	
A1S64TCTT(BW)-S1	64TCTT/R
A1S64TCRT(BW)-S1	

3.4 Network monitor function specifications

POINTS
Refer to Section 2.3 for restrictions on the network monitor function.

3.4.1 Network information to be monitored

The following table shows the types of network information that can be monitored.

Table 3.1 Network Information To be Monitored

Function		Network Information	MELSECNET (II)/B Master Station	MELSECNET (II)/B Local Station	MELSECNET /10 Control Station	MELSECNET /10 Ordinary Station	MELSECNET /10 Remote Master Station
Own station monitor		Network category display	○	○	○	○	○
		Network No. display	×	×	○	○	○
		Station No. display	○	○	○	○	○
		Own station operation mode	○	○	○	○	○
		Own station loop line status	○	○	○	○	○
		Loop back execution status	○	○	○	○	○
		Link scan time display	○	×	○	○	○
		Data link system loop status	○	×	○	○	○
		Own station communications status	×	○*1	×	×	×
Detailed own station monitor	Own station information	Own station's station No.	○	○	○	○	○
		Own station	○	○	×	×	×
		Network No.	×	×	○	○	○
		Group No.	×	×	○	○	×
	Control-station information	Specified control station	×	×	○	○	×
		Current control station	×	×	○	○	×
		Communications information	×	×	○	○	×
		Sub-control-station link	×	×	○	○	×
		Remote-I/O-master-station station No.	×	×	○	○	×
	Data link information	Total of linked stations	○	○	○	○	○
		Largest connected station	×	×	○	○	○
		Largest data-linked station	×	×	○	○	○
		Communications status	×	○	○	○	○
		Causes of interrupted communications	×	×	○	○	○
		Causes of data link stoppage	×	×	○	○	○
	Constant link scan	Constant link scan	×	×	○	○	○
	BWY receive	BWY from the master station	×	○	×	×	×
	BW receive	BW from the master station in the higher loop	×	○	×	×	×
	Loopback	F-loop status	○	○	○*2	○*2	○*2
		R-loop status	○	○	○*2	○*2	○*2
		F-loopback station	○	×	○*2	○*2	○*2
		R-loopback station	○	×	○*2	○*2	○*2
		Loop switching frequency	○	×	○*2	○*2	○*2
	Own station status	Parameter settings	×	×	○	○	×
		Designation of reserved stations	×	×	○	○	○
		Communications mode	×	×	○	○	○
		Designation of transmission	×	×	○*2	○*2	○*2
		Transmission status	×	×	○*2	○*2	○*2
Other station monitor		Communications status of each station	○	×	○	○	○
		Data link status of each station	○	×	○	○	○
		Parameter status of each station	○	×	○	○	○
		CPU action status of each station	○	○	○	○	×
		CPU RUN status of each station	○	○	○	○	×
		Loop status of each station	○	×	○*2	○*2	○*2

*1 Accessible only when connected to a MELSECNET(II) local station.
*2 Accessible only when connected to a MELSECNET/10 optical fiber cable.
○: Accessible ×: Not accessible

3.4.2 Access ranges to be monitored

For access range for monitoring, see Chapter 2 of the GOT-A900 Series User's manual (GT Works Version5/GT Designer Version5 compatible Connection system manual).

3.4.3 Precautions when using the network monitor function

The following describes precautions that should be followed when using the network monitor function.

(1) When the GOT is connected to an AnNCPU or AnACPU, a screen display shows a screen of the MELSECNET II network even when you are connected to the MELSECNET/10 network (the monitor screen shows the display contents of the MELSECNET II).

(2) There may be a possibility that the network monitor function cannot be used, depending on which CPU to connect and which connection method to use.

CPU to Be Connected	Connection Method	Network Monitor Function		
		Own Station Monitor	Detailed Own Station Monitor	Other Station Monitor
QCPU, QnACPU, ACPU, Motion controller cpu *3	Bus connection	○	○	○
	Direct CPU connection			
	MELSECNET connection *1			
	Computer link connection *2			
	CC-Link connection			
	Ethernet connection			
FXCPU	CPU direct connection	×	×	×
Other manufacture's PLC				

*1 When connected to a Q/QnACPU, control and master stations cannot be monitored.
*2 When connected to an AnUCPU, monitoring cannot be done with the MELSECNET/10 network card being installed.
*3 When the target CPU is the Q172CPU or Q173CPU, monitoring cannot be done.

(3) When connected to a QnACPU and the master station of the MELSECNET(II), monitoring cannot be done with the keyword being defined.

3.5 List editor function specifications

POINTS
Refer to Section 2.3 for restrictions on the List editor function.

3.5.1 PLC CPU that allows for list edit

PLC CPUs that allow list edit are either the QCPU(A mode) or the ACPU.
For details, refer to section 2.3 (2) (a).

POINT
In using the A2USH-S1/A2SH-S1/A2SH/A1SH/A1SJHCPU, the following restrictions should be observed in the range of list edit. In using the A2USHCPU-S1 : In the range of the A3UCPU In using the A2SH-S1/A2SH/A1SH/A1SJHCPU : In the range of the A3NCPU

3.5.2 Access range that allows for list edit

For information about the access range that allows for list edit, see Chapter 2 of the GOT-A900 Series User's manual (GT Works Version5/GT Designer Version5 compatible Connection system manual).

3.5.3 Precautions for List editor function

Precautions for the List editor function are as follows:

(1) Precaution for reading with the specified command
The command cannot be specified to read the ladder.

(2) Precaution for use with the ladder monitor function
If list edit is performed while the ladder monitor function is started, the edit details are not shown on the ladder monitor screen.
To show the edit details, the ladder monitor must be read from the PLC again.

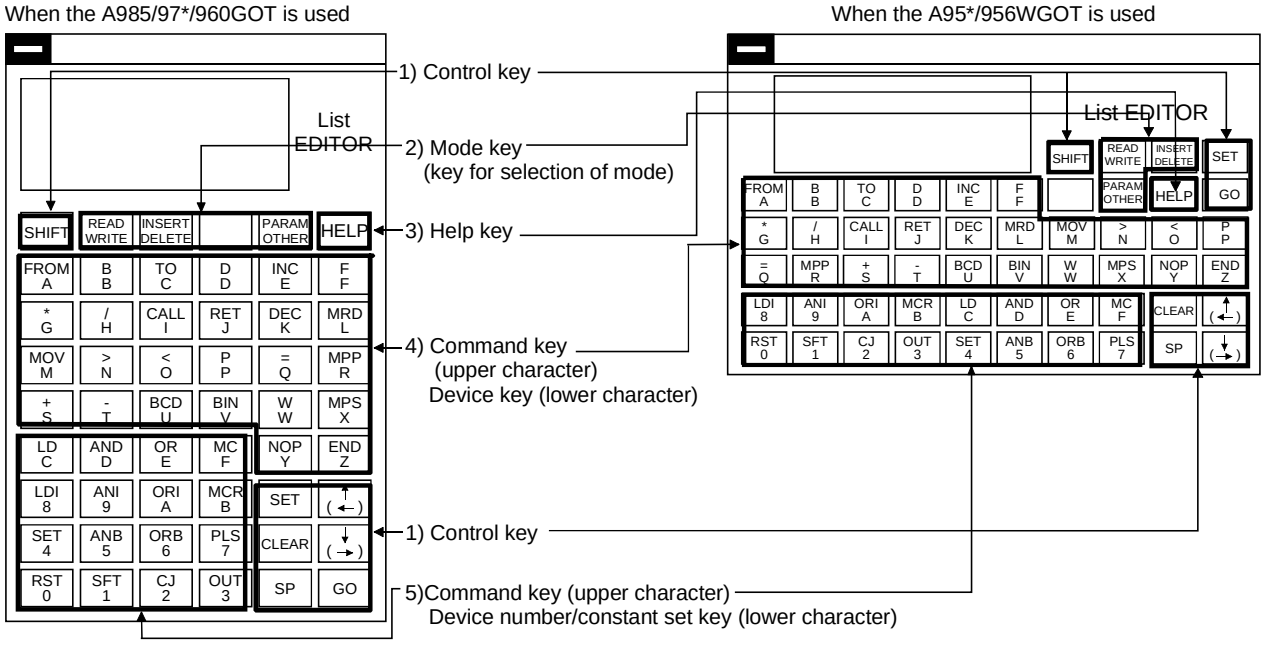
(3) Precaution for list edit
While the corresponding PLC is at stop status, perform list edit.
The list cannot be edited during PLC running.

(4) Precaution for parameter changing on the other peripheral device
If parameter settings are changed on the other peripheral device during use of the list edit function, they will be different from the settings of the internal parameters of the list edit function.
For this reason, reset the GOT unit or make PC No. setting again to read the parameters.

(5) Precaution for Ethernet connection
To use the list editing function for Ethernet connection, the host setting on GT Designer must be preset to the ACPU or QCPU (A mode).

3.5.4 List of key arrangement and key functions

Key arrangement and key functions of the list edit window are shown below.



No.	Name	Key	General description of function
1)	Control key	SET	Key that declares start of step number input or automatic scroll. Switch key that makes the lower character valid on each key with dual functions. Whether upper or lower character is valid can be checked on the display.
		SHIFT	Switch key that makes the upper character valid on each key with dual functions. Whether upper or lower character is valid can be checked on the display.
		CLEAR	If the Clear key is pressed when the system is not in the Parameter mode, Other mode or Help function, the screen returns to the initial status of the mode selection. (The input commands or device numbers except for the mode are cleared.) This is used for repeating the procedure if incorrect keys are pressed.
			In the Parameter mode, the process is cancelled. After restarting, continue the operation.
			In the Other mode, the screen returns to the previous display.
			When the Help function is used, the screen returns to the display at the input of the HELP key.
		SP	Key that provides blank space at the command and at between device names.
		(←) , (→)	Key that moves the cursor on the display (▶ , ■) or determines scroll directions.*
		GO	Press this key at the last of a series of key operations to execute the operation. Check the details of key operations on the display before pressing this key.
2)	Mode key	READ WRITE to PARAM OTHER	Key that selects each mode of the List editor function. Switch the upper/lower character mode with the SHIFT key.
3)	Help key	HELP	Key that selects the help function in the mode supporting the help function.
4)	Command key Advice key	FROM A to END Z	Key that inputs K/H at the input of command, device name and constant input. Only when the valid key of upper/lower character needs to be switched, switching is allowed with input of the SHIFT and SET keys.
5)	Command key Device No./Constant setting key	RST 0 to MC F	Key that inputs the command, device number and constant. Only when the valid key of upper/lower character needs to be switched, switching is allowed with input of the SHIFT and SET keys.

* Movement of the cursor key between steps, between the menu items and in the input area is explained below.

(1) Keep pressing the cursor key to repeat the movement toward the specified key direction.

(2) Movement between steps and between menu items

To display the program immediately before/after the current step number command, Input either [↑] or [↓] key.

[↑]: Program immediately before the command (no change after 0 step)

[↓]: Program immediately after the command (no change after the last step)

```
R        0   L D          X 0 0 0 5
↕        1   A N D        M 2
         2 ▶ O U T        T 0
         3     K 1 2 3
```

"▶" moves to the specified direction (upward/downward) with [↑] or [↓] key.

(3) Movement in the input area

To move the cursor between command names, between sources, and between destinations, input either [(←)] or [(→)] key.

```
W    1 1 5      M 5
↕    1 2 0   L D          M 3
     1 2 1 ▶ N 0 P
P    K 2 1 4 7 4 8 3 6 4 7    D 1 0 0 0 ■   ← Input area
```

Display example for DWOVP K2147483647 D1000

"■" moves to the specified direction (left/right) with [(←)] or [(→)] key.

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In this operating manual, the List editor function key is represented in the following abbreviation form.

(1) Expression of [Key 1] → [Key 2] →.....[Key n] means the sequential input from [Key 1] to [Key n] .

(2) Expression of [Key 1] + [Key 2] means input of [Key 1] and [Key 2] at the same time.

(3) As in (RST 0) key or (MOV M) key, keys with dual functions for input of the command or the device/constant or control keys that control the List editor function are represented as follows:

(a) The mode command or only alphanumeric characters are described.

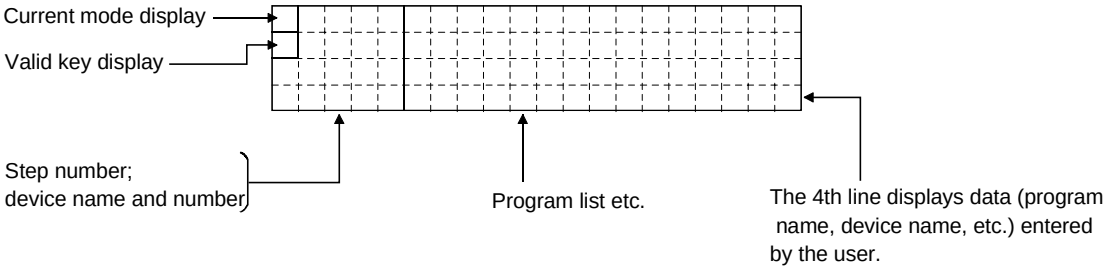
(Example
(RST 0) → [RST] or [0] , (MOV M) → [MOV] or [M])

(b) Only commands are shown for explanation of command input. (Alphanumeric characters are omitted.)
Only alphanumeric characters are shown for explanation of alphanumeric characters. (Command expressions are omitted.)

(Example
To express (MOV M) key
When input of command is explained..... [MOV]
When input of alphanumeric characters is explained... [M])

3.5.5 Display format on the display

The following describes the position and content of each data field in the display area provided by the List editor function.

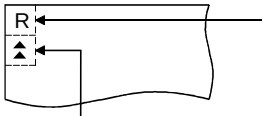


(1) Mode and valid key display

The following describes the mode and valid key display.

The mode display shows the list editor function mode selected by the user.

The valid key display shows which of the two functions assigned to each key is currently available: the function indicated at the upper part of the key or the function indicated at the lower part of the key.



Current mode display

(Display) (Mode)
R .....Read mode
W .....Write mode
I .....Insert mode
D .....Delete mode
P .....Parameter mode
O .....Other mode

Valid key display (This display is not always available.)

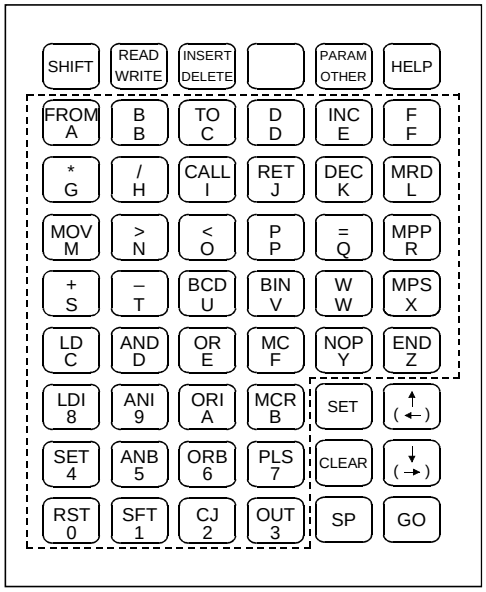
With regard to keys framed in dotted lines in the figure shown at the left, the valid key display indicates which of the two functions assigned to each key is valid:

▲ : Function indicated at the upper part of each key is available.
▼ : Function indicated at the lower part of each key is available.

Example: FROM A key

Function indicated at the upper part of the key is available. ..... FROM

Function indicated at the lower part of the key is available. ..... A



POINTS

To switch between two functions of keys (functions indicated at upper and lower parts of the keys), press the SHIFT and SET keys.

For details, see Section 20.1.1

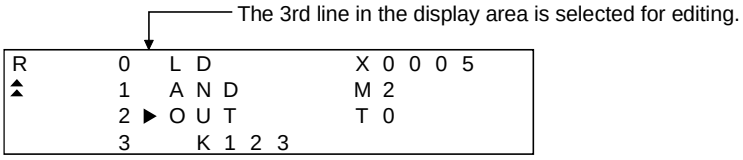
(2) Cursor display

The GOT controls the display of the cursor when the user has to input data; it displays a " ■ " at the cursor position. For more information, see Paragraph (6) below.

If the cursor overlaps the display of a character, however, the character and " ■ " alternate on the display.

(3) Indication of the selected line

When a program list is displayed, the line currently selected for editing is indicated by " ▶ " appearing immediately after the step number.



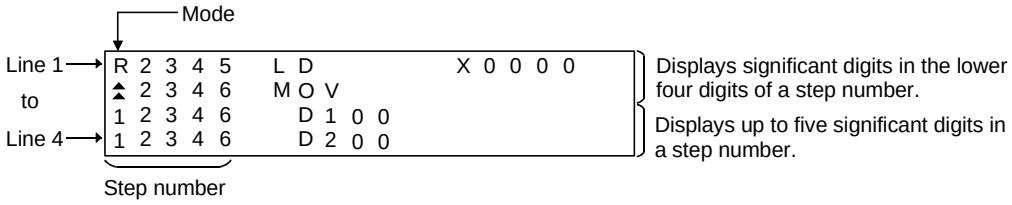
You can use the [↑] and [↓] keys to move " ▶ " up and down.

(4) Step number display

A step number is displayed as a decimal number.

On the 1st and 2nd lines in the display area, significant digits in the lower four digits of a step number are displayed.

On the 3rd and 4th lines in the display area, up to five significant digits in a step number are displayed.



(5) Device display

Two or more device specifications attached to a basic or application instruction are displayed using the same step number.

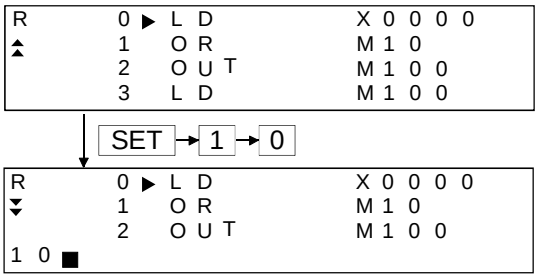
For information on the step numbers, see Paragraph (4) above.

(6) Display of data input from the keys

Data input from the keys will appear at the cursor position. As more characters are input, the cursor moves to the right.

The cursor appears as " ■ ".

Example: The user enters [SET] → [1] → [0]



(7) Shifting of data to the left during the input of a program

When the user inputs a program, the codes entered before a touch on the GO key will appear on the 4th (bottom) line of the display area.

If the codes cannot appear on a single line, the display on the 4th line only will shift by a single character position to the left each time the user touches a key. (Each character that goes out of the display area by the left-shift operation is retained in the memory.)

```
W   1 1 5      M 5          X 0 0 0 5
▲   1 2 0    L D            M 3
    1 2 1 ▶ N 0 P
P   K 2 1 4 7 4 8 3 6 4 7    D 1 0 0 0 ■
```

The user has entered "DMOVP K2147483647 D1000".

(8) Numerical display

The following describes the display of numerical values in devices and of constants in a program input by the user. Note, however, that only some examples are shown. For details, see Chapter 20.

Example: D1000 4231H

1) Display in decimal format

Only significant digits are displayed with zero-suppression.

```
M   D 1 0 0 0                  1 6 4 9 5
```

2) Display in hexadecimal format

Four digits are displayed without zero-suppression.

```
M   D 1 0 0 0                  H 4 2 3 1
```

3) Display in octal format

Six digits are displayed without zero-suppression.

```
M   D 1 0 0 0              0 0 4 1 0 6 1
```

4) ASCII format

A numerical value in the specified device is read in byte units and converted into associated character codes.

If a value fell outside the ranges 20H through 7FH and A0H through DFH, dots ".." will appear.

```
M   D 1 0 0 0            a s c i i   B 1
```

(9) Display of an error message

An error message will appear on the 4th line of the display area.

If an error message appears, perform corrective action as described in Chapter 21.

An error message on the display is cleared when you press any key. Then the display resumes the state before the appearance of the error message.

3.5.6 List of List editor function

Mode (mode display)	Function				Action
Write (W)	Write program				Writes, adds, or modifies a program.
	Change device				Changes a device used at the selected step in the program
	Help	Write	Instruction help	Display/ select instruction	Displays a list of instructions that start with the specified character and allows the user to choose from them.
				Read step	Reads a program after allowing the user to specify a step number.
			NOP continuous		Declares the specified part of the program NOP.
		Comment display			Displays a comment for the specified device.
Read (R)	Read program				Reads a program after allowing the user to specify a step number.
					Reads a program after allowing the user to specify an instruction used.
					Reads a program after allowing the user to specify a device used.
	Automatic scrolling				Automatically scrolls the display of a program that has been read up to a specified step.
	Help	Read	Step		Corresponds to program read and automatic scroll functions described above.
			Instruction		
			Device		
			Automatic scrolling		
		Comment display			Displays a comment for the specified device.
Insert (I)	Insert program				Inserts a new program into the displayed program.
	Help	Insert	Instruction help	Display/select instruction	Displays a list of instructions that start with the specified character and allows the user to choose from them.
				Read step	Reads a program after allowing the user to specify a step number.
			Move		Moves the selected part of the program to a specified part of the program.
			Copy		Copies the selected part of the program to a specified part of the program.
		Comment display			Displays a comment for the specified device.
Delete (D)	Delete program				Deletes a program at the specified step.
	Help	Delete	Specified block		Deletes the specified block in the program.
			All NOPs		Deletes all NOP instructions found in program codes described before the END instruction. (NOPLF instructions will not be deleted.)
		Comment display			Displays a comment for the specified device.
Parameter (P)	Clear all parameters				Clears all parameters in the ACPU only.
	Set parameter				Sets or changes various parameters like those for the memory capacity, timer/counter, and latching range.
					Sets or changes a keyword.

Mode (mode display)	Function			Action
Others (O)	Change T/C set values			Changes values set to timer/counter devices.
	PC check	Read erroneous step		Displays details of an error in the ACPU and the associated step number.
		Program check		Checks duplex coils, instruction codes, and other elements in the program.
	PC system	Monitor	Buffer memory batch monitor	With regard to a special function unit of the specified I/O number, monitors the contents of the buffer memory at the specified address.
			Clock monitor	Monitors the ACPU clock (D9025 through D9027).
		Monitor All clear	PC memory	Clears all contents of the ACPU memory and resets it to the initial state.
			Program	Clears the program (Main/Sub) currently selected.
			Device memory	Clears all device memories except for special-D, special-M, and R.
		Switch	PC No. setup	Switches the target ACPU in GOT operations in each mode.
			Switch Main/Sub	Switches the target program (Main/Sub) in GOT operations in each mode.
		Others	Remote RUN/STOP	Forcibly changes the ACPU running status between RUN and STOP.
			Machine language read/write	Performs a read or write operation to the ACPU memory in the machine language.

3.6 Specifications of the motion monitor function

POINTS
Refer to Section 2.3 for the restrictions on the motion monitor function.

3.6.1 PLC CPUs that can be monitored

The motion controller CPUs that can be monitored are only the Q172CPU and Q173CPU.
Refer to Section 2.3 (2) for details.

3.6.2 Access ranges that can be monitored

For the access ranges where the motion monitor function can be performed, refer to Chapter 2 of the GOT-A900 Series User's Manual (GT Works Version 5/GT Designer Version 5 Compatible Connection).

3.6.3 Precautions for use of the motion monitor function

When using the motion monitor function, use the motion controller CPU (Q172CPU, Q173CPU) that satisfies the following conditions.
- Installed motion controller OS version: "00E" or later
- Serial No.: "K******" or later (Q172CPU)
  "J******" or later (Q173CPU)

3.6.4 Memory space necessary to use the motion monitor function

The following indicates the memory spaces for motion monitor data.
The memory space needed to store data into the built-in memory of the GOT is the same as the memory space needed to store data into the hard disk of the personal computer.

Stored Data		Memory Space [k bytes]
Information common to motion monitor data		13.4
	A985GOT	200
	A97*GOT	200
	A960GOT	200
	A956WGOT	115
	A95*GOT	110

3.7 Specifications of the Servo Amplifier Monitor Functions

> **POINT**
> Refer to Section 2.3 for the restrictions on the servo amplifier monitor functions.

3.7.1 List of servo amplifier models that can be monitored and functions

The following table lists the servo amplifier models, where the servo amplifier monitor functions can be performed, and the functions.

Function \ Servo Amplifier		MR-J2S-□A	MR-J2S-□CP	MR-J2M A Series	
				MR-J2M-P8A	MR-J2M-□DU
Setup	Model selection	○	○	○	○
	Baudrate	○	○	○	○
	Station number selection	○	○	—	—
	Station number setting	○	○	○	○
	IFU station number	—	—	○	○
Monitor	Batch display	○	○	○	○
Alarm	Alarm display	○	○	○	○
	Alarm history	○	○	○	○
Diagnostics	DI/DO display	○	○	○	—
	Function device display	—	○	○	○
	Amplifier information display	○	○	○	○
	ABS data display	○	○	—	○
	Module composition list display	—	—	○	○
Parameters	Parameter setting	○	○	—	—
	Parameters (IFU)	—	—	○	○
	Parameters (DRU)	—	—	○	○
Test	JOG operation	○	○	—	○
	Positioning operation	○	○	—	○
	Motorless operation	○	○	—	○
	DO forced output	○	○	○	—

○: Function available —: Function unavailable

3.7.2 Access range that can be monitored

The access range where the servo amplifier monitor functions can be performed is as follows.

(1) When RS-232C communication function is used
Only the connected servo amplifier can be monitored.

(2) When RS-422 communication function is used (multidrop communication)
The servo amplifier from among up to 32 axes of servo amplifiers, stations 0 to 31, on the same bus as the connected servo amplifier can be monitored.

3.7.3 Precautions for use of the servo amplifier monitor functions

(1) Before starting test operations, always read the precautions in Section 26.7.1.

(2) The maximum communication speed between the GOT and servo amplifier is 38400bps.
Set the servo side communication speed to 38400bps or less.

(3) If the PLC CPU connected to the GOT does not have clock data, the time displayed by the servo amplifier monitor functions is not precise.

(4) The settings of the GOT side servo amplifier monitor functions (setup screen (refer to Section 26.2.1)) should be the same as the servo amplifier side settings.
If they are different, normal communication may not be made.

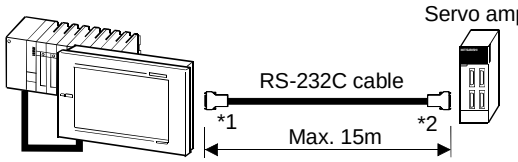
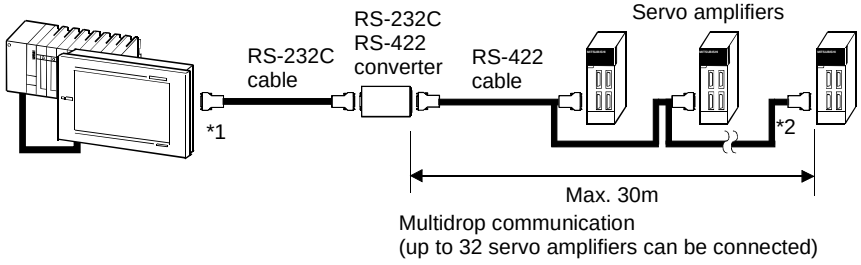
(5) When the servo amplifier monitor functions are used, communication from GT Designer (OS installation/monitor screen data downloading) cannot be made.
Before starting communication from GT Designer, terminate the servo amplifier monitor functions.

(6) When the servo amplifier is connected, the bar code function cannot be used.

(7) The transparent function cannot be used on the GOT where the servo amplifier monitor function operating system (OS) has been installed.

3.7.4 System configuration for servo amplifier connection

The system configurations for servo amplifier connection are shown below.

Connection Condition	System Configuration
When only one servo amplifier is connected	
When multiple*3 (2 to 32) servo amplifiers are connected	

*1 Connect the GOT side connector into the RS-232C interface at the bottom of the GOT used for downloading the monitor screen data.

*2 Connect the servo amplifier side connector to CN3.

*3 As the servo amplifier to be monitored, select one from among the 32 servo amplifiers.

3.7.5 Monitor screen types and memory capacities necessary to use the servo amplifier monitor functions

The monitor screens used for the servo amplifier monitor functions change depending on the GOT model and monitored servo amplifier model.
The following tables indicate the monitor screen types and memory capacities necessary to use the servo amplifier monitor functions.

(1) When A985GOT is used

Function Details			Stored Screen Data	Memory Capacities [Bytes]			
				For MR-J2S-□A monitor	For MR-J2S-□CP monitor	For MR-J2M-P8A monitor	For MR-J2M-□DU monitor
Servo amplifier monitor data common information				18416			
Monitor			600 "Servo (A985) Monitor: ALL"	4132			
Alarm		Alarm display	613 "Servo (A985) Alarms: ALL"	2268			
		Alarm history	615 "Servo (A985) Alarms Hist.: ALL"	3020			
Diagnostic function		DI/DO display	617 "Servo (A985) I/O Display: S-A"	2436	—	—	—
			618 "Servo (A985) I/O Display: S-CP"	—	2608	—	—
			619 "Servo (A985) I/O Display: M-A IFU"	—	—	4522	—
			620 "Servo (A985) I/O Display: M-A D01"	—	—	—	3488
		Function device display	624 "Servo (A985) Function Dev.: S-CP"	—	2948	—	—
			625 "Servo (A985) Function Dev.: M-A IFU"	—	—	4808	—
			626 "Servo (A985) Function Dev.: M-A DRU"	—	—	—	4744
		Amplifier information display	628 "Servo (A985) Amp inf.: S-A"	2112	—	—	—
			629 "Servo (A985) Amp inf.: S-CP"	—	2188	—	—
			630 "Servo (A985) Amp inf.: M-A IFU"	—	—	2012	
			631 "Servo (A985) Amp inf.: M-A DRU"	—	—	—	2204
		ABS data display	635 "Servo (A985) ABS data: S-A"	2700	—	—	—
			636 "Servo (A985) ABS data: S-CP"	—	2916	—	—
			637 "Servo (A985) ABS data: M-A DRU"	—	—	—	2928
		Unit composition list display	639 "Servo (A985) Unit Comp.: M-A IFU"	—	—	3444	—
			640 "Servo (A985) Unit Comp.: M-A DRU"	—	—	—	3432
Parameter setting			643 "Servo (A985) Parameters: S-*"	3656		—	—
			644 "Servo (A985) Parameters: M-A IFU"	—	—	3872	
			645 "Servo (A985) Parameters: M-A DRU"	—	—	—	4452
Test		Jog operation	678 "Servo (A985) Jog op.: S-*"	2672		—	—
			679 "Servo (A985) Jog op.: M-A DRU"	—	—	—	2476
		Positioning operation	682 "Servo (A985) Positioning: S-*"	3056		—	—
			683 "Servo (A985) Positioning: M-A DRU"	—	—	—	2860
		Motor-less operation	685 "Servo (A985) Motor-less op: S-*"	2300		—	—
			686 "Servo (A985) Motor-less op: M-A DRU"	—	—	—	2140
		DO forced output	688 Servo (A985) DO Forced Out: S-A"	2844	—	—	—
			689 Servo (A985) DO Forced Out: S-CP"	—	2724	—	—
			690 "Servo (A985) DO Forced Out: M-A IFU"	—	—	4692	—
			691 "Servo (A985) DO Forced Out: M-A D01"	—	—	2540	—

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(2) When A97*GOT/A960GOT is used

Function Details			Stored Screen Data	Memory Capacities [Bytes]			
				For MR-J2S-□A monitor	For MR-J2S-□CP monitor	For MR-J2M-P8A monitor	For MR-J2M-□DU monitor
Servo amplifier monitor data common information				18416			
Monitor			700 "Servo (A97*) Monitor: ALL"	4132			
Alarm		Alarm display	713 "Servo (A97*) Alarms: ALL"	2268			
		Alarm history	715 "Servo (A97*) Alarms Hist.: ALL"	3020			
Diagnostic function		DI/DO display	717 "Servo (A97*) I/O Display: S-A"	2436	—	—	—
			718 "Servo (A97*) I/O Display: S-CP"	—	2608	—	—
			719 "Servo (A97*) I/O Display: M-A IFU"	—	—	4452	—
			720 "Servo (A97*) I/O Display: M-A D01"	—		3488	—
		Function device display	724 "Servo (A97*) Function Dev.: S-CP"	—	2948	—	—
			725 "Servo (A97*) Function Dev.: M-A IFU"	—	—	4920	—
			726 "Servo (A97*) Function Dev.: M-A DRU"	—	—	—	4908
		Amplifier information display	728 "Servo (A97*) Amp inf.: S-A"	2112	—	—	—
			729 "Servo (A97*) Amp inf.: S-CP"	—	2188	—	—
			730 "Servo (A97*) Amp inf.: M-A IFU"	—	—	2012	—
			731 "Servo (A97*) Amp inf.: M-A DRU"	—	—	—	2204
		ABS data display	735 "Servo (A97*) ABS data: S-A"	2700	—	—	—
			736 "Servo (A97*) ABS data: S-CP"	—	2916	—	—
			737 "Servo (A97*) ABS data: M-A DRU"	—	—	—	2928
		Unit composition list display	739 "Servo (A97*) Unit Comp.: M-A IFU"	—	—	3444	—
			740 "Servo (A97*) Unit Comp.: M-A DRU"	—	—	—	3432
Parameter setting			743 "Servo (A97*) Parameters: S-*"	3656		—	—
			744 "Servo (A97*) Parameters: M-A IFU"	—	—	3872	
			745 "Servo (A97*) Parameters: M-A DRU"	—	—	—	4180
Test		JOGJog operation	778 "Servo (A97*) Jog op.: S-*"	2672		—	—
			779 "Servo (A97*) Jog op.: M-A DRU"	—	—	—	2476
		Positioning operation	782 "Servo (A97*) Positioning: S-*"	3056		—	—
			783 "Servo (A97*) Positioning: M-A DRU" Motor-less operation	—	—	—	2860
			785 "Servo (A97*) Motor-less op: S-*"	2300		—	—
			786 "Servo (A97*) Motor-less op: M-A DRU"	—	—	—	2140
		DO forced output	788 Servo (A97*) DO Forced Out: S-A"	2724	—	—	—
			789 Servo (A97*) DO Forced Out: S-CP"	—	2724	—	—
			790 "Servo (A97*) DO Forced Out: M-A IFU"	—	—	4692	—
			791 "Servo (A97*) DO Forced Out: M-A D01"	—	—	2540	—

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(3) When A95*GOT/A956WGOT is used

Function Details			Stored Screen Data	Memory Capacities [Bytes]			
				For MR-J2S-□A monitor	For MR-J2S-□CP monitor	For MR-J2M-P8A monitor	For MR-J2M-□DU monitor
Servo amplifier monitor data common information				18416			
	Monitor		800 "Servo (A95*) Monitor: ALL"	2252			
	Alarm	Alarm display	822 "Servo (A95*) Alarms: ALL"	1612			
		Alarm history	824 "Servo (A95*) Alarms Hist.: ALL"	2040			
	Diagnostic function	DI/DO display	826 "Servo (A95*) I/O Display: S-A"	1944	—	—	—
			827 "Servo (A95*) I/O Display: S-CP"	—	2124	—	—
			828 "Servo (A95*) I/O Display: M-A IFU"	—	—	3436	—
			829 "Servo (A95*) I/O Display: M-A D01"	—	—	—	2808
		Function device display	833 "Servo (A95*) Func.Dev.: S-CP"	—	2188	—	—
			834 "Servo (A95*) Func.Dev.In1: M-A IFU"	—	—	2740	—
			835 "Servo (A95*) Func.Dev.In2: M-A IFU"	—	—	2696	—
			836 "Servo (A95*) Func.Dev.Out1: M-A IFU"	—	—	2804	—
			837 "Servo (A95*) Func.Dev.Out2: M-A IFU"	—	—	2848	—
			838 "Servo (A95*) Func.Dev.In1: M-A DRU"	—	—	—	2792
			839 "Servo (A95*) Func.Dev.In2: M-A DRU"	—	—	—	2684
			840 "Servo (A95*) Func.Dev.Out1: M-A DRU"	—	—	—	2728
			841 "Servo (A95*) Func.Dev.Out2: M-A DRU"	—	—	—	2336
		Amplifier information display	843 "Servo (A95*) Amp inf.: S-A"	1396	—	—	—
			844 "Servo (A95*) Amp inf.: S-CP"	—	1472	—	—
			845 "Servo (A95*) Amp inf.: M-A IFU"	—	—	1296	—
			846 "Servo (A95*) Amp inf.: M-A DRU"	—	—	—	1488
		ABS data display	850 "Servo (A95*) ABS data Cur.: S-A"	1744	—	—	—
			851 "Servo (A95*) ABS data Orig: S-A"	1816	—	—	—
			852 "Servo (A95*) ABS data Cur.: S-CP"	—	1960	—	—
			853 "Servo (A95*) ABS data Orig: S-CP"	—	2032	—	—
			854 "Servo (A95*) ABS data Cur.: M-A DRU"	—	—	—	1972
			855 "Servo (A95*) ABS data Orig: M-A DRU"	—	—	—	2044
		Unit composition list display	857 "Servo (A95*) Unit Comp.: M-A IFU"	—	—	2512	—
			858 "Servo (A95*) Unit Comp.: M-A DRU"	—	—	—	2500
	Parameter setting		861 "Servo (A95*) Parameters: S-*"	2860		—	—
			862 "Servo (A95*)` Parameters: M-A IFU"	—	—	3064	
			863 "Servo (A95*) Parameters: M-A DRU"	—	—	—	3300
	Test	Jog operation	906 "Servo (A95*) Jog operation: S-*"	1944		—	—
			907 "Servo (A95*) Jog operation: M-A DRU"	—	—	—	1752
		Positioning operation	910 "Servo (A95*) Positioning: S-*"	2328		—	—
			911 "Servo (A95*) Positioning: M-A DRU"	—	—	—	2136
		Motor-less operation	913 "Servo (A95*) Motor-less op: S-*"	1584		—	—
			914 "Servo (A95*) Motor-less op: M-A DRU"	—	—	—	1388
		DO forced output	916 Servo (A95*) DO Forced Out: S-A"	2128	—	—	—
			917 Servo (A95*) DO Forced Out: S-CP"	—	2008	—	—
			918 "Servo (A95*) DO Forced Out: M-A IFU"	—	—	3332	—
			919 "Servo (A95*) DO Forced Out: M-A D01"	—	—	1728	—

CHAPTER4 OPERATING THE UTILITY FUNCTION

4.1 Utility function table

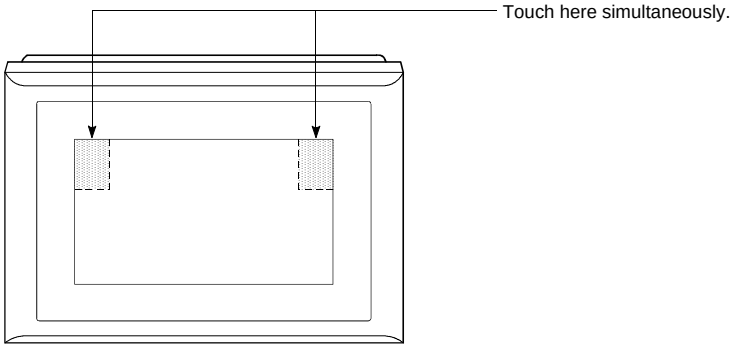
Functions	Description	Remarks	Ref. section
Brightness/contrast adjustment	Adjusting the brightness/contrast of a monitor screen.	This function changes with the GOT used.	Section 4.3
System monitor	Monitoring or changing devices in a PLC CPU.	This function can be executed only after installing an OS, monitor data on the GOT by using GT Designer.	Chapter 9
Special module monitor	Monitoring or changing buffer memory of a special module.	This function can be executed only when the GOT memory is extended and the OS is installed from the GT Designer to the GOT.	Chapter 12
Screen & OS copy	Copying of screen data between internal memory and memory card Copying of OS data between internal memory and memory card	Refer to the HELP function GT Designer to install the OS (from memory card to internal memory).	Section 4.4
Setup	The options of settings include: • Language used in a message display (Japanese/English) • Buzzer sound adjustment • Sounds from an external speaker • Idle time for a screen saver • Backlighting for a screen saver • Protocol and baud rate when connected to a microcomputer • Reverse display • Extension number and slot number for bus connection with QCPU • Transmission speed for Computer link connection • Transmission speed for Omron/Yaskawa/Hitachi/Matsushita PLC connection • Startup time, transmission delay and CCU monitor registration (Matsushita Electric Works PLC only) for Yaskawa/Matsushita Electric Works PLC connection • Transmission speed and address for SIEMENS/Allen-Bradley PLC connection • Transmission time-out setting for CC-Link (ID) driver installation • Setting of disable-enable/detection sensitivity/OFF delay for screen save/human sensor • Grip switch enable/disable setting (A950 handy GOT only) • Adjusting the color balance/contrast/brightness/color power of a video window. • Adjusting the clock phase H-Position/V-Position of an RBG window, and setting the touch key position for a return to the monitor screen.		Section 4.5
Self-test	The self-test include diagnostic checks on GOT hardware as follows: • Drawing check • Font check • Memory card check • User-space-in-the-internal-memory check • OS-space-in-the-internal-memory check • CPU communications check • Touch key check		Section 4.6
Memory information	The contents of GOT memory information include: • OS version number • Status of communications with the PLC CPU • Available space in the internal memory • Availability of memory cards and available space in a memory card • Availability of the ladder monitor function		Section 4.7
Ladder monitor	Monitoring the sequence programs on the PLC CPU.	This function can be executed only when the GOT memory is extended and the OS is installed from the GT Designer to the GOT.	Chapter 6
Clock	Setting date and time.		Section 4.8
Screen cleanup	Displaying the display area cleanup screen.		Section 4.9
Network monitor	Monitoring the line status of MELSECNET.	This function can be executed only when the GOT memory is extended and the OS is installed from the GT Designer to the GOT.	Chapter 17
Security password	Changing the security levels of numeric input and objects.	If a security password is defined by using GT Designer, security levels can be changed.	Section 4.10
Password	Defining a password for limited access to the utility menu screen.		Section 4.11
List edit	List editing of PLC programs in PLC CPU	This function can be executed only when the GOT memory is extended and the OS is installed from the GT Designer to the GOT.	Chapter 19
Motion monitor	Motion controller CPU (Q172CPU/Q173CPU) Changing of servo monitor/servo parameter setting	This function can be executed only when the GOT memory is increased and the OS is installed from GT Designer to the GOT.	Chapter 22
Servo amplifier monitor	Servo amplifier monitor, servo parameter setting change, test operation		Chapter 25

4.2 Selecting the utility function

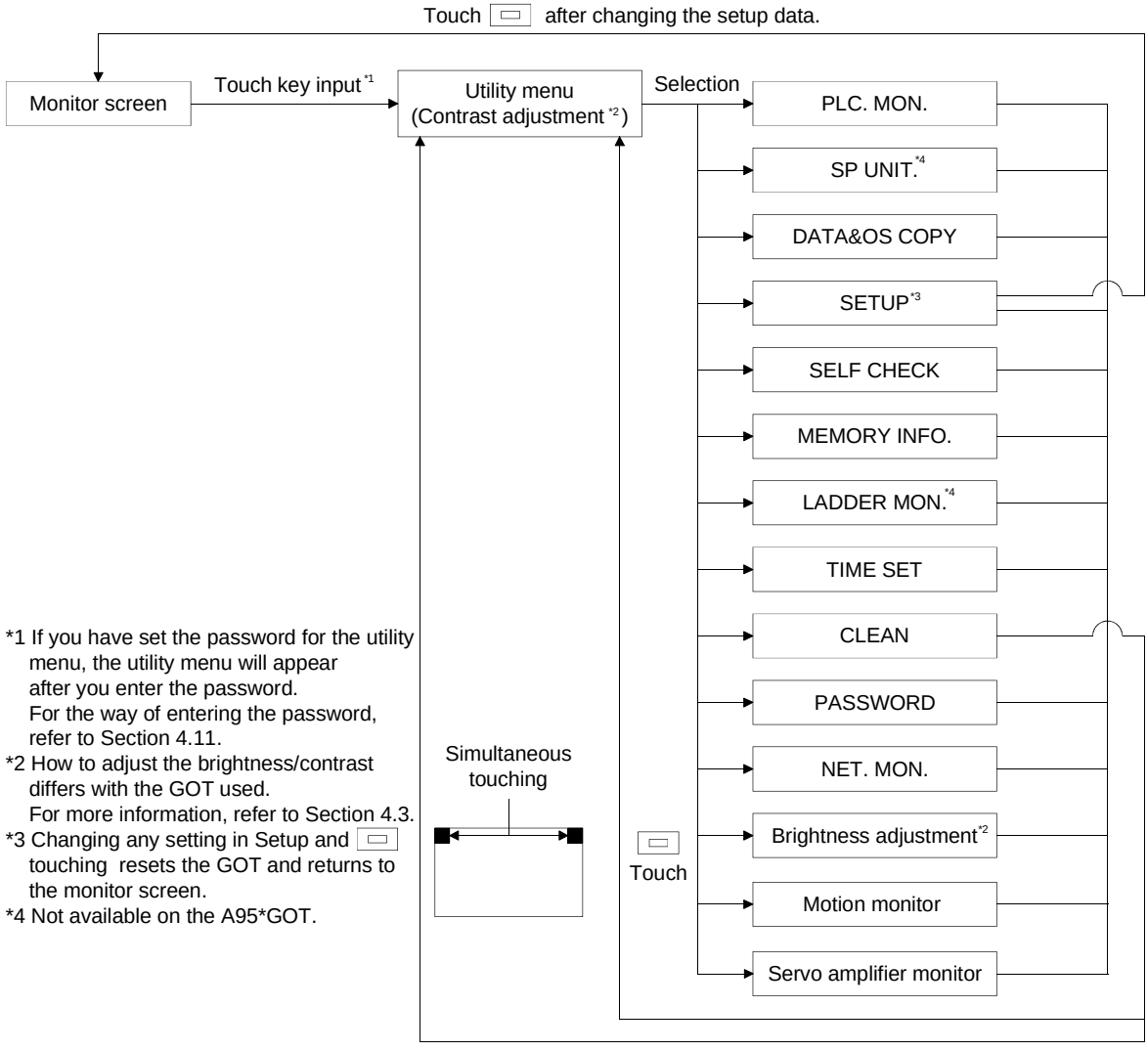
This section describes how to select the utility function.
The utility function can be activated with a touch of the screen.

To select the utility function, follow either of the following two steps.

(1) Touch the upper right and left corners of the screen at the same time.



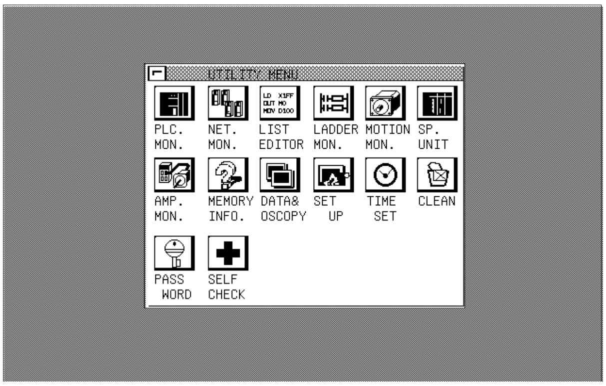
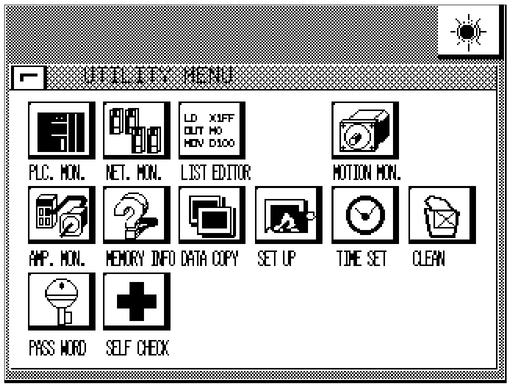
(2) Touch a touch key displayed on the monitor screen. A touch key can be set in the touch key (expanded) function settings.
The following flowchart outlines the steps involved in selecting the utility function.

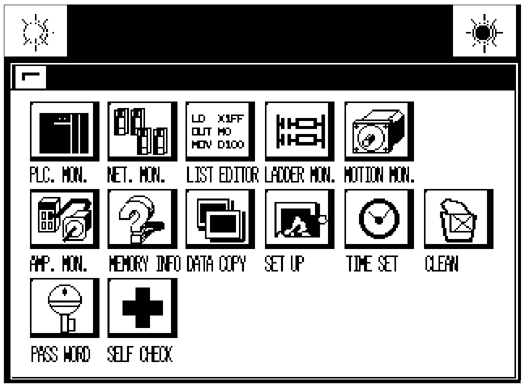
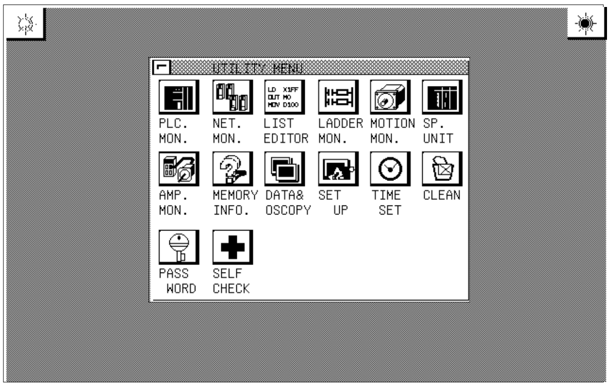
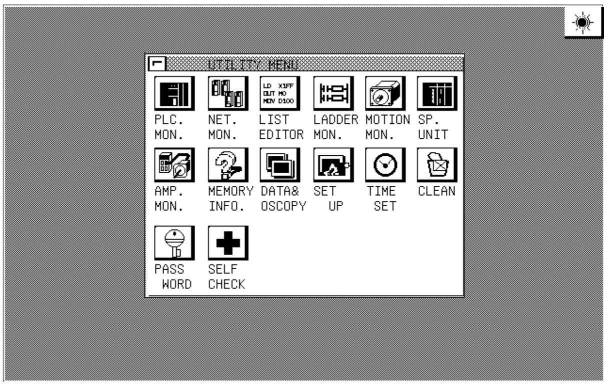


4.3 Selecting the required function on the utility menu screen (Adjusting the brightness/contrast of the monitor screen)

(1) Display screen

The display screen differs with the GOT used.

<table>
<tr><th colspan="2">Screen Example</th></tr>
<tr><th>A985/97*/960GOT</th><th>A95*/A956WGOT</th></tr>
<tr><td> 
</td>
<td rowspan="2"> 


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

(2) Function

- Menu screen used to select any of the utility functions.
- Used to adjust the brightness/contrast of the monitor screen.

(3) Operation

(a) Basic operation

Directly touch the portion where the function you will select is being displayed.

(b) Return to the monitor screen

Touch ▭ to return to the monitor screen.

(c) Brightness/contrast adjustment

- Touch  and at top of the screen to make contrast adjustment.
- You can adjust the contrast in about 20 steps.
- Touch  at top right of the screen to show the brightness adjustment-screen.
  For details of the adjustment method on the brightness adjustment screen, refer to section 4.12.

POINTS

- If the OS is not installed on the GOT, items are displayed on the system monitor, but they cannot be selected.
- If the following conditions for use of the corresponding functions are not satisfied, the special function module monitor, ladder monitor, network monitor, motion monitor and servo amplifier monitor items are displayed in the utility menu but cannot be selected.
  (a) A985/97*/960GOT/956WGOT
  - The memory board is loaded in the GOT.
  - The extended function OS is installed in the GOT.

  (b) A95*GOT
  - The compatible model (A95*GOT-*BD-M3) is used.
  - The extended function OS is installed in the GOT.
- If the GOT is connected to the PLC CPU without clock function, items are displayed on the clock window, but they cannot be selected.

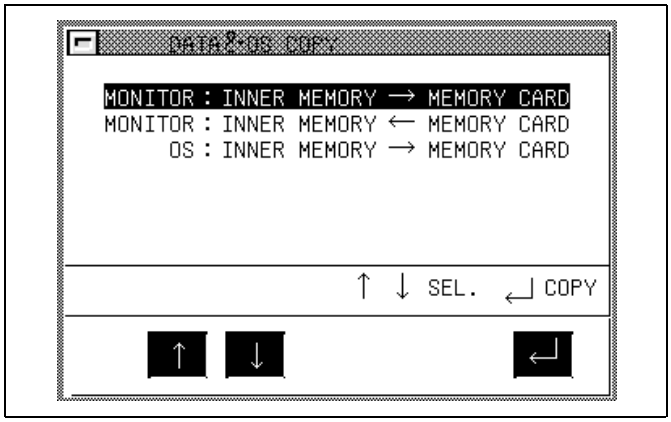
(4) On-screen error messages

Message	Cause	Corrective Action
Can't be selected (When system monitor, special module monitor, ladder monitor, motion monitor, servo amplifier monitor or clock setting is selected)	• The OS is not installed on the GOT. • The memory board is not installed in the A985/97*/960/960WGOT. • The A95*GOT used is other than the A95*GOT-*BD-M3. • The GOT is connected to a PLC CPU without a clock function.	• Install the OS. • Install the memory board in the A985/97*/960/960WGOT. • Use the A95*GOT-*BD-M3. • Replace the CPU with one with a clock function or do not use the clock setting.

4.4 Copying the monitor data/OS data between the internal memory and memory card (Screen & OS copy)

(1) Display screen

Sample screen



(2) Features

- Project data stored in the internal memory can be saved to the memory card.
- Project data stored in the memory card can be saved to the internal memory.
- OS data can be backed up by copying them from the internal memory to the memory card.

(3) Procedure

(a) Basic operation

- Touch ↑ or ↓ to select options.
- Touching ↵ will display a message asking you to answer the question "Do you want to execute? "
- If you answers Yes to the question, touch ▭ again. Touch ↑ or ↓ to select another option. To quit the backup copy, touch ▭ to return to the Utility Menu screen.

(b) To return to the Utility Menu screen:

- Touch ▭ to return to the Utility Menu screen.

(4) On-screen error messages

Message	Cause	Corrective Action
Cancel write protect function	The memory card is write-protected.	Release write protection of the memory card.
Install memory card	A memory card is not installed on the GOT.	Install a memory card on the GOT.
Format memory card	The installed memory card is not yet formatted.	Format the memory card.
Write Error (M-CARD capacity shortage) Data transfer error	Memory card loaded has memory space less than written data.	Change the memory card for the one having enough memory space.
M-CARD error Data transfer error	Write error occurred in the memory card during copying, or the memory card used has no free space.	Change the memory card, or increase the free space of the memory card.
Memory card error	The hardware of the installed memory card is defective.	Replace the memory card with a new one.

(5) Directory tree in a memory card

The directory tree in a memory card is shown as follows.

(File structure)

```
\ ┬─ ALARMHST ····· For alarm history file storage
  ├─ RECIPE ····· For recipe file storage
  ├─ REPORT····· For report file storage
  ├─ SNAPSHOT ····· For screen image file storage
  │  └─ SNAPHDCP.BMP ··· Work file for printer printout
  ├─ USERDATA ····· For monitor screen data storage (for screen copy)
  ├─ OS ····· For OS storage (for OS copy)
  ├─ SYSTEMD ····· For OS system screen storage (for OS copy)
  └─ SPCDATA ····· For special function module monitor data storage (for screen copy)
                   For motion monitor data storage (for screen copy)
                   For servo amplifier monitor data storage (for screen copy)
```

(a) The copied screen data is stored under the UserData folder.
Since the OS and screen data are managed by the Dlist.ini file and the Flist.ini files in the corresponding folders, always install or download the GT Designer OS (specify the PC card as the download destination) to create the memory card.
If Explorer or like in the personal computer is used to copy the OS, the GOT cannot recognize the data in the memory card.

(b) Do not edit the screen data in the memory card directly using GT Designer.
Edit the screen data uploaded by connecting the personal computer and GOT by an RS-232C cable.

(c) When copying the file (alarm history data, recipe data) in the memory card to the personal computer or deleting it, load the memory card into the personal computer and then copy or delete the data using Explorer of the personal computer.
(When copying the screen data, use the data for backup purpose only. When editing, use the method in above (b).)

(d) The SRAM type memory card can be formatted on the GOT.
Check the memory card with the self-diagnostics of the utility function.
When the memory card is checked, the memory card is formatted after the check.
The compact flash PC card cannot be formatted on the GOT.
Use the personal computer to format it.
For the way to format the memory card, refer to the GT Works Version 5/GT Designer Version 5 Reference Manual.

POINTS
You cannot use this function to install the OS (from memory card to internal memory). For details of OS installation, refer to the Help function of GT Designer.

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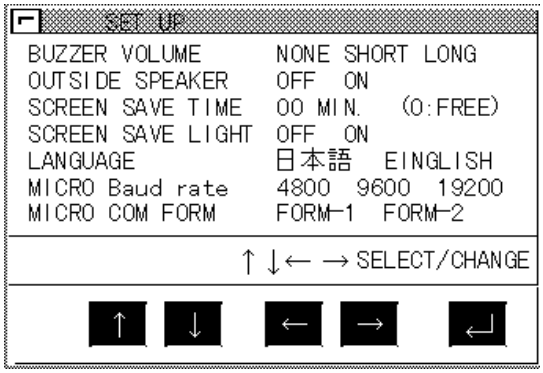
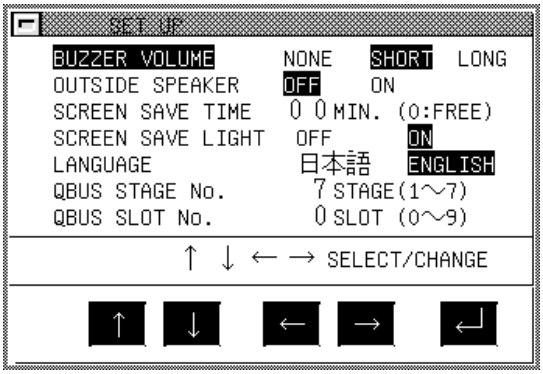
4.5 Setting the operating environment of the GOT (Setup)

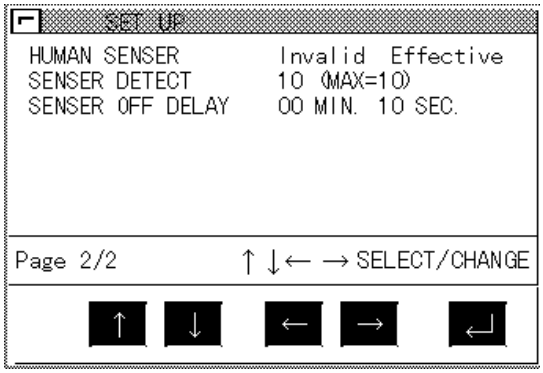
POINT
After changing any of the items in Setup, touching ▭ automatically resets the GOT and shows the monitor screen.

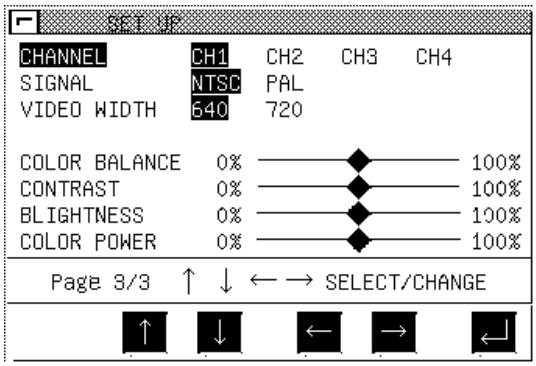
(1) Display screen

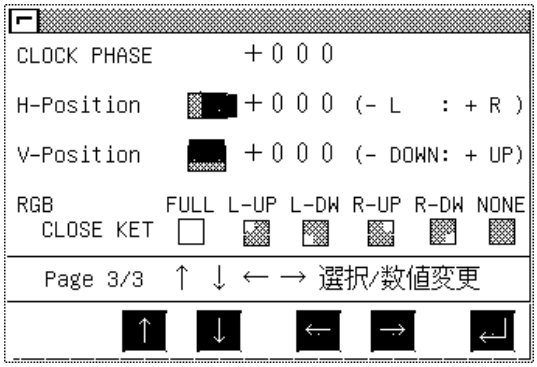
The display screen differs with the GOT used.

<table>
<tr><th>GOT Used</th><th>Screen Example</th></tr>
<tr><td>A97*GOT/
A960GOT</td><td> 

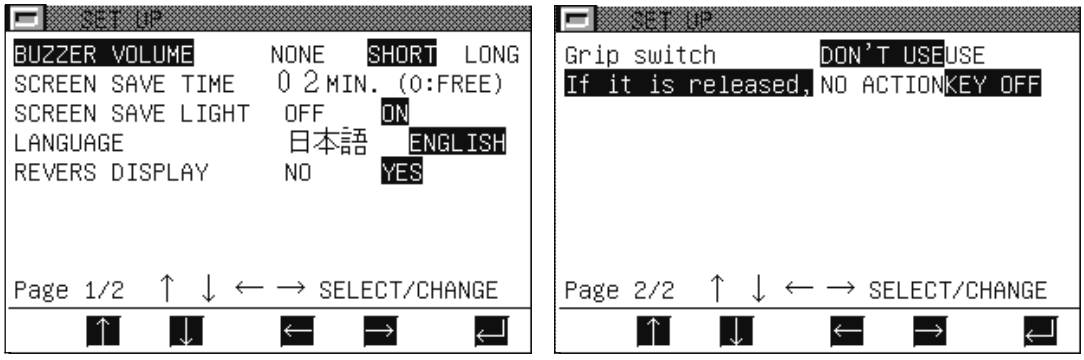
This screen example assumes that the communication driver "Computer" has been installed.</td></tr>
<tr><td>A985GOT
(-V)</td><td> 







This screen example assumes that the communication driver "Bus (Q)" has been installed.
A video window (channel, etc.) and RGB screen (H-Position, etc.) may be set only when the A985GOT-V is used.</td></tr>
</table>

GOT Used	Screen Example
A95*GOT	 This screen example assumes that the communication driver other than "Bus(A, QnA)" has been installed. The grip switch setting and grip switch cancel-time key OFF setting are available only for use of the A950 handy GOT.

(2) Functions

(a) Data that can be set on any GOT

- Buzzer volume
  You can select the length of the beep sound.(Factory-set to SHORT)
- Outside speaker sound
  You can select whether or not voice output is provided from the external speaker (only the voice specified for the touch input sound on the GT Designer).
  (Factory-set to OFF)
- Screen save time
  Set the time until the monitor screen display is switched off by the screen saver function.
  You can set the time between "00 minutes" and "60 minutes".
  When this setting is "0", the monitor screen is always displayed.(Factory-set to 0)
- Screen save light
  When this setting is OFF, the backlight goes off as soon as the display is erased by the screen saver function.
  When this setting is ON, the display will disappear but the backlight will not go off.
- Language
  You can select the language (Japanese or English) of the messages to be displayed on the screen. (Factory-set to Japanese)

(b) Data that can be set when the corresponding communication driver is installed

1) When communication driver for bus connection (Q) is installed

- QBUS extension number
  Set the GOT extension number for bus connection to the QCPU.
  (Factory set to extension 7)
- QBUS slot number
  Set the slot number where the GOT is assigned for bus connection to the QCPU. (Factory set to slot 0)

2) When communication driver for microcomputer connection is installed

- Microcomputer connection baud rate
  You can select the transmission speed when the GOT is connected to a microcomputer.(Factory-set to 19200)
- Microcomputer connection communication form
  You can select the protocol when the GOT is connected to a microcomputer.(Factory-set to FORM-1)

3) When communication driver for computer link connection (AJ71QC24) is installed

- QC24 Baud rate
  Set the transmission speed for connection with the QC24N.
  (Factory-set to 19200bps)

4) When communication driver for OMRON/Hitachi PLC connection is installed

- Baud rate
  Choose the transmission speed for connection with the Omron or Hitachi PLC. (Factory-set to 19200bps)

5) When communication driver for Yasukawa PLC connection is installed

- Baud rate
  Choose the transmission speed (4800, 9600, 19200, 38400).
  (Factory-set to 19200bps)
- Startup time
  Set when (seconds) to start communication with the PLC CPU after power-on of the GOT. (Factory-set to 16 seconds for the GL series or 1 second for other than the GL series)
- Send message delay
  Set the waiting time from when the GOT has received data from the PLC CPU until the GOT send the next data to the PLC CPU. (Factory-set to 0msec)

6) When communication driver for SIEMENS PLC connection is installed

- Baud rate
  Choose the transmission speed (4800, 9600, 19200, 38400).
  (Factory-set to 19200bps)
- Adapter address
  Specify the MPI address on PROFIBUS assigned to the HMI adaptor connected to the GOT. (Factory-set to 2)
- Host (FF) address
  Specify the MPI address on PROFIBUS assigned to the HMI adaptor connected to the GOT. The specified PLC CPU is the "host" when monitor device setting is made on GT Designer.
  For details of monitor device setting, refer to the help of GT Designer.
  (Factory-set to 2)

7) When communication driver for Allen-Bradley PLC connection is installed

- Baud rate
  Choose the transmission speed (4800, 9600, 19200, 38400).
  (Factory-set to 19200bps)
- Adapter address
  Set the address on the DH-485 network assigned to the HMI adaptor connected to the GOT. This setting is required only when multiple CPUs are connected to the GOT.
  Set the same address as the DH-485 Node Address specified for the adaptor.
  The DH-485 Node Address specified should not overlap the Node Address of the PLC on the DH-485 network. (Factory-set to 1)
- Host (FF) address
  Specify the address on the DH-485 network assigned to the PLC CPU to which the HMI adaptor is connected.
  The specified PLC CPU is the "host" when monitor device setting is made on GT Designer.
  For details of monitor device setting, refer to the help of GT Designer.
  (Factory-set to 1)

8) When communication driver for Matsushita Electric Works PLC connection is installed

- Baud rate
  Choose the transmission speed (4800, 9600, 19200, 38400).
  (Factory-set to 19200bps)
- Startup time
  Set when (seconds) to start communication with the PLC CPU after power-on of the GOT. (Factory-set to 0msec)
- Send message delay
  Set the waiting time from when the GOT has received data from the PLC CPU until the GOT send the next data to the PLC CPU. (Factory-set to 3msec)
- C.C.U monitor registration
  Choose whether CCU monitor registration is made or not.
  When multiple GOTs/peripheral devices are connected to one CPU via the C.C.U., up to one unit(When the CPU is the FP10SH, up to five units can be set) can be registered for C.C.U. monitor. When two or more GOTs are used or they are used with peripheral devices together, set "No" for C.C.U. monitor registration.

9) When communication driver for Ethernet connection is installed

10) When extended function OS for gateway functions is installed

11) When A9GT-J71E71-T module is connected

- GOT NET No.
  Set the network number of the GOT. (Factory-set to 1)
- GOT PC No.
  Set the station number of the GOT.
  Do not set the same number as the PC No. of the Ethernet module to be monitored. (Factory-set to 1)
- GOT IP address
  Set the IP address of the GOT.
- GOT port No.
  Set the port number of the GOT. (Factory-set to 5001)
- Router address
  When the network is connected to the other network by a router, set the router address of the network where the GOT is connected.
  (Factory-set to 000.000.000.000)
- Sub-net mask
  When the GOT is connected to the Ethernet network which is controlled the sub-network, set the sub-network mask set commonly to the networks.
  When the sub-network is not used, operation is performed at the default value. (Factory-set to 255.255.255.000)
- Send message wait
  Set the transmission wait time to reduce loads on the network and target PLC. (Factory-set to 0)
- Send message time
  Set the time-out period. (Factory-set to 3)
- Startup time
  Set when (seconds) to start communication after power-on of the GOT. (Factory-set to 3msec)

12) When communication driver for CC-Link connection (CC-Link (ID)) is installed.

- Send message time
  Set the time-out period. (Factory-set to 3)

(c) Data that can be set when the specific GOT is used

1) Setting of display mode (may be made for the A95*GOT-LBD(-M3) only)
- Reverse display
  The display mode (normal display (No)/highlighted display (Yes)) is selected.
  (Only A95*GOT-LBD (-M3) can be selected. Normal display is set at the time of shipment.)

2) Setting of human sensor (may be made for the A985GOT(-V) only)
- Screen save Human sensor
  You can select whether the screen saver is deactivated or not when the Human sensor has detected a man's motion. (Available for the A985GOT only, factory-set to Invalid)
- Human sensor detection sensitivity
  You can select the detection sensitivity of the Human sensor in any of 11 steps, levels 0 to 10, so that the sensor will not detect a motion such as a man passing before the GOT.
  (Available for the A985GOT only, factory-set to 10)

Detection sensitivity setting	10	9	8	7	6	5	4	3	2	1	0
Monitor time [sec]	0	0.1	0.2	0.4	0.8	1	1.5	2	2.5	3	4

- Human sensor OFF delay
  The Human sensor can be turned off when it does not detect a man's motion after it has turned on. You can set that period between "00 min. 10 sec." and "60 min. 00 sec.".(Available for the A985GOT only, factory-set to 00 min. 10 sec.)

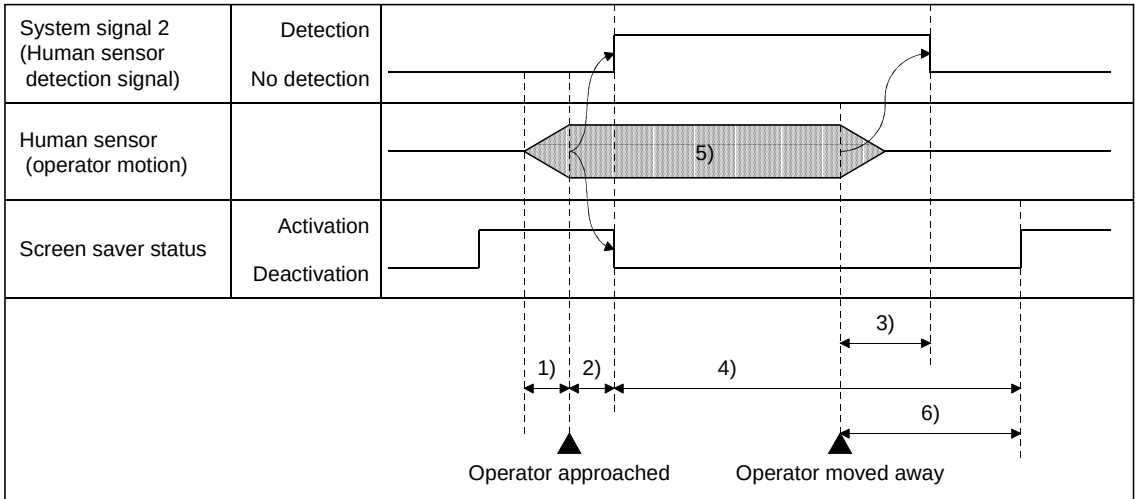
3) Setting of grip switch (may be made for the A950 handy GOT only)
- Grip switch
  You can set whether the grip switch will be used or not.
  When the setting is USE, hold down the grip switch and perform operation. Setup and self-diagnostic operations can be performed independently of the grip switch.
  (May be set only for the A950 handy GOT, factory-set to USE)
- If it is released
  You can set whether the touch key pressed on the GOT display will be turned off or not at the time of grip switch cancel.
  At the setting of "NO ACTION", the pressed touch key is turned off when it is released.(May be set only for the A950 handy GOT, factory-set to KEY OFF)

4) Setting of video window (may be selected only when the A9GT-80V4 is fitted to the A985GOT-V)
- Channel
  You can choose the video channel for which video window settings are made.
  The settings can be made per video channel.
- Signal
  You can choose the video picture input system (NTSC/PAL).
- Video width
  You can choose the video window resolution (720×480 dots/640×480 dots)
- Color balance/contrast/brightness/color power
  You can adjust the contrast, brightness and others of the video picture displayed on the GOT. (May be selected only when the A9GT-80V4 is fitted to the A985GOT-V, factory-set to 50%)

5) Setting of RGB screen (may be selected only when the A9GT-80R1 is fitted to the A985GOT-V)
- Clock phase
  You can adjust the flicking of the RGB screen displayed on the GOT.
- H-Position/V-Position
  You can adjust the position of the RGB screen displayed on the GOT.
- RGB close key
  You can select which position of the screen to touch to switch from the RGB screen to the GOT monitor screen.
  You can also turn on/off the bit device (RGB display controlling bit) to switch the screen.
  For the RGB display controlling bit, refer to the GT Works Version 5/GT Designer Version 5 Reference Manual.
  (Factory set to FULL)

POINT

- If the touch panel is not touched within the specified time, the screen saver function switches off the display to prevent "burn-in" of the display device.
  Especially for the display screen type of EL, it is recommended to use this function.
- Dedicated to the A985GOT, the Human sensor function automatically deactivates the screen saver, without any touch on the touch panel, by means of a signal detected by the Human sensor.
  Using the system information function of the GOT, the signal detected by the Human sensor may also be controlled by the PLC CPU. For full information on the system information function, refer to the GT Designer HELP function.
  Signal detection timings are shown below.



1) Motion that the Human sensor cannot detect (outside the range or too low moving speed)
2) Detection error of Human sensor (approx. 0.5 sec) + delay due to Human sensor detection sensitivity
3) Human sensor OFF delay time + communication processing time
4) Time when screen saver is being deactivated
5) Human sensor OFF delay setting is required since the Human sensor outputs Detection and No detection alternately.
6) Human sensor OFF delay + screen save time

(3) Operation

(a) Basic operation

- Touch [↑] or [↓] to select the necessary item.
- When the A985GOT, A950 handy GOT is used, select the last item on Page 1/2 and touch [↓] to show Page 2/2.
- For the setting item whose value will be changed, highlight the digit to be set by touching [←] [→], and set the value by touching [↑] or [↓].

  (If you are going to select another setting item after that, return the highlight to the setting item by touching [←], and make selection by touching [↑] or [↓].)
- After setting, touch [↵].

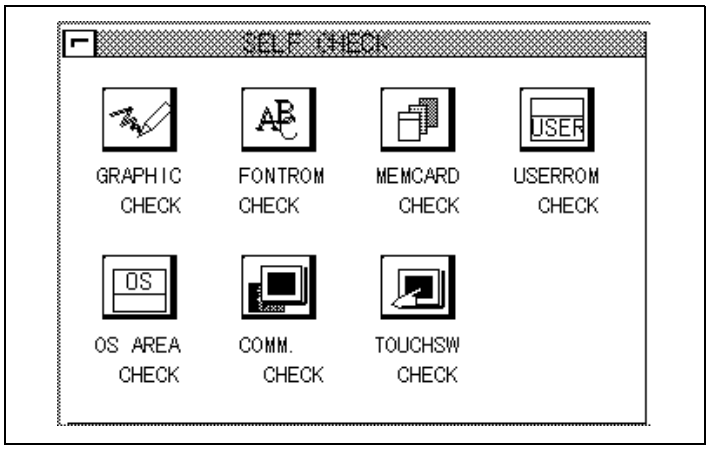
  After touching [↵], the GOT is automatically reset and the monitor screen appears.

(b) Return to each screen

- If any change has been made to the Setup settings, touching ▭ resets and restarts the GOT.
- If any change has been made to the Setup settings, touching ▭ resets and restarts the GOT.
  The display returns to the utility menu or monitor screen.

4.6 Running diagnostic checks on GOT hardware (self-test)

(1) Display screen



(2) Features

Diagnostic checks on GOT hardware include the following options:

- Graphic Check.....Allows you to perform visual inspection on screen display for discoloration and lack of display.
- Fontrom Check.....Allows you to perform visual inspection for deformation in font size.
- Memcard Check ·····Allows you to make a check on the hardware of a memory card. After checking, a memory card are initialized.
- Userrom Check ·····Allows you to check for user space in the internal memory. The password must be entered to check the user area of the built-in memory. The password is "1111" (fixed). (The entered password is displayed as "****" on the screen.) After checking, user space is cleared to delete any data contained in the user space.
- OS Area Check ·····Allows you to check for OS space in the internal memory.
- Comm. Check·····Allows you to check for GOT-to-PLC CPU communications.
- Touchsw Check·····Allows you to check for touch keys.

The GOT performs these checks.

(3) Procedure

(a) Basic operation

- Select the desired button to perform a diagnostic check.
- Select options as instructed on-screen.
- You will see a message indicating that the selected diagnostic check was successfully completed.
- If an error is detected, you will see a message indicating the occurrence of the error.
- The Image Check allows you to view the following elements:

  1) The entire screen is displayed in one color. Display colors are changed in the order of red-green-blue.

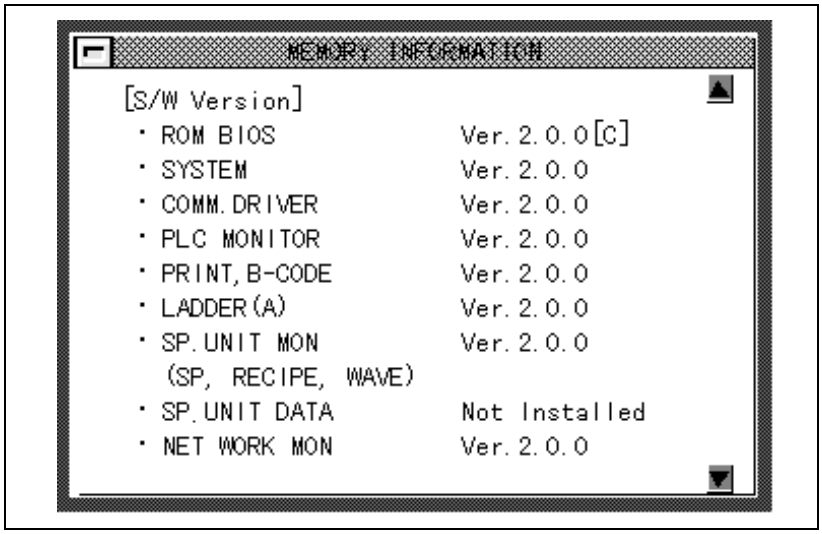
  2) Basic figures are displayed, including circles and squares.

  3) Ellipses and checkered patterns are tiled or cascaded on-screen.

4.7 Displaying GOT memory information (memory information)

(1) Display screen

Sample screen



(2) Features

The contents of GOT memory information include:

- OS version number
- Status of communications with the PLC CPU
- Available space in the internal memory
- Availability of memory cards and available space in a memory card
- Availability of the ladder monitor function

(3) Procedure

(a) Basic operation

Touch ▲ ▼ to scroll screens.

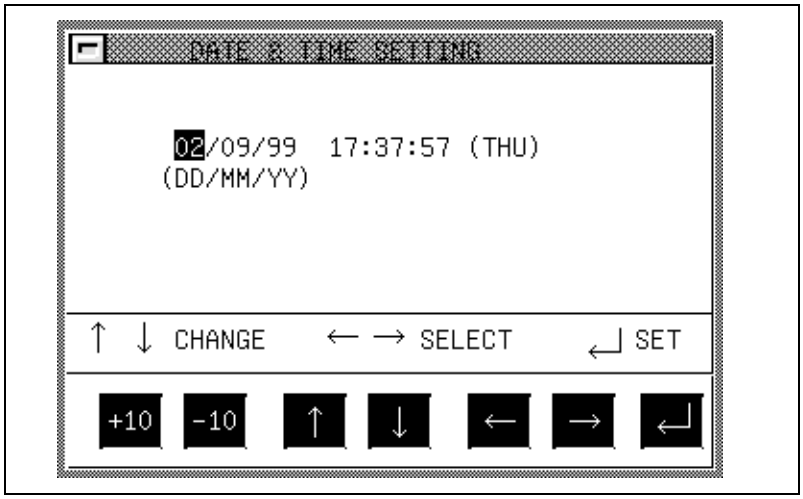
(b) To return to the Utility Menu screen

Touch ▭ to return to the Utility Menu screen.

4.8 Setting the Clock (Clock)

(1) Display screen

Sample screen



∗ The time when the Clock Settings screen was displayed is shown in the window panel. The time indicator in the upper-right corner of the screen shows the current time. After correcting the date or time, check the clock for the current time.

(2) Features

- The date, time, and a day of the week can be set to adjust the clock of the PLC CPU and the A9GT-RS2T.

(3) Procedure

(a) Basic operation

- Touch [←] [→] to select the desired option.
- Touch [↑] or [↓] to change numeric values.
- Touch [+10] or [-10] to to change the numerical values in increments of 10.
- Touch [↵] to set the clock of the PLC CPU.

(b) To return to the Utility Menu screen

- Touch [▭] to return to the Utility Menu screen.

POINTS

- Adjust the clock when you start up the system.
- The clock cannot be properly adjusted while reading or writing clock data by running sequence programs on the PLC CPU side (or when M9028 is turned on by sequence programs in the case of the ACPU).
- This option is not selectable from the Utility Menu screen when connected to the PLC CPU that has no clock function.
- This option is not selectable when the A9GT-RS2 is used for microcomputer connection.
- For MELSECNET/10 connection, the function is unavailable when the connection target CPU is the Q00JCPU, Q00CPU or Q01CPU.

4.9 Displaying the display area cleanup screen (screen cleanup)

(1) Display screen

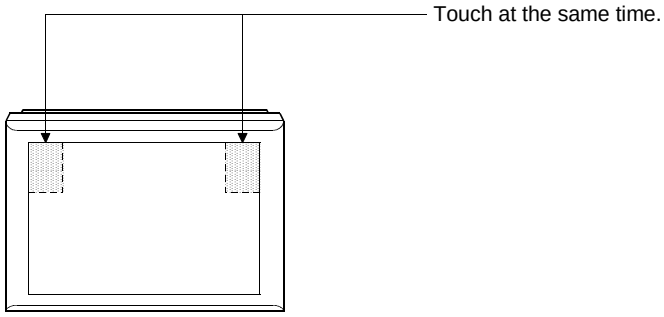
(2) Features

- A black screen is displayed when cleaning up the display area. This makes the screen easy to view.

(3) Procedure

(a) Basic operation

- Touch the upper right and left corners of the screen at the same time to return to the Utility Menu screen.



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4.10 Changing security levels (security password)

(1) Screen display

(2) Features

- If objects (numeric input or touch keys, etc.) are secured by using GT Designer, their security levels can be changed by entering a password.
- If the characters entered match a password, a message appears on-screen, telling that the security levels have been properly changed. Touching ▭ will return to the Utility Menu screen.
- If the characters entered do not match a password, an error message appears on-screen. Touching ▭ will return to the Utility Menu screen.
- Numerical numbers and alphabets [A] to [F] can be used for a password.
- Details about security levels, see GT Works Version5/GT Designer Version5 Reference Manual

(3) Procedure

(a) To enter a password, follow these steps:

- Touch 0 to 9 and A to F to enter a password.
- Touch ↵ to confirm the password entered.
- To correct the password entered, touch DEL to delete wrong characters and enter correct characters again.

(b) To quit entering a password:

- Touch ▭ to return to the previous monitor screen.

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4.11 Controlling limited access to the utility menu (password)

(1) Screen display

(2) Features

- Password protection can be set on the GOT by using GT Designer. If access to the Utility Menu screen is password-protected, a screen asking you to enter a password is displayed when you touch the upper right and left corners of the screen or when you touch a touch key on the screen.
  A dialog box for defining a password is contained in the common settings menu of GT Designer.
- If the characters entered match a password, the Utility Menu screen appears.
- If the characters entered do not match a password, an error message appears on-screen. Touching Exit will return to the previous monitor screen.
- Numerical numbers and alphabets A to F can be used for a password.

(3) Procedure

(a) To enter a password, follow these steps:

- Touch 0 to 9 and A to F to enter a password.
- Touch ↵ to confirm the password entered.
- To correct the password entered, touch DEL to delete wrong characters and then enter correct characters again.

(b) To quit entering a password:

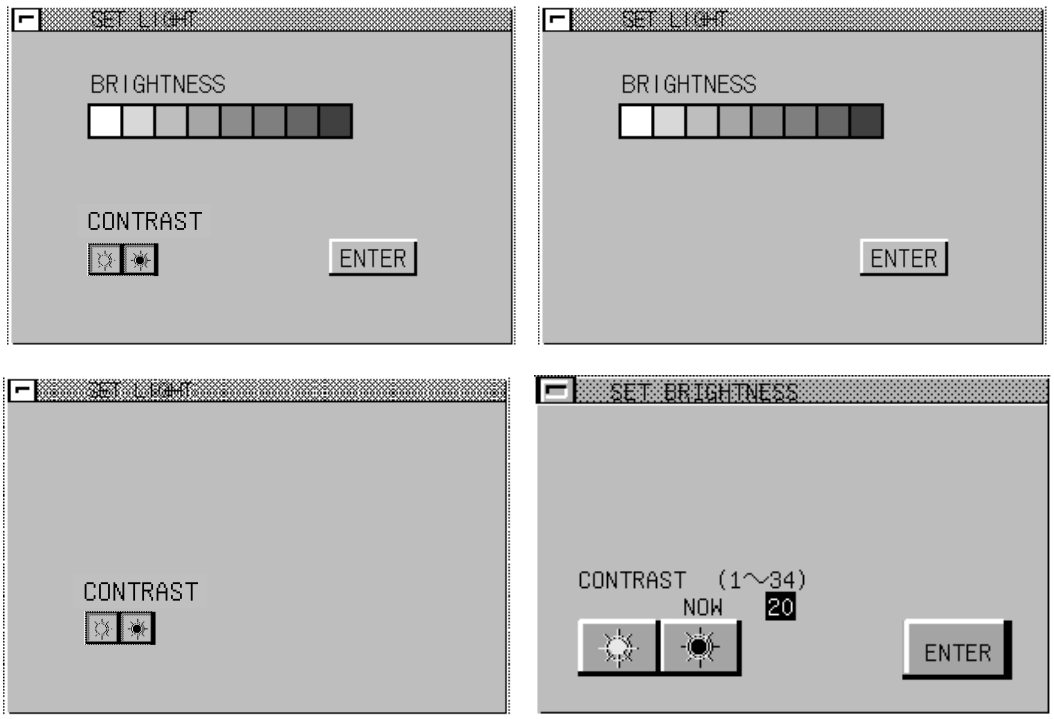
- Touch Exit to return to the previous monitor screen.

4 - 19

4.12 Adjusting the brightness of the monitor screen on the dedicated screen (Brightness adjustment)

(1) Display screen

Screen Example



(2) Function

- Used to adjust the brightness of the monitor screen.

(3) Operation

(a) Basic operation

- Touch any of ☐ to ■ to select the brightness.
- Touch ☼ ✹ and at top of the screen to make contrast adjustment. You can adjust the contrast in about 20 steps.
- Touch Enter to store the settings into the GOT.

(b) Return to the utility menu screen

- Touching ▭ returns to the utility menu screen.

4 - 20

POINT

Some GOTs display the brightness adjustment switch on the screen though they cannot use the brightness adjustment function.
The brightness adjustment switch can be hidden in the following method.

(1) Corresponding GOTs

Type : A975GOT-TBA, A970GOT-TBA
Serial number : 9806AA to 9807AA
Confirm the serial number in the DATE field of the product rating plate.

(2) Method

Install the system programs into the GOT.
Install all system programs (except ROM_BIOS) that have been installed into the target GOT. The system programs installed in the GOT can be confirmed in the following method.

1) Confirmation on the GOT
You can confirm the system programs in the memory information of the utility function.

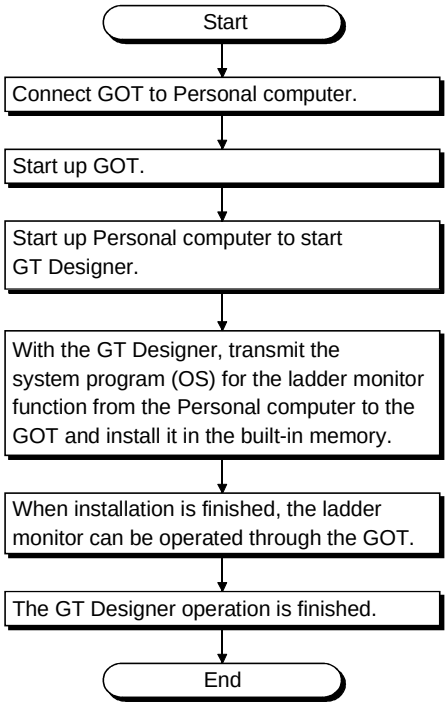
2) Confirmation from GT Designer
You confirm the system programs in the built-in memory information of GT Designer.
Refer to Help of GT Designer for details of the built-in memory information.

CHAPTER5 OPERATION PROCEDURES FOR THE LADDER MONITOR FUNCTION

The operation procedures to follow when using the ladder monitor function are explained in the following section.

5.1 Operation procedures before starting ladder monitoring

This section contains a summary of the procedures for transmitting the system program (OS) for the ladder monitor function from the personal computer to the GOT until it is installed in the built-in memory.
For details, please refer to the Help in GT Designer. Details of the screen display and key operation are shown in the Help.



It is not necessary to set up and operate the GOT after startup.

Transmit the data using the installation dialog box.

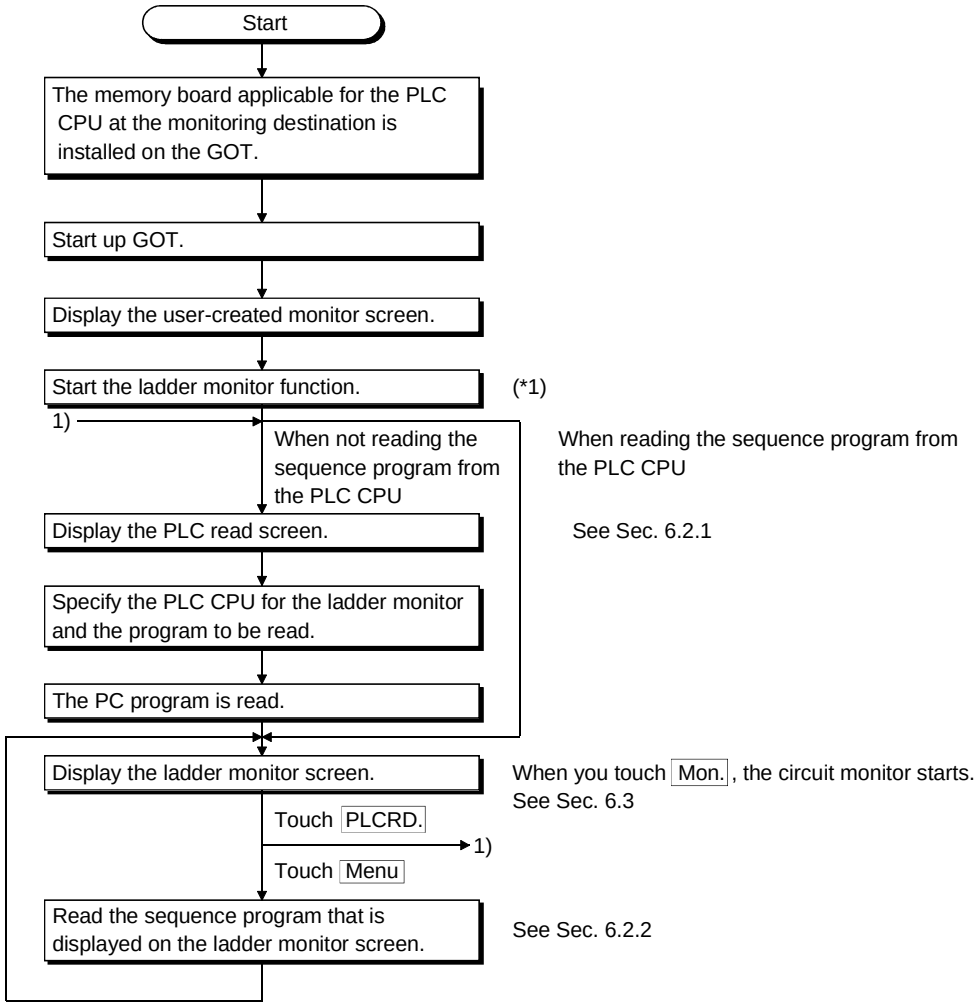
When installation is finished, "Completed" is displayed on the installation dialog box.

Proceed to Section 5.2 to operate the screen monitor.

5 - 1

5.2 Operation procedures from display of user-created monitor screen to start of ladder monitoring

This section shows the operation procedures for the GOT when starting each operation of the ladder monitor function after the ladder monitor function system program (OS) has been installed in the GOT built-in memory.



*1 The ladder monitor function can be started in either of the following two methods.
Starting from the touch key ..... Touch the touch key where the extension key (ladder monitor) has been set.
Starting from the utility menu of the GOT ..... Touch LADDER MON. in the utility menu.

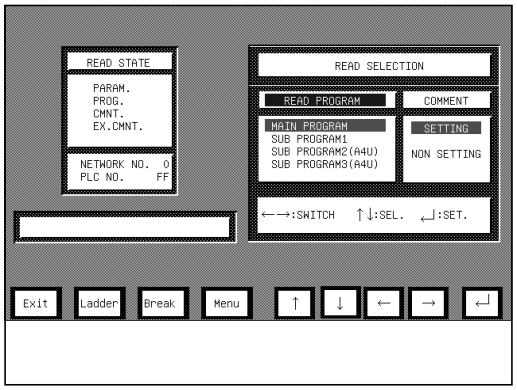
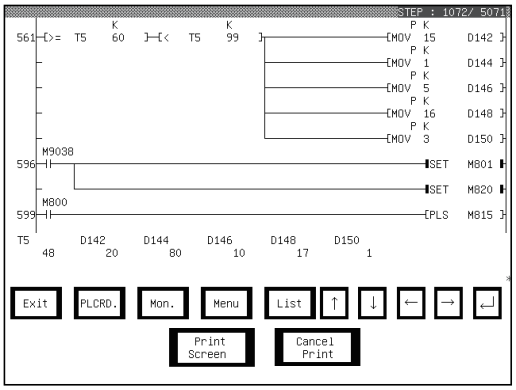
CHAPTER6 OPERATING THE VARIOUS LADDER MONITOR SCREENS

The following sections describe each screen operation when using the ladder monitor function.
The screens used for explanations in this chapter are mainly those of the A975GOT.
The ladder monitor display screen varies slightly with the GOT used. Refer to Section 6.1 for differences between the display screens.

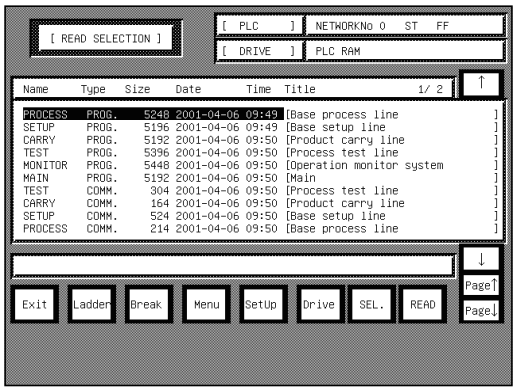
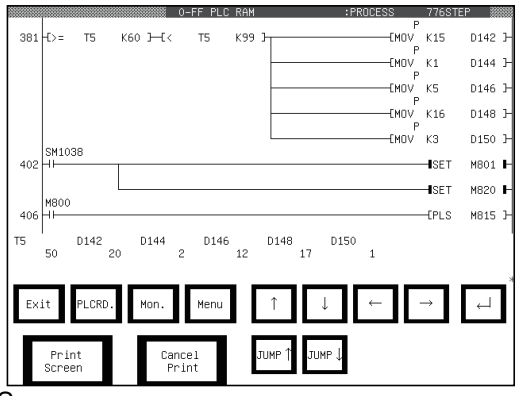
6.1 Display screens

The ladder monitor display screen varies with the used GOT and target PLC CPU.

(1) MELSEC-A/FX ladder monitor

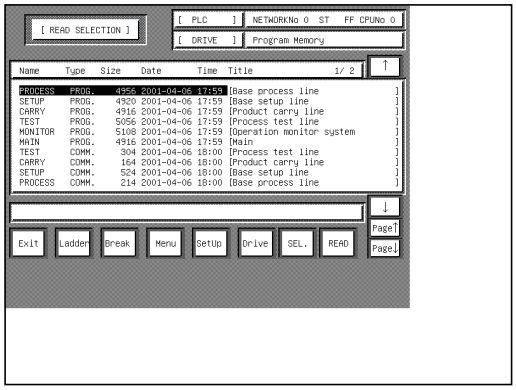
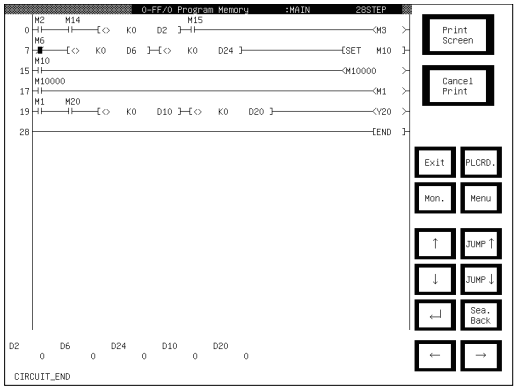
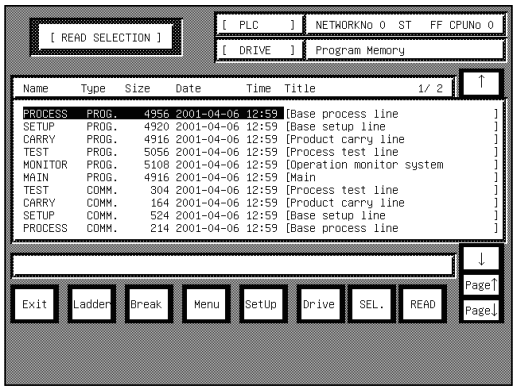
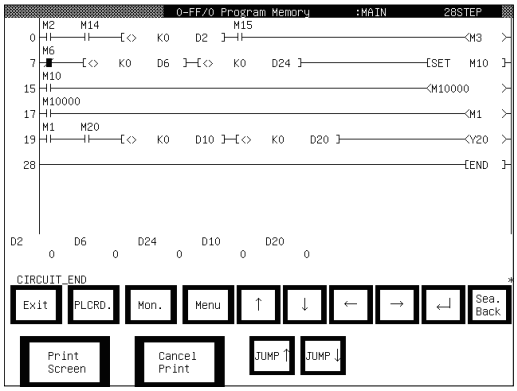
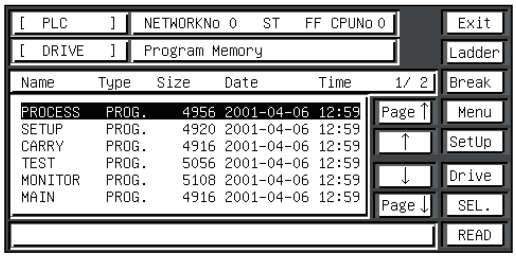
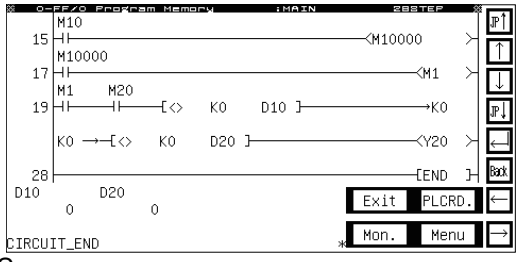
Used GOT	PLC read screen	Ladder monitor screen
A985/A97*/ 960GOT		 • Sequence program : Max. 8 lines (1 line: Max. 11 contacts) displayed • When the display screen type is the EL, the [Print Screen] and [Cancel Print] keys are not displayed.

(2) MELSEC-QnA ladder monitor

Used GOT	PLC read screen	Ladder monitor screen
A985/A97*/ 960GOT		 • Sequence program : Max. 8 lines (1 line: Max. 11 contacts) displayed • When the display screen type is the EL, the [Print Screen], [Cancel Print], [JUMP↑] and [JUMP↓] keys are not displayed.

6

(3) MELSEC-Q ladder monitor

Used GOT	PLC read screen	Ladder monitor screen
A985GOT		 • Sequence program : Max. 15 lines (1 line: Max. 11 contacts) displayed
A97*/960 GOT		 • Sequence program : Max. 8 lines (1 line: Max. 11 contacts) displayed • When the display screen type is the EL, the [Print Screen], [Cancel Print], [JUMP ↑] and [JUMP ↓] keys are not displayed.
A956WGOT	 • Headings are not displayed in the file list.	 • Sequence program : Max. 5 lines (1 line: Max. 7 contacts) displayed • The [Print Screen] and [Cancel Print] keys are not displayed.

6.2 Screen operation and screen changes when monitoring

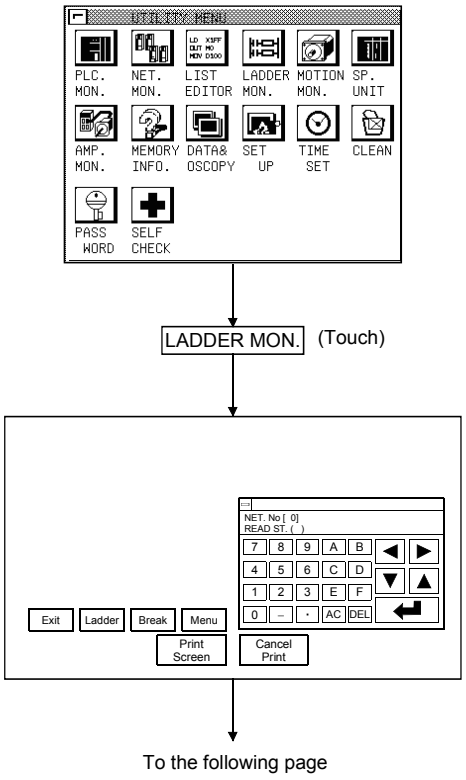
This section includes an explanation of the PLC read operation that reads out the sequence program from the PLC CPU when executing the ladder monitor, the ladder read operation that specifies the sequence program to be displayed on the ladder monitor screen, and the screen movement when executing the ladder monitor.

6.2.1 Reading data from the PLC

The operation of reading the sequence program for the ladder monitor from the PLC CPU is described below.
The operation procedures vary depending on the PLC CPU to be monitored.
All of the keys used with the operation are touch keys displayed on the screen.
Touch the position where the object key is displayed and enter the data.

(1) When the MELSEC-A/FX ladder monitor is executed

[Operation procedure]



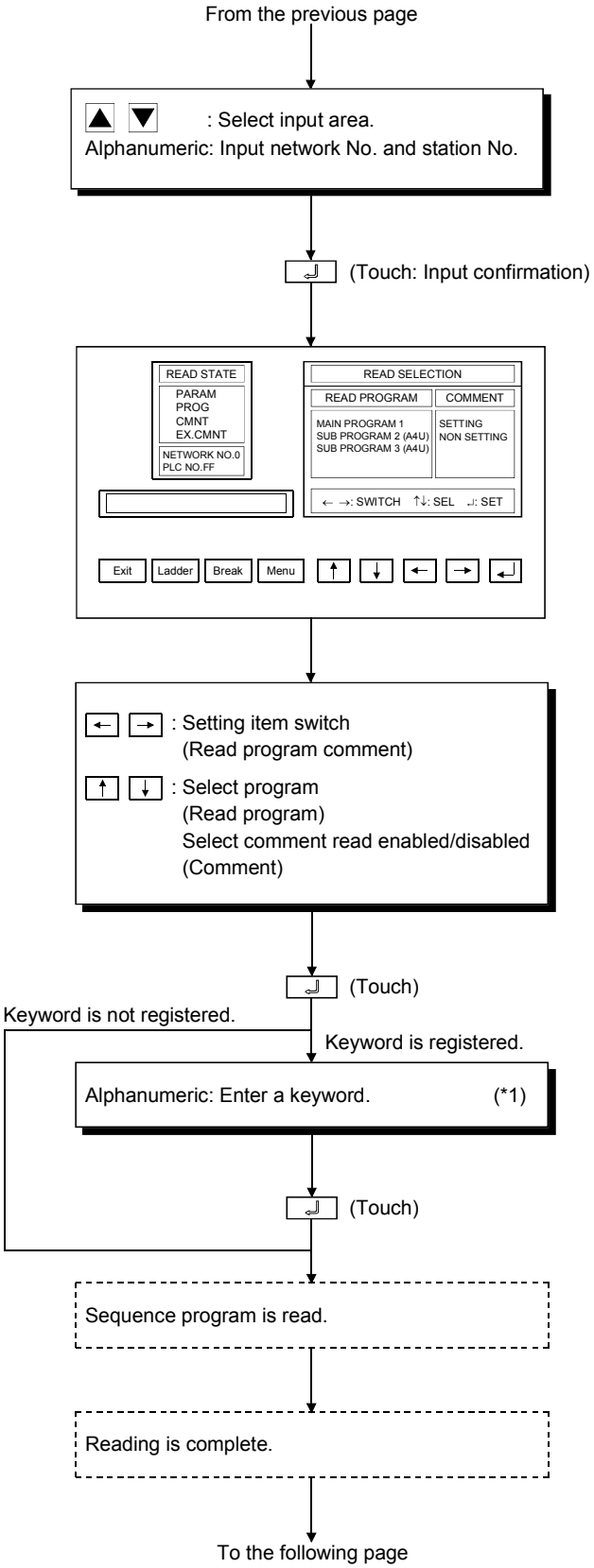
1) Touch the ladder monitor starting touch switch on the monitor screen prepared by the user or touch the LADDER MON. on the utility screen to start the ladder monitor function.

2) Specify the network No. and station No. for the object PLC CPU.
(For data link system, CC-Link system)

NET NO	:	0	
READ ST.	:	FF	(Own station)
		0	(Master station)
		1 to 64	(Local stations)

(For network system)

NET NO	:	1 to 255	(Host Net)
		0	(Master station)
READ ST.	:	FF	(Own station)
		1 to 64	(Control station)
		1 to 64	(Normal station)

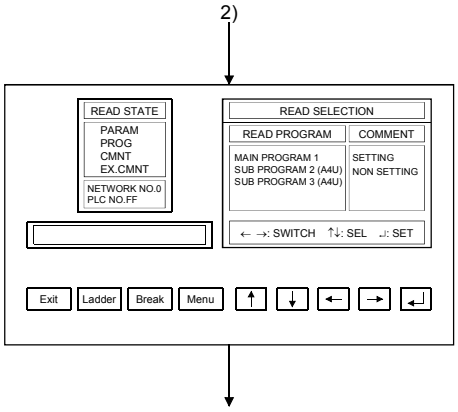


3) In "Read Selection", specify the sequence program to be read from the object station.
Specify whether or not to perform comment read.

4) Input the keyword that is registered to that station.
If no keyword has been registered, nothing has to be entered.

5) The contents and capacity of the read procedure are displayed. When you touch Break, the read procedure is interrupted. When reading resumes, it stars at the beginning.

6) "Completed" is displayed.



Change screen.

Exit : Moves to screen where ladder monitor function starts.

Ladder : Moves to ladder monitor screen.

PLCRD. : Moves to PLC read screen.

*1 Data being entered can be cleared by the following keys.

AC : Clears all data being entered to the object area.

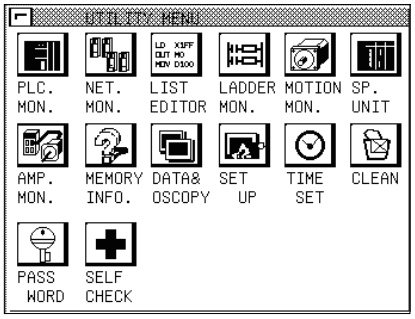
DEL : Clears one character at the cursor position.

POINT

Once this data has been read from the PLC, it does not need to be read again. If data for screens created by the user is downloaded from the computer after this data has been read, however, the data will have to be read again.

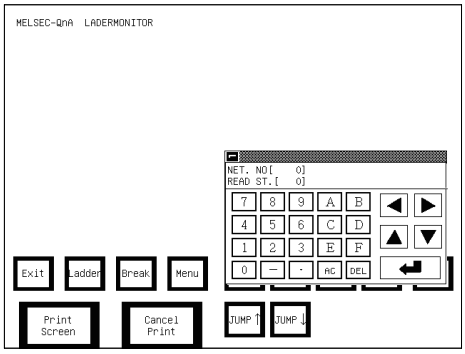
(2) When the MELSEC-Q/QnA ladder monitor is executed

[Operation procedure]



1) Touch the ladder monitor starting touch switch on the monitor screen prepared by the user or touch the LADDER MON. on the utility screen to start the ladder monitor function.

POINT
If ROM_BIOS is not installed, an error message is displayed. Touch the END button and install the ROM_BIOS (H version or later).

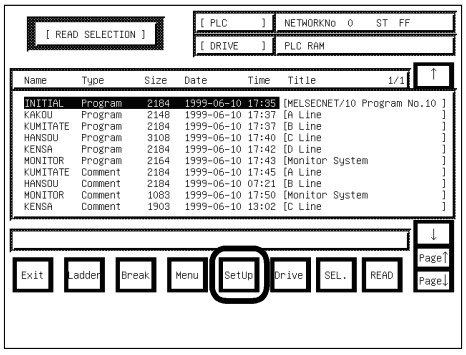


2) The key window is displayed. Set the network No./station No. /CPU No.*1 of the applicable PLC CPU with the following keys.

◀ ▶	: Select the input area.
Alphanumeric	: Input the network No. and the station No.
AC	: Clear all input data to the applicable area.
DEL	: Clear one character at the cursor position.
↵	: Define the input.

POINT
Designate the network No./ the station No. and CPU No.*1 of the applicable PLC CPU. (For CC-Link system) Network No. : 0 Station No. : 0 (mask station) (For network system) Network No. : 1 to 255 (self-loop) Station No. : 1 to 64 (control station) 1 to 64 (normal station) (For Ethernet connection)*2 Network No. : 1 to 239 Station No. : 1 to 64 (For multi-CPU system) CPU No. :0 to 4 (CPU number)

*1 Displayed for MELSEC-Q ladder monitor only.
*2 The monitor target must be preset using GT Designer. For MELSEC-A ladder monitor, specify the network number/station number set on GT Designer. Refer to the help of GT Designer for details of the monitor target setting for Ethernet connection.

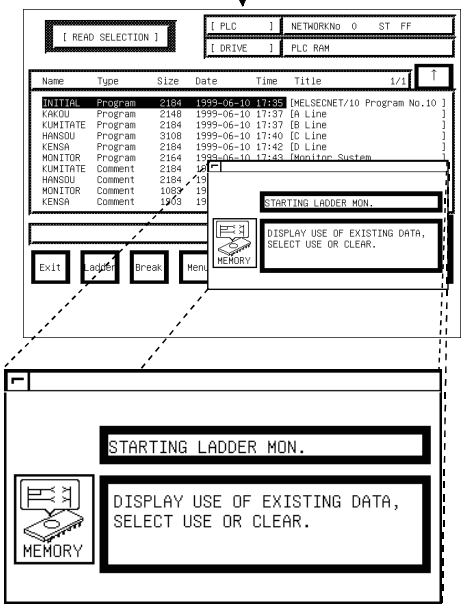


3) The PLC read screen appears.
First, touch the Set Up key to display the setting window.

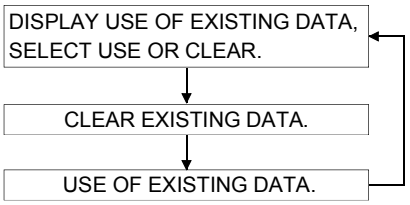
To the following page

6 - 6

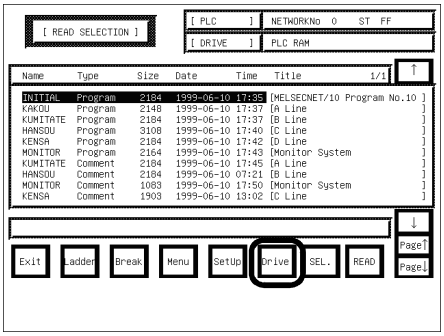
From the previous page



4) The setting window appears.
Make the setting for initial ladder monitor start.
Touching the MEMORY key changes the setting choice as indicated below.



After the setting is over, touch the ▭ button.

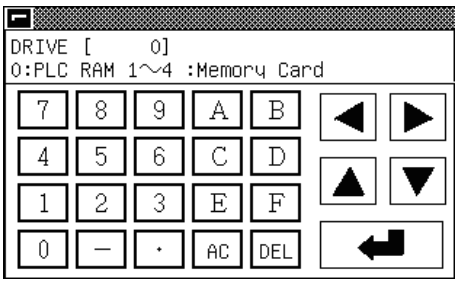


5) Then, touch the Drive key to select the drive (applicable memory) which stores the applicable ladder data to be monitored.

To the following page

6 - 7

From the previous page

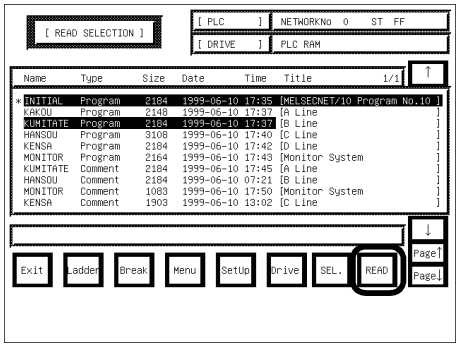


6) The Drive Selection Window is displayed. Select the drive (applicable memory) with the following keys.

[0] to [4] : Input the drive number.

[AC] : Clear all input data on the drive.

[↵] : Define the input.



7) The file list of the selected drive is displayed. Select the ladder to be read with the following keys.

[↑] : Move the cursor upward.

[↓] : Move the cursor downward.

[Page ↑] : Display the previous page.

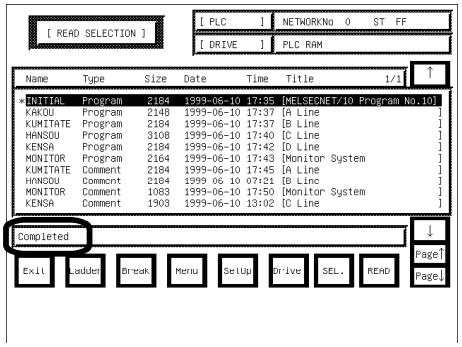
[Page ↓] : Display the next page.

[SEL.] : Move the cursor and touch the key to change select (*)/cancel.

[READ] : Start reading the selected ladder.

POINT

- MELSEC-Q ladder monitor
  When a password is registered at the PLC CPU, a file password window is displayed at the start of reading. Input the password. (It does not have to be input if it is not registered.)
- MELSEC-QnA ladder monitor
  When a keyword is registered at the PLC CPU, a key window is displayed at the start of reading. Input the keyword. (It does not have to be input if it is not registered.)



8) Contents and capacity of the reading process are displayed. Touch [Break] to stop the reading process. To read the ladder again, start from the beginning.

9) When the message "Completed" is displayed, reading is completed. Change the screen with the following keys.

[Exit] : Move to the screen when the ladder monitor is started.

[Ladder] : Move to the ladder monitor screen.

[Menu] : Start from setting window (2) for the network No./station No.

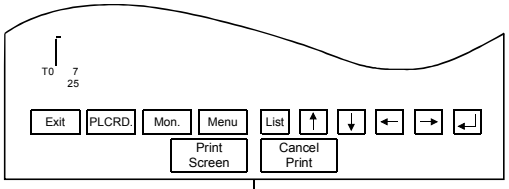
POINT

Once PLC reading is performed, operations for PLC reading are not required from the next time onward.

6.2.2 Ladder read operation

This section describes the object sequence program of the ladder monitor that is read from the PLC CPU, for the operation displayed on the ladder monitor screen.

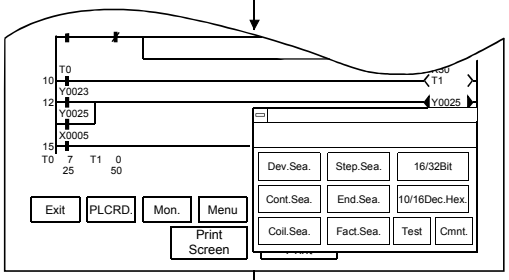
[Operation procedure]



* When there is a ▭ at the upper left of the screen, touch it to return to the original screen.

MENU (Touch)

When the screen below is currently displayed, it is not necessary to touch this.



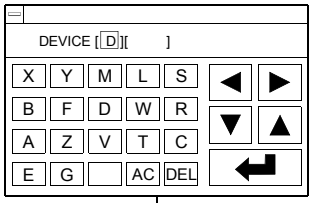
The ladder read operation is executed.

When specifying and reading the device, contact point or coil used in the program (*4)

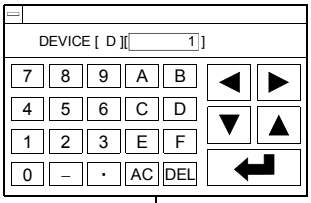
(Touch any of these.)

Dev.Sea. Cont.Sea. Coil.Sea.

(When entering device name)



(When entering device No.)

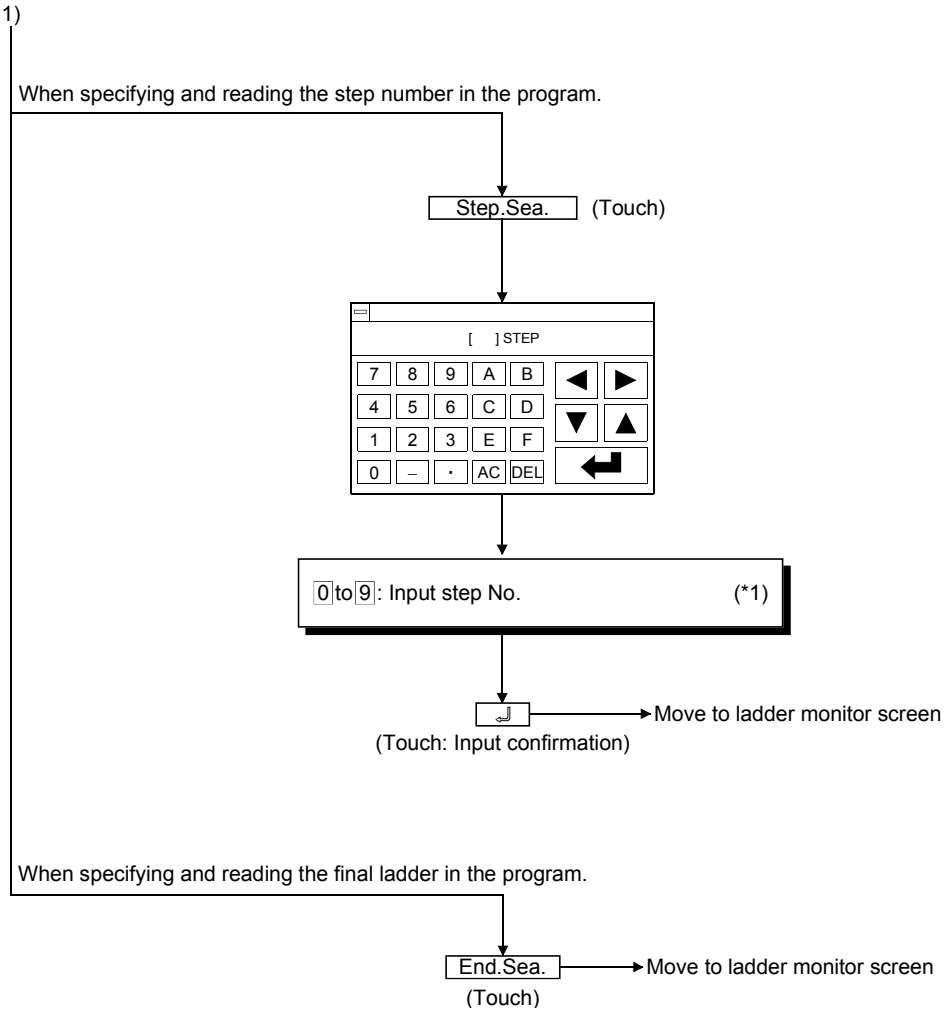


◀ ▶ : Select input area.
Alphanumeric: Enter device name and device No. (*1)

1)

↵ → Move to ladder monitor screen (*2)

(Touch: Input confirmation)



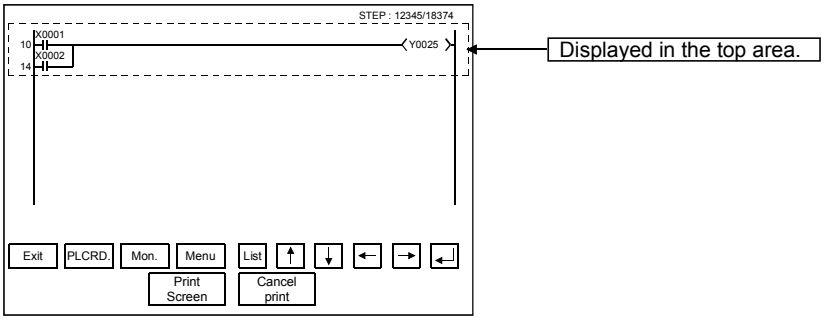
*1 Data being entered can be cleared by the following keys.
AC : Clears all data being entered to the target area.
DEL : Clears one character at the cursor position.

*2 When specifying and reading a device, contact point or coil used in the program, the search targets all programs starting from the step number displayed on the previous ladder monitor screen, to the program immediately previous to the one displayed.
After moving to the screen monitor screen, continuous reading by the same device is enabled by touching ↵ on the screen.
If you touch any other key but ↵, the continuous read function is canceled.

*3 When device search, contact point search, or coil search is performed during ladder monitoring, only the ladder block which includes the read search device is displayed.

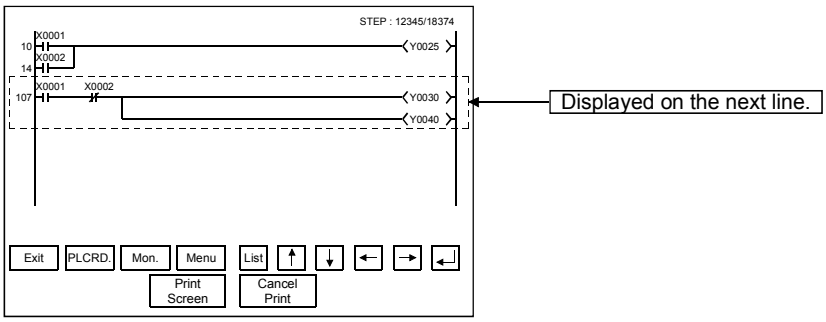
Example) 1) When the device name to be searched is entered as "X0001"

<Ladder monitor screen>



2) When the same search is repeated

<Ladder monitor screen>



*4 Please note that the indirect specification device (index register (z)) cannot be specified and read while the MELSEC-QnA ladder monitor is executed.

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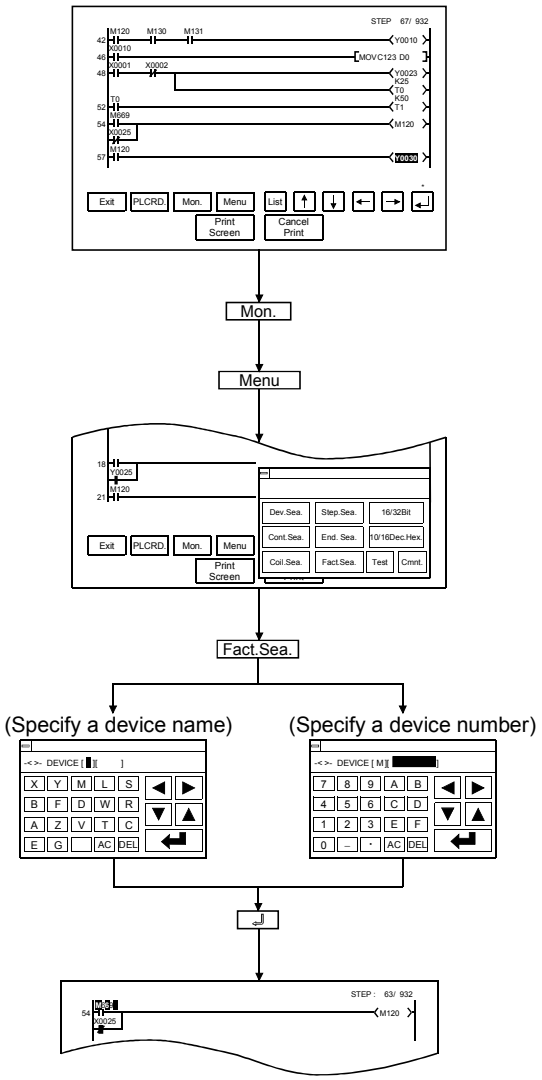
6.2.3 Using the defect search

The defect search enables you to examine an ladder block that caused a failure. It helps you to search from the ladder block backward so that you can determine why any coil was turned ON or OFF during the ladder monitoring, or whether its contact is conductive or nonconductive.

POINT
While the MELSEC-QnA ladder monitor is performed, the factor search function cannot be used. (The touch key of Fact.Sea. is not displayed.)

[Operation procedure]



(1) Search for and display a ladder block where a failure occurred.
Example: When a valve connected to Coil Y0030 does not operate properly, begin searching for Coil Y0030 and view its ladder block on the screen.

(2) Touch Mon. to start the ladder monitoring.

(3) Touch Menu and then select Fact.Sea. from among options that appear on-screen.
If you touch Fact.Sea. without executing the ladder monitor function, operation changes depending on the type of the ladder monitor used.
For MELSEC-A ladder monitor: The "No MONITORING" message appears and the following operation cannot be performed.
(Operation is enabled after execution of monitor.)
For MELSEC-Q ladder monitor: Monitor is executed automatically and the following operation is enabled.
After termination of a defect search, monitor stops automatically with the search result retained.

(4) Another dialog box where you can specify a device name or device number is displayed on-screen. Specify any contact of which coil is not turned ON as a search device.
Example: Specify "M120" as the search device.

▶ ◀ : Used to select a data entry field.
Alphanumeric : Used to enter a device name or device number. *1
▭ : Used to stop the defect search, returning to the ladder monitor screen.

*1 Use the following touch keys if you want to delete any data entry:
AC : Clears all the data entered in a specific field.
DEL : Clears one character at the cursor position.

(5) Start searching for a device that caused a failure and view search results on the ladder monitor screen. Search from the last step number backward as displayed on the ladder monitor screen.

Please note that any touch keys other than Esc and Exit are enabled until the defect search is completed.

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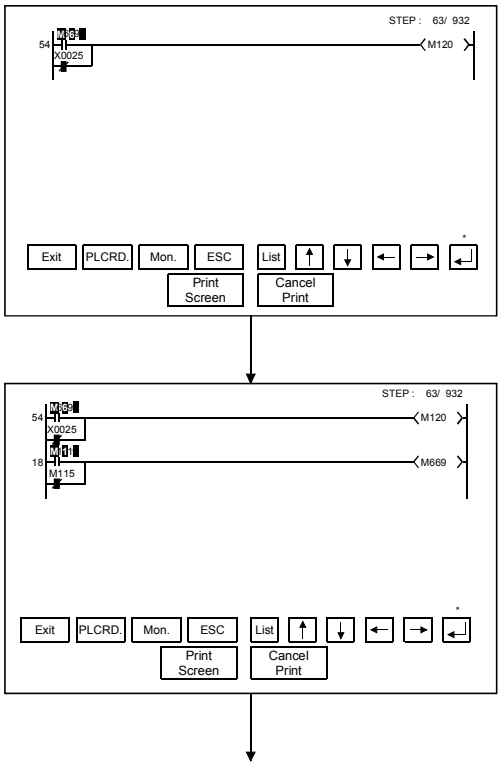
[Search results]

Search results reveal any occurrences of the search device. They are useful when you determine whether a defective device is conductive or nonconductive.
If any occurrence of the search device is not found as a result of the search, a message appears on-screen, telling that "PROGRAM NOT FOUND."

(1) When an occurrence of the search device is found:
If an occurrence of the search device is found as a result of the search, the search for another defective device will automatically be started.
Example: After searching for Device M120 that is in the OFF state, "M669" will be displayed as a device that caused a failure.



A search for another defect is repeated.

After searching for Coil M120 that is in the OFF state, "M669" is displayed as a device that is not conductive.
Example: M669

* After searching for a device that is in the ON state, a device that is conductive is displayed. The entire field of the device name and number is highlighted on-screen.
Example: M669

After searching for Coil M669 that is in the OFF state, "M111" is displayed as a device that is not conductive.
Example: M111

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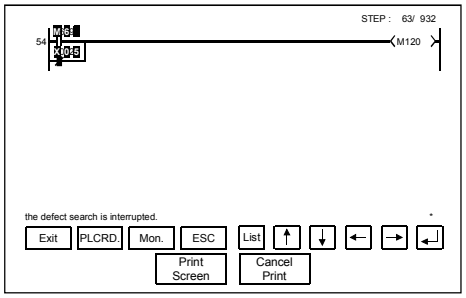
(2) When two occurrences of the search device are found.
If there are two or more devices that caused a failure, the "the defect search is interrupted" message appears and the defect search is terminated.

Example: After searching for Device M120 that is in the OFF state, "M669" and "X0025" will be displayed as devices that caused a failure.



After searching for Coil M120 that is in the OFF state, "M669" and "X0025" are displayed as devices that are not conductive.
Example: M669, X0025

* After searching for a device that is in the ON state, devices that are conductive are displayed. The entire field of the device name and number is highlighted on-screen.
Example: M669, X0025

When resuming the defect search, specify either of the found contacts M669 and X0025.
(After touching Esc to change it into Menu, execute the defect search.)

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(3) Precautions for making defect search

(a) If a B-contact is found defective as a result of the defect search, a search for the cause of the ON/OFF state will be automatically switched.

(b) After the end of the defect search, the GOT stops monitor and displays the search result.
Hence, the monitor screen of the GOT shows the result retained during the defect search.

(c) While the search result is displayed after the end of the defect search, the searched ladder can be displayed backwards by pressing ↑ ↓ (single ladder block scroll) or JUMP↑ JUMP↓ (10 ladder block jump (available for only the MELSEC-Q ladder monitor function)).
Up to 100 ladders can be displayed on-screen. The following messages will appear at the start or the end of the search results.
- When viewing the start of search results: "This is the start of search results."
- When viewing the end of the search results: "This is the end of search results."

(d) The ON/OFF of the contact and coil is displayed as described below.
1) During automatic search execution
MELSEC-A ladder monitor: Displays ON/OFF in the entire ladder displayed on the screen.
MELSEC-Q ladder monitor: Displays ON/OFF in the ladder displayed last.
2) During search result display
The ON/OFF of the ladder block searched last and the monitor results of word devices are displayed.

(e) When the defect search starts, Menu changes into Esc.
Touch Esc during the defect search to stop the defect search and display the search result.
Further, touch Esc to change Esc into Menu and display the normal ladder.

(f) The screen during the defect search operates as described below.
1) If the display data exceeds one screen during the defect search
The screen is scrolled automatically.
2) If the ladder step searched during the defect search exceeds one screen
MELSEC-A ladder monitor: The screen is scrolled automatically to the last line of the ladder step.
MELSEC-Q ladder monitor: The screen is not scrolled automatically to display the ladder step.

(g) Touching Esc can stop the defect search. Search results are continuously displayed on-screen until Esc is touched.
The ladder step searched last is displayed as described below.
- MELSEC-A ladder monitor: ON/OFF display is not provided.
- MELSEC-Q ladder monitor: ON/OFF display is provided.

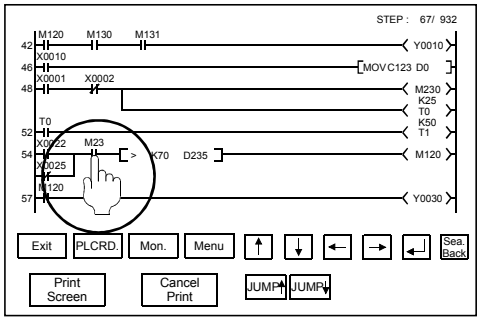
6.2.4 Touch search operation

A touch search is the function designed to search for the coil of a device when its contact displayed in the ladder monitor is touched and to search for the contact of a device when its coil is touched.
A search can be made from the beginning of a ladder to its last step.
This function is always valid when a normal ladder is displayed.

POINT

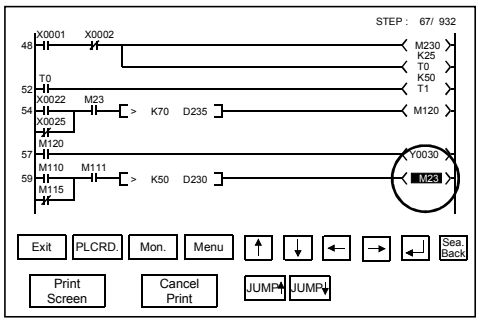
- The touch search function cannot be used when MELSEC-A/FX/QnA ladder monitor is executed.
- The function cannot be used for instructions other than contacts and coils and for word devices.
- When the defect search function is in use, the touch search function cannot be used.
  (Touch Esc to terminate the defect search.)

[Operation procedures (when contact is touched to search for coil)]



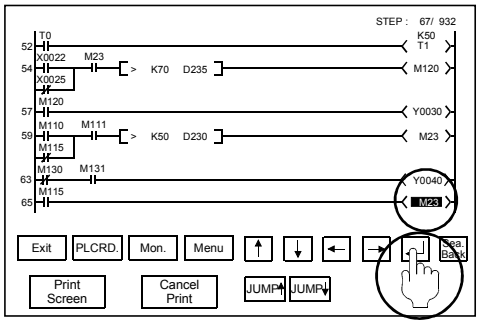
(1) Touch the contact on the ladder monitor screen.

↓



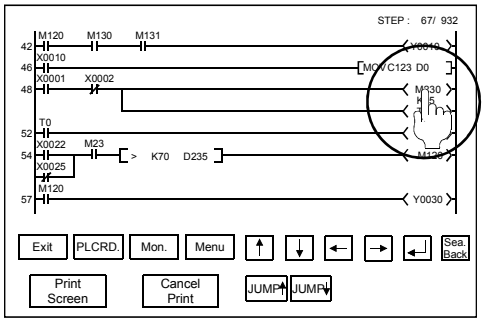
(2) The coil of the device whose contact was touched is searched for, and the single ladder block including the coil found is added to the display.
(The found device is highlighted.)

↓



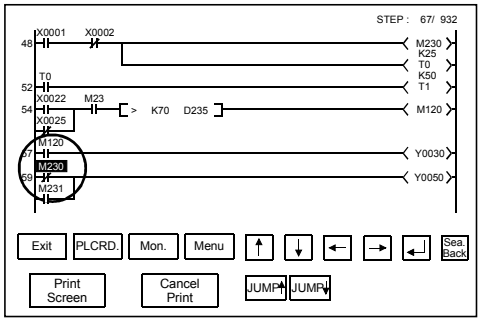
(3) Touch ↵ to search the ladder downward continuously.

[Operation procedures (when coil is touched to search for contact)]



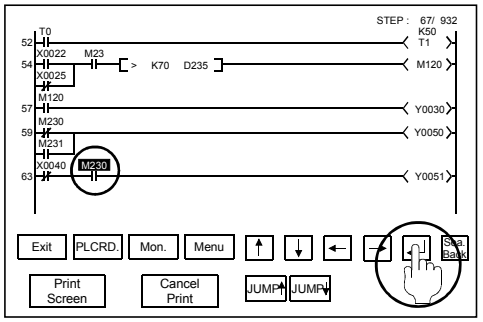
(1) Touch the coil on the ladder monitor screen.

↓



(2) The contact of the device whose coil was touched is searched for, and the single ladder block including the contact found is added to the display.
(The found device is highlighted.)

↓



(3) Touch ↵ to search the ladder downward continuously.

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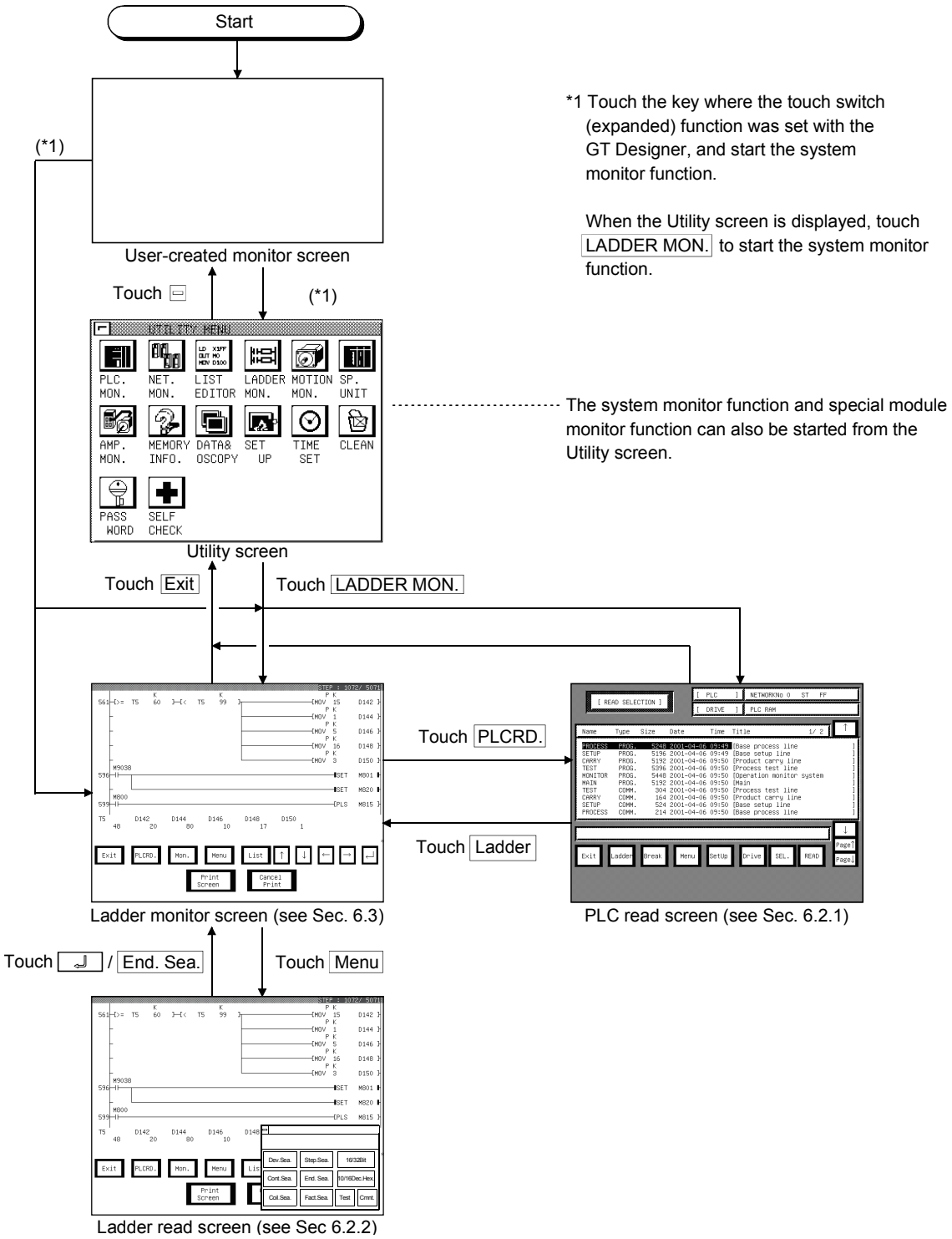
6.2.5 Changing from one screen to another

This section describes the screen movements when executing the ladder monitor from the status where the user-created monitor screen is displayed.



*1 Touch the key where the touch switch (expanded) function was set with the GT Designer, and start the system monitor function.

When the Utility screen is displayed, touch LADDER MON. to start the system monitor function.

The system monitor function and special module monitor function can also be started from the Utility screen.

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6.3 Ladder monitor

The ladder monitor screen display and the keys that are shown at the top of the screen are explained in this section.

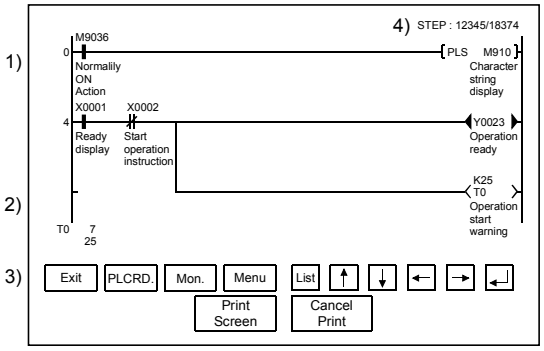
6.3.1 Ladder monitor screen display and key functions

The ladder monitor screen varies depending on the type of PLC CPU to be monitored.

POINT
After executing PLC read, if the PLC CPU comment or comment capacity is changed, the comment may not be correctly displayed on the ladder monitor screen. When changing the comment or comment capacity, re-start the GOT.

(1) When MELSEC-A/FX ladder monitor is executed

(a) Display



When comment is not displayed : maximum 8 lines
When comment is displayed : maximum 3 lines

ON/OFF status display for ladder monitor
- ON status
- OFF status

* The MCR command is normally displayed as -||-.

1)	Sequence program is displayed. A maximum of 11 contact points is displayed in one line of a ladder; for 12 contact points or more, move to the next line. When a comment display is specified, a comment is also displayed; expanded comments are given priority (For the method of displaying comments, see Sec. 6.3.3.).
2)	A maximum of eight devices is displayed for the word device current value, timer and counter current value (upper row), and set value (lower row). When the set value is an indirect specification, the value of the indirectly specified device is displayed. (To switch between decimal and hexadecimal for the displayed value, see Sec. 6.3.3.).
3)	Display the keys used with the operation on the ladder monitor screen shown in (b) (Touch input).
4)	The display step number (left) and the remaining step number (right) are displayed.

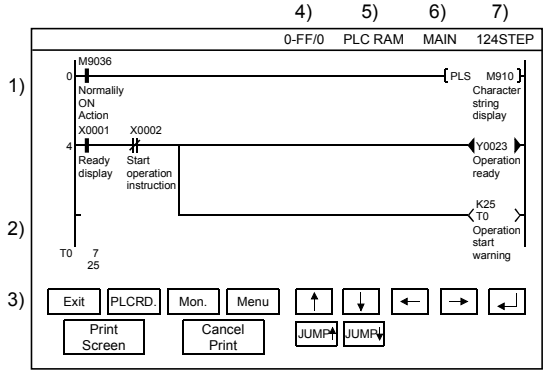
(b) Key functions

This table shows the key functions used with the operations on the ladder monitor screen.

Key	Function
Exit	Return to screen where ladder monitor function starts.
PLCRD.	Move to PLC read screen to read sequence program being monitored from PLC CPU (PLC read).
Menu	Move to ladder monitor menu screen, to specify sequence program to be displayed on ladder monitor screen (Ladder read).
Mon.	Start monitoring of sequence program that is displayed on ladder monitor screen.
List	Activates the List editor function. (For details of the List editor function, see Chapter 19.)
→ ←	Switch display device when there are nine or more devices displaying current values and set values.
↑ ↓	Display one ladder; scroll up or down.
↵	When reading ladder with device specification, read next program with same device specification (see *2 in Sec. 6.2.2.).

(2) When MELSEC-Q/QnA ladder monitor is executed

(a) Display



When comment is not displayed : maximum 8 lines
When comment is displayed : maximum 3 lines

ON/OFF status display for ladder monitor
- ON status
- OFF status

* The MCR command is normally displayed as ⊣⊢.

1)	Sequence program is displayed. A maximum of 11 contact points is displayed in one line of a ladder; for 12 contact points or more, move to the next line. *1 When a comment display is specified, a comment is also displayed; expanded comments are given priority (For the method of displaying comments, see Sec. 6.3.3.).
2)	A maximum of eight devices is displayed for the word device current value, timer and counter current value (upper row), and set value (lower row). When the set value is an indirect specification, the value of the indirectly specified device is displayed. (To switch between decimal and hexadecimal for the displayed value, see Sec. 6.3.3.).
3)	Display the keys used with the operation on the ladder monitor screen shown in (b) (Touch input). *2
4)	The network No., the station No. and CPU No. are displayed.
5)	The drive is displayed.
6)	The file name of the PLC program is displayed.
7)	The total number of steps in the current monitor PLC program is displayed.

*1 Depending on the GOT model, a display is provided on the MELSEC-Q ladder monitor screen as indicated below.
- A985GOT: Max. 15 lines displayed (1 line: Max. 11 contacts)
- A956WGOT: Max. 5 lines displayed (1 line: Max. 7 contacts)

*2 When the A985GOT or A956WGOT is used, the operation keys appear on the right side of the MELSEC-Q ladder monitor screen.

(b) Key functions

This table shows the key functions used with the operations on the ladder monitor screen.

Key	Function
Exit	Return to screen where ladder monitor function starts.
PLCRD.	Move to PLC read screen to read sequence program being monitored from PLC CPU (PLC read).
Menu	Move to ladder monitor menu screen, to specify sequence program to be displayed on ladder monitor screen (Ladder read).
Mon.	Start monitoring of sequence program that is displayed on ladder monitor screen.
→ ←	Switch display device when there are nine or more devices displaying current values and set values.
↑ ↓	Display one ladder; scroll up or down.
↵	When reading ladder with device specification, read next program with same device specification (see *2 in Sec. 6.2.2.).
Sea. Back	Displays the search history of the device/contact/coil search or touch search one place backward.
JUMP↑ JUMP↓	Scrolls the display up or down by ten ladders.

POINT

About the Sea. Back key

- Immediately after the Sea. Back key has been pressed to go back in the history, a continuous device search using the ↵ key cannot be executed.
- Using the Sea. Back key, you can go back into the history up to 100 ladders.
- When any of the following operations is performed, the search history is cleared to return to the normal ladder display.
  1. When the ↑ ↓ key is touched
     (When a single ladder block takes up more than one screen, scrolling can be made within the block.)
  2. When the JUMP↑ JUMP↓ key is touched
  3. When a step search, END search or defect search is executed
  4. When a comment display is changed
  5. When a new ladder is read by touching PLCRD.

6.3.2 Precaution during ladder monitoring

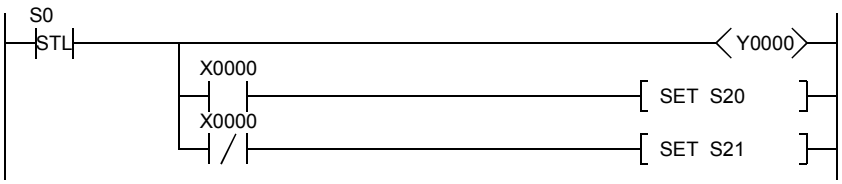
(1) When making connection to the FXCPU

(a) The comment display is kana comments only.

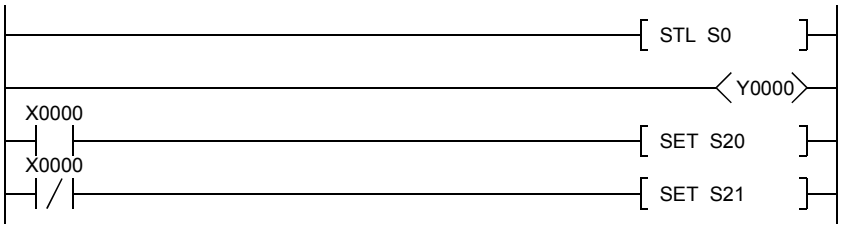
(b) During PLC read operation, the PLC read can only be performed for own station only.

(c) STL (step ladder), the FXCPU exclusive instruction, is not a contact point, but treated as an instruction and displayed in the following manner:

When monitoring with the peripheral device for FX



When ladder monitoring with GOT



(d) When searching for STL instruction, search for "S (state)" in the device search.

(e) The ladder data in which the following instructions are used cannot be displayed on the GOT.
Do not use the following instructions when executing the ladder monitoring on the GOT.

FNC No.	Instruction	FNC No.	Instruction	FNC No.	Instruction
External device SER		Clock operations		Data table processing	
87	RS2	164	HTOS	256	LIMIT
Floating point		165	STOH	257	BAND
112	EMOV	Other instructions		258	ZONE
116	ESTR	184	RND	259	SCL
117	EVAL	188	CRC	External device communication (inverter communication)	
124	EXP	189	HCMOV		
125	LOGE	Character string control		270	IVCK
126	LOG10	202	$+	271	IVDR
128	ENEG	203	LEN	272	ICRD
133	ASIN	204	RIGHT	273	ICWR
134	ACOS	205	LEFT	274	IVBWR
135	ATAN	206	MIDR	External device communication (inverter communication)	
136	RAD	207	MIDW		
137	DEG	208	$MOV	280	HSCT
Positioning		Data processing 3		Extension file register control	
150	DSZR	212	POP	290	LOADR
151	DVIT	213	SFR	291	SAVER
—	—	214	SFL	292	INITR
—	—	—	—	293	LOGR

(2) When making connection with the motion controller CPU

(a) When the OS version is "SV5**" in the SVST instruction, "J**" appears as the tag name of MC.

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6.3.3 Switching the display form (decimal/hexadecimal) and turning the comment display on/off

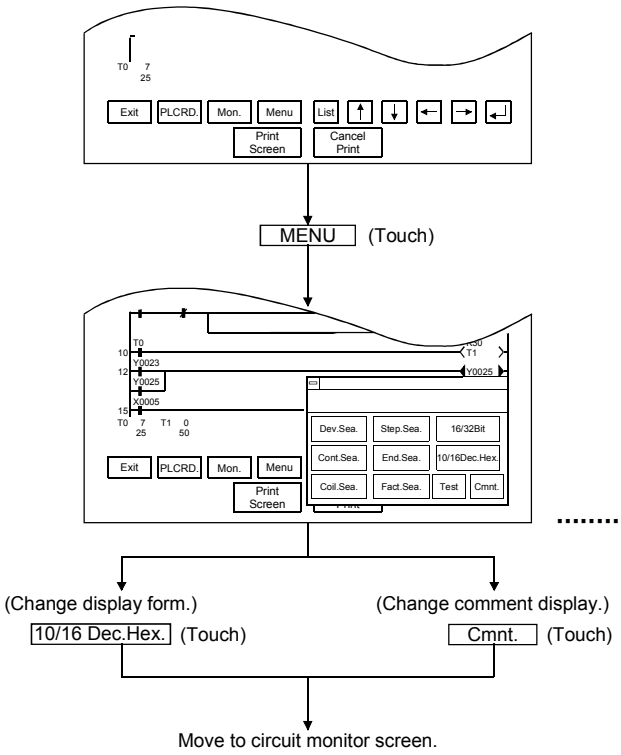
You can switch the display form (decimal/hexadecimal) of the word device value or the timer/counter value that is displayed on the ladder monitor screen. You can also specify whether or not to display a comment for the object device.

1) Switching the display form (decimal/hexadecimal)
When monitoring, display the word device current value, the timer/counter current value (upper row) or the set value (lower row) in decimal or hexadecimal (When decimal is displayed, the display changes to hexadecimal.).

2) Switching the comment display on and off
Display the comment that is written in the object PLC CPU (When no comment is displayed, this turns on the comment display). Comment display priority order: expanded comment > Japanese character comment or Japanese kana comment

The display change operation is explained below.

[Operation procedure]



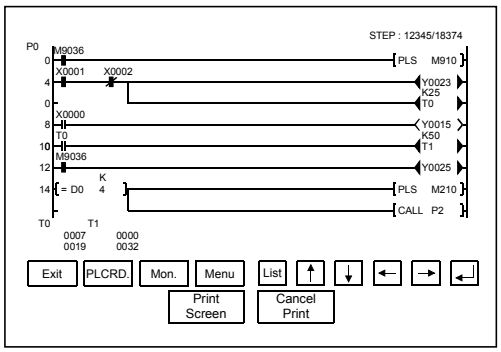
* When there is a ▭ at the upper left of the screen, touch it to return to the original screen.

When the screen below is currently displayed, it is not necessary to touch this.

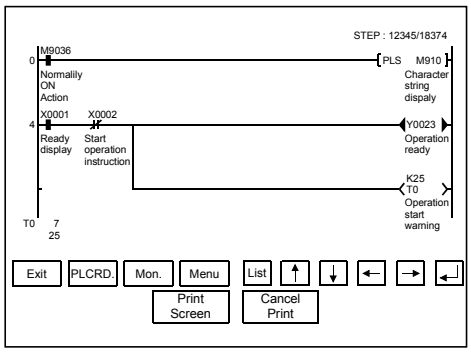
Touch the appropriate display position on the ladder monitor menu.

..... After moving to the ladder monitor screen, the word device value is Mon. when you touch Mon.

(When changing to hexadecimal display)



(When changing to comment display)



6.3.4 Changing the device value

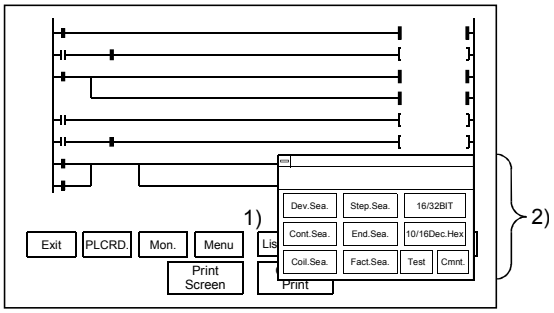
CAUTION

- Read the manual carefully and fully understand the operation before the test operation (ON/OFF of bit devices, modifying current value of a word device, modifying timer/counter setting, modifying the current value, or modifying the current value of a buffer memory) of ladder monitor.
  In addition, never modify data in a test operation to a device, which performs a crucial operation to the system.
  It may cause an accident by a false output or malfunction.

Changing the device value on the screen during ladder monitoring is described. Switches for the timer/counter value display format (decimal/hexadecimal), and the comment display for the corresponding device (on/off) can be performed.

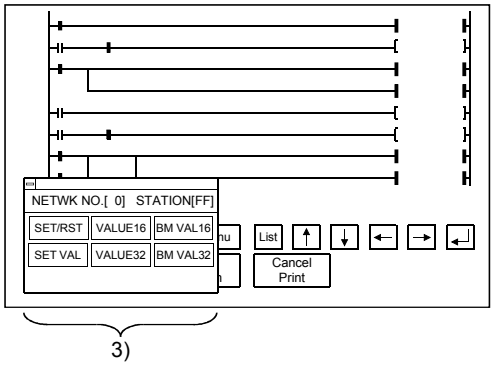
(1) Device value changing method
The device value changing method during ladder monitoring is described below:

<Circuit monitor Screen>



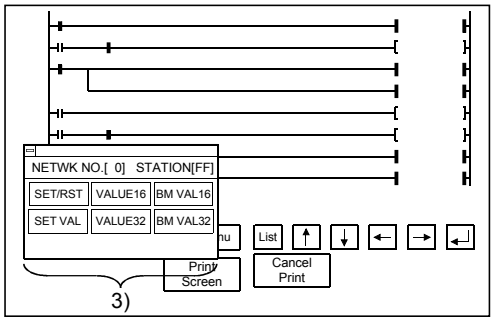
Display the ladder monitor screen by touching LADDER MON..
1) Display the screen shown in 2) by touching Menu.
2) Display the test window by touching Test.

[When using A970GOT-STN TFT]



3) As the test window will open, perform the operation by seeing Sec. 9.6.
After the device change is complete, the changed contents can be verified in the ladder monitor.

[When using A960GOT-EL]

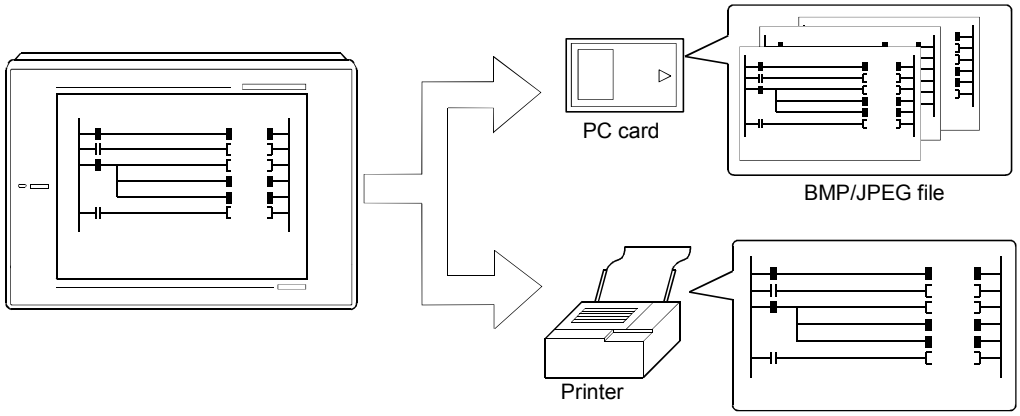


NOTE

The current value display of the word device becomes hidden from view due to the test window.
Using the → ← key entries, the hidden current value display can be displayed by scrolling to the right/left.

6.3.5 About Hardcopy Output

This section describes the way to print the ladder monitor screen with the printer or to save it in the PC card in the BMP/JPEG file format during ladder monitor.



Depending on the used GOT, output the hardcopy in the following corresponding method.

(1) When A985GOT or A97*GOT is used

Touch the Print Screen or Cancel Print key displayed on the ladder monitor screen to output the hardcopy.

(2) When A95*GOT or A956WGOT is used

Set the start/stop triggering device of the hardcopy function on GT Designer and turn that device ON/OFF to output the hardcopy.

POINT
• When printing out the ladder monitor screen, always install the option driver into the GOT. • Set the output destination (PC card/printer) of the hardcopy in the hardcopy setting of GT Designer. Refer to Help of GT Designer for details of the hardcopy setting.

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CHAPTER7 ERROR DISPLAY AND HANDLING WITH LADDER MONITORING

The following chart shows the error messages that are displayed during the ladder monitor operation and the method of handling them.

Error Message	Description	Method of Handling
ENTRY CODE MISMATCH	The specified keyword is different from the keyword that is registered in the object PLC CPU.	Check the keyword that is registered in the object PLC CPU and specify again.
FILE NOT FOUND	(1) An attempt was made to switch to the ladder monitor screen when a sequence program had not been read. (2) When the file is selected and the Read key is pressed, the selected file does not exist in the PLC drive.	Read the sequence program that is written in the object PLC CPU. (Ex.) A sub-sequence program can only be specified as A3 CPU/A4UCPU.
PLC COMMUNICATION ERROR	(1) Cannot communicate with PLC CPU of the specified network No. or station No. (2) The specified drive does not exist.	Check and correct the following: (1) Does the specified PLC CPU exist? (2) Is it online? (Data communication status?) (3) Has an error occurred?
LOCK ON OTHER MACHINE. PLEASE CANSEL	File is locked with the peripheral equipment (GX Developer, GPPQ).	After reading and writing with the peripheral equipment (GX Developer, GPPQ), read the file again.
NOT EXISTING DRIVE, DRIVE ERROR	(1) The specified drive does not exist. (2) The specified drive is faulty.	(1) Check whether the specified drive exists or not. (2) Check whether the specified drive is faulty or not.
ENTRY CODE MISMATCH	The specified file password differs from the one registered as the file password of the corresponding PLC CPU.	Confirm the file password registered to the drive of the corresponding PLC CPU, and specify it again.
FILE NOT FOUND	When you selected the file and pressed the Read key, the selected file did not exist in the PLC CPU drive.	(1) Perform read from the PLC on the network No./station number input screen, and update the file list. (2) Change the specified drive (corresponding memory).
USE BY OTHER MACHINE. PLEASE CANCEL	The sequence or comment is being used by the peripheral device (GX Developer).	Perform file read again after completion of read/write from/to the peripheral device (GX Developer).
2M bytes of comments were read since they exceeded 2M bytes.	Only 2M bytes of the comment file was read because its size is greater than 2M bytes.	———
Outside CPU reset/device range/special module illegal access	The accessed special module is faulty or does not exist.	Check the system configuration.

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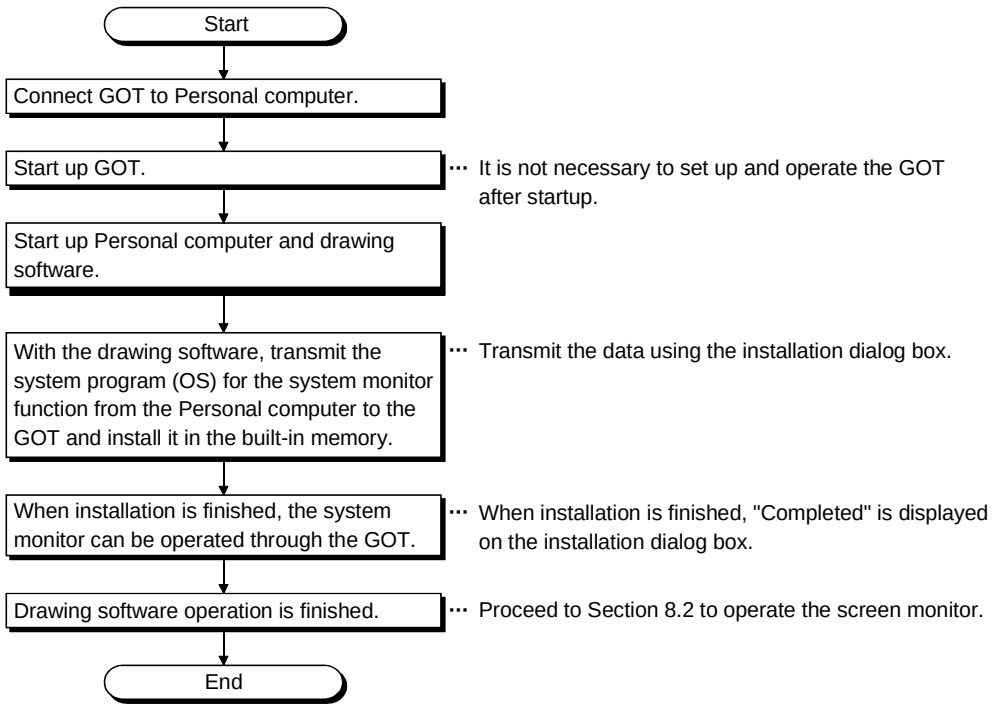
CHAPTER8 OPERATION PROCEDURES FOR THE SYSTEM MONITOR FUNCTION

The operation procedures for using the system monitor function are explained in this section.

8.1 Operation procedures before starting system monitoring

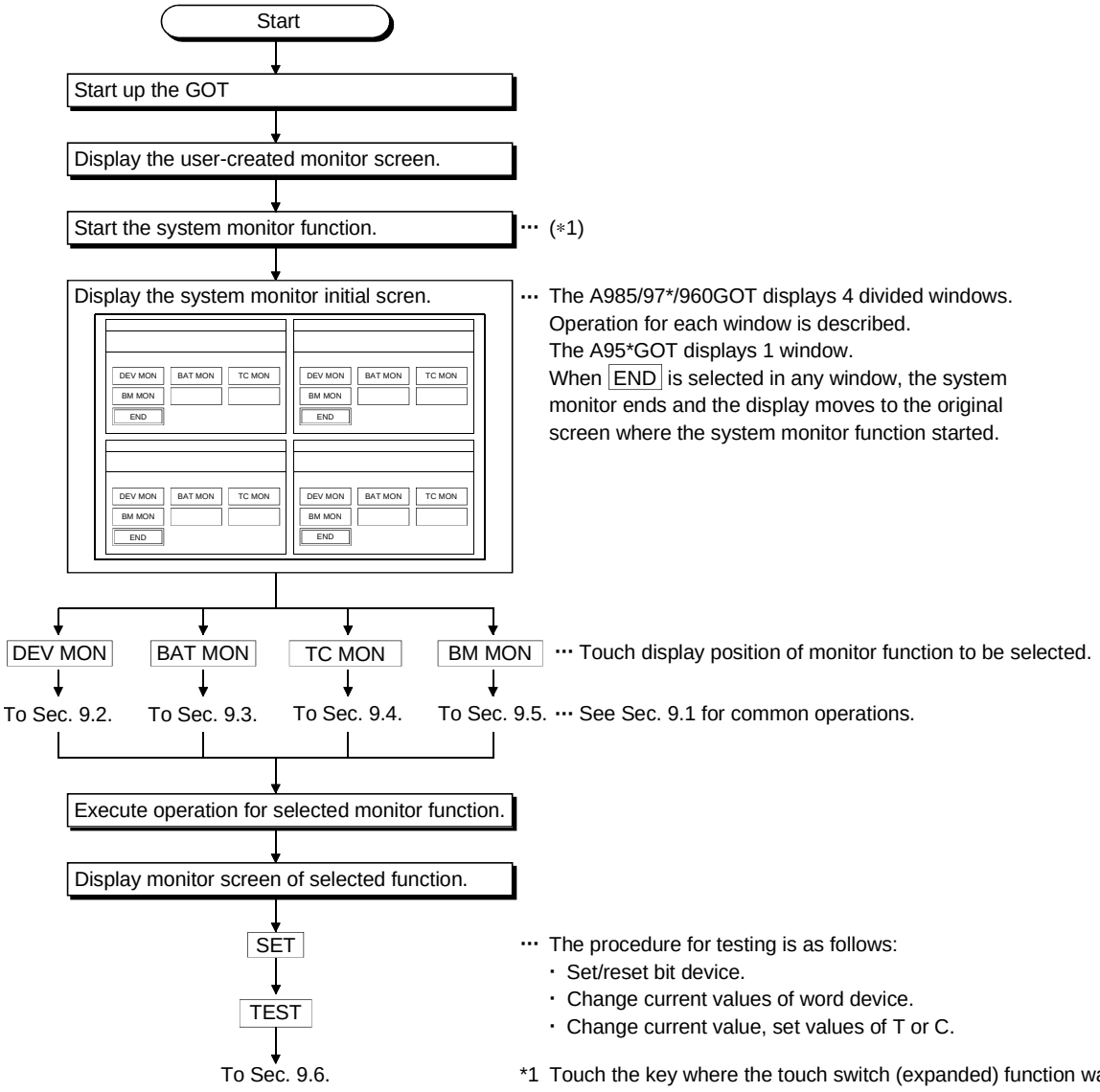
This section contains a summary of the procedure for transmitting the system program (OS) for the system monitor function from the Personal computer to the GOT until it is installed in the built-in memory.
For details, please refer to the Help in the GT Designer.
Details of the screen display and key operation are shown in the Help.



8 - 1

8.2 Operation procedures from user-created monitor screen display to start of system monitoring

This section explains the operation procedure for the GOT when starting each operation of the system monitor function, after the system program (OS) of the system monitor function has been installed in the GOT built-in memory.



*1 Touch the key where the touch switch (expanded) function was set with the drawing software, and start the system monitor function. When the Utility screen is displayed, touch PLC. MON. to start the system monitor function.

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CHAPTER9 OPERATION OF THE VARIOUS SYSTEM MONITOR SCREENS

This chapter contains an explanation of each screen operation when using the system monitor function.

POINT
With any of the four windows, when changing the station/monitor device or executing the test operation, it is not possible to do an operation with another window until that series of operations is finished.

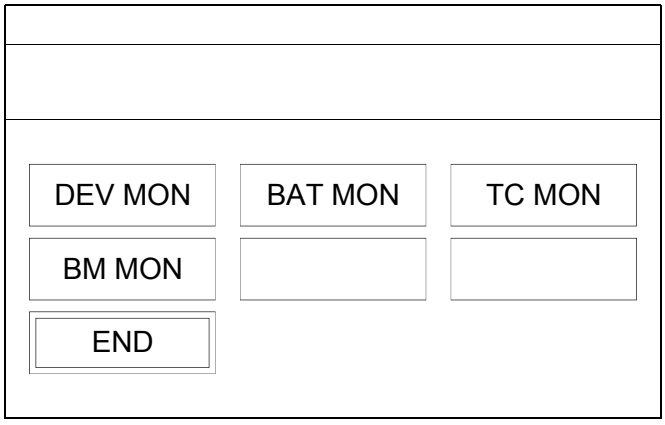
9.1 Screen configuration, common operations and changing screens when monitoring

The common operations of each monitor function such as screen configuration and target PLC CPU specification when executing system monitoring are described below.

9.1.1 Basic screen configuration and key functions (menu)

The basic screen configuration displayed in the windows and the key functions displayed on the screen are shown below.

(1) Display



(2) Key functions

The functions of keys that are used with the basic screen operation are shown in the chart below.

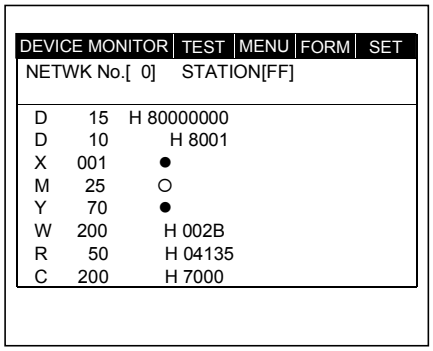
Key	Function
DEV MON	The entry monitor is executed with the applicable window (see Sec. 9.2.).
BAD MON	The batch monitor is executed with the applicable window (see Sec. 9.3.).
TC MON	The timer/counter monitor is executed with the applicable window (see Sec. 9.4.).
BM MON	The buffer memory monitor is executed with the applicable window (see Sec. 9.5.).
END	System monitoring ends; display returns to the screen where system monitors function started.

9.1.2 Switching the display form (decimal/hexadecimal) and turning the comment display on/off (FORM)

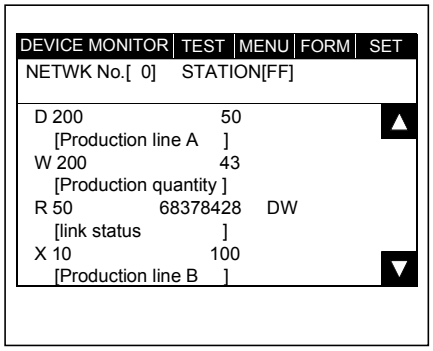
(1) Switching the display form (decimal/hexadecimal)
Display the word device present value or the timer/counter present value or set value in decimal or hexadecimal.

(2) Switching the comment display on and off
Display the comment that is written in the object PLC CPU (Comment display priority order: expanded comment > Japanese character comment or Japanese kana comment).

(When changing to hexadecimal display)



(When changing to comment display)



(3) Precautions for comment display

(a) When any of the following CPUs is being monitored, comments are not displayed.
1) FXCPU
2) Motion controller CPU (Q172CPU, Q173CPU)
3) QnACPU whose serial number indicated in the DATE field of the rating plate is earlier than 9707B

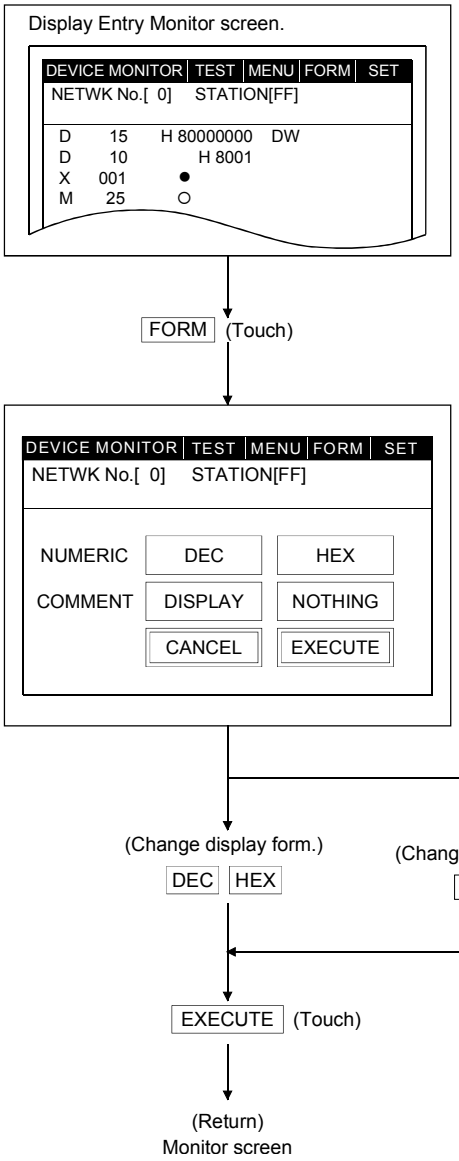
(b) When any of the following devices is being monitored, comments are not displayed.
1) Internal device (GB, GD, GS) of GOT
2) Host device (B, W, SB, SW) at the time of MELSECNET connection
3) Host device (X, Y, WW, WR) at the time of CC-Link connection

(c) When monitoring the QCPU (Q mode) or QnACPU, comments are not displayed if any of the following settings has been made in the PLC parameter setting (PLC file setting).
1) "Not used" has been selected for the comment file.
2) "Use the same file name as the program" has been selected for the comment file.
3) Password has been set to the comment file for the QCPU (Q mode).
4) Keyword has been registered to each memory for the QnACPU.
* Comments are displayed if the setting is changed using GX Developer or like.

(d) When the Q00J/Q00/Q01CPU is being monitored, comments are not displayed if the comment file "MAIN" does not exist in the program memory.

Below is an explanation of the operation for changing the display, using the Entry Monitor window as an example.
The operation procedure is the same for changing the display when selecting windows other than Entry Monitor.

[Operation procedure]



When you touch MENU you return to the basic screen.

When you touch, SET, the monitor station and device
)·····can be specified. (See Sec. 9.1.3)
When you touch FORM, you can change this display.

The selected FORM display is also found on the screen displayed after selecting the monitor function with the basic screen and on each menu screen, in addition to each monitor screen.

) ····· Display monitor station network no. and station
* When you touch CANCEL, the display change is interrupted and the display returns to the monitor screen.

(1) Touch the display position of the selected menu.

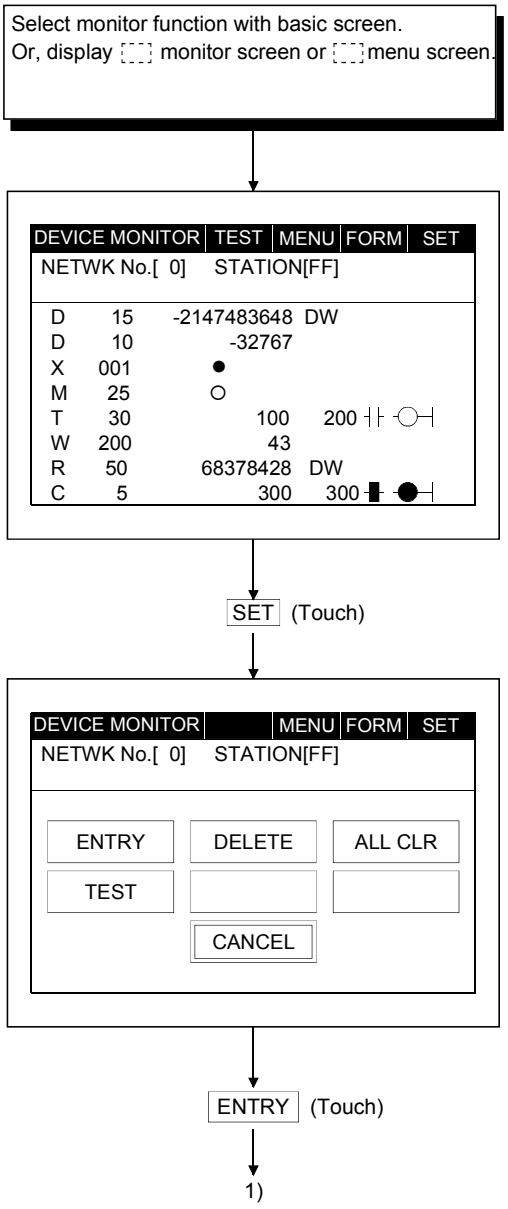
POINT
After starting the system monitor, if the PLC CPU comment or comment capacity is changed, the comment may not be correctly displayed on each monitor screen. When changing the comment or comment capacity, re-start the GOT.

9.1.3 Specifying the monitor station and device (SET)

An explanation of the procedure for specifying the monitor station and the device for executing the system monitor is explained below, using the Entry Monitor window as example.
The operation procedure is the same for specifying the monitor station and device when selecting windows other than Entry Monitor.

* When there is a ▭ (keywindow), touching it to returns to the monitor screen.

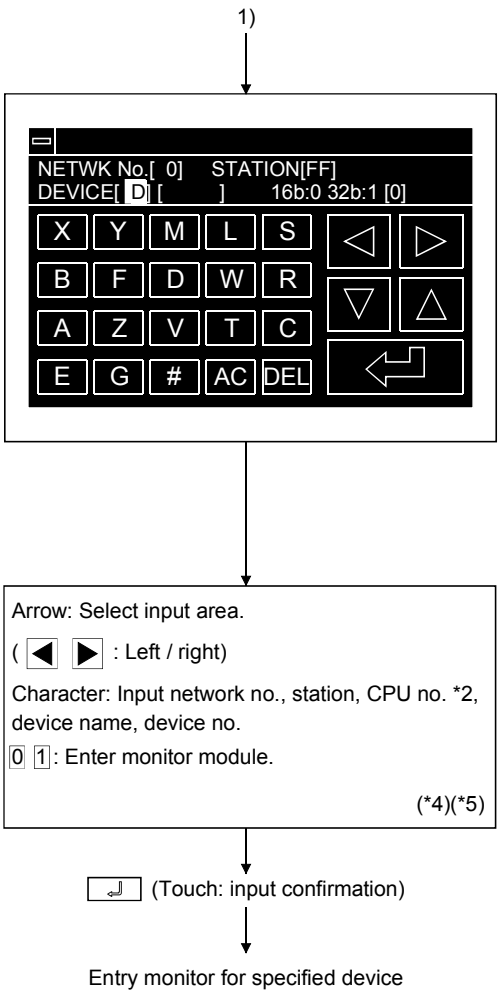
[Operation procedure]



.....See Sec. 9.1.1.

.....See the explanatory section for each monitor screen and the menu screen.

.....When you touch MENU you return to the basic screen.
When you touch FORM, you change this display. (See Sec. 9.1.2.)
When you touch SET, you can specify the monitor station and device.



1) Specify network No., station No.*1 and CPU No.*2 of object PLC CPU.
(For data link system)
NET WK No.: 0
STATION : FF (Host station)
0 (Master station)
1 to 64 (Local station)
(For network system)
NET WK No.: 0 (Host loop)
1 to 255 (Specified loop)
STATION : FF (Host station)
0 (Control station)
1 to 64 (Normal station)
(For Ethernet connection) *3
NET WK No. : 1 to 239
STATION : 1 to 64
(For multi-CPU system)
CPU No. 0 to 4 (CPU number)

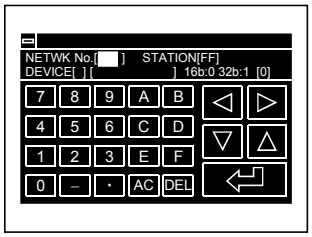
(2) Specify the device to be monitored.

(3) When specifying the word device or buffer memory as a monitor device, specify the monitor module.
0: 16-bit (1-word) module
1: 32-bit (2-word) module

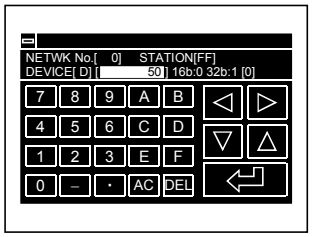
* Match the data to be entered; the touch key display at the bottom of the screen will change.

(EX.)

(When entering network no.)



(When entering device no.)



*1 For the station, with either system, specify "FF", which shows the PLC CPU to be accessed, or "0" to "64".

*2 Displayed for QCPU monitor only.

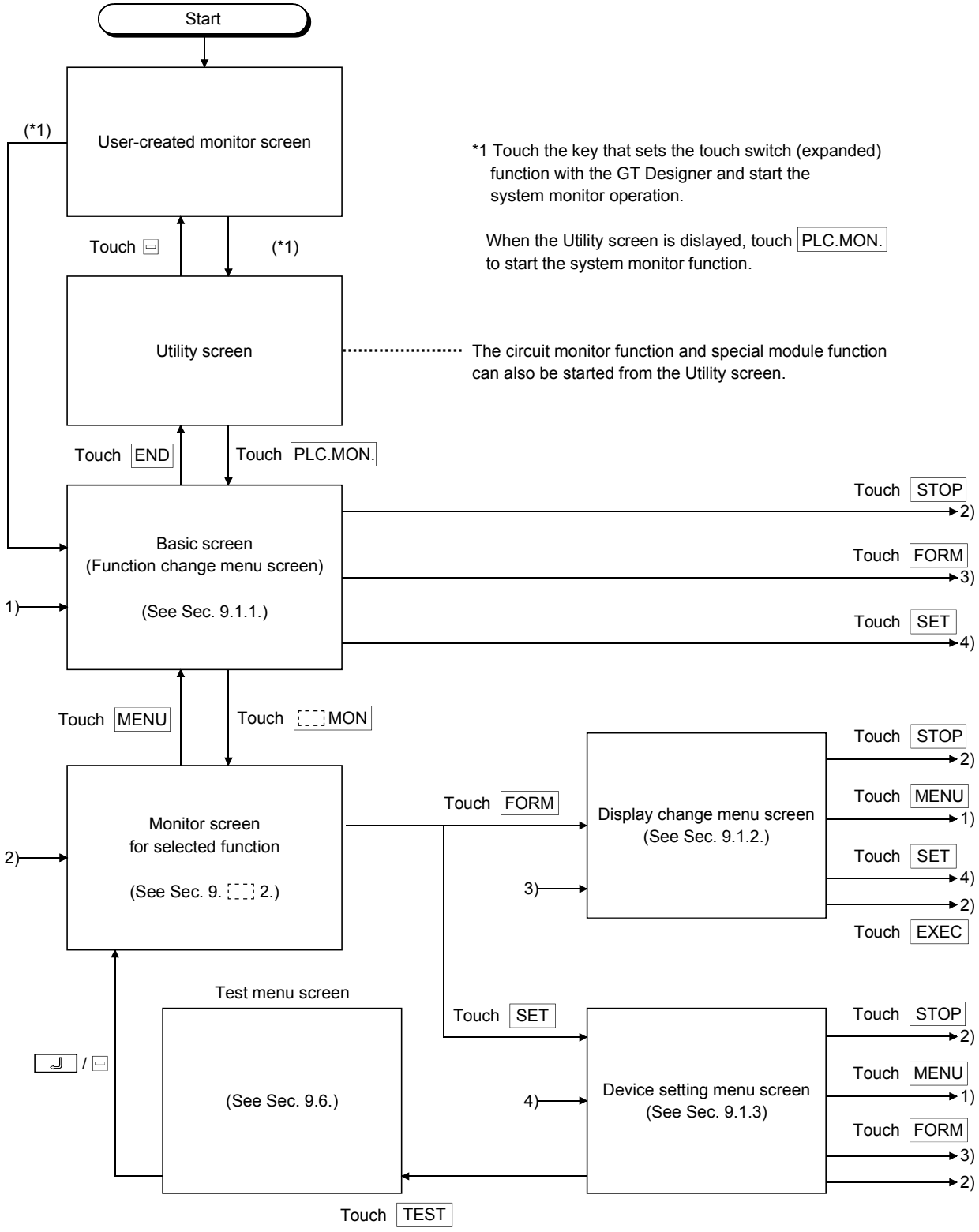
*3 The monitor target must be preset using GT Designer.
For ACPU monitor, specify the network number/station number set on GT Designer.
Refer to the help of GT Designer for details of the monitor target setting for Ethernet connection.

*4 Data being entered can be cleared by the following keys.
AC : Clears all data being entered to the target area.
DEL : Clears one character at the cursor position.

*5 The form of data to be entered is displayed at the right side of the screen.
DEC : Enter in decimal
HEX : Enter in hexadecimal

9.1.4 Changing screens

This section shows the screen changes when executing each monitoring operation of the system monitor function from the status where the user-created monitor screen is displayed.

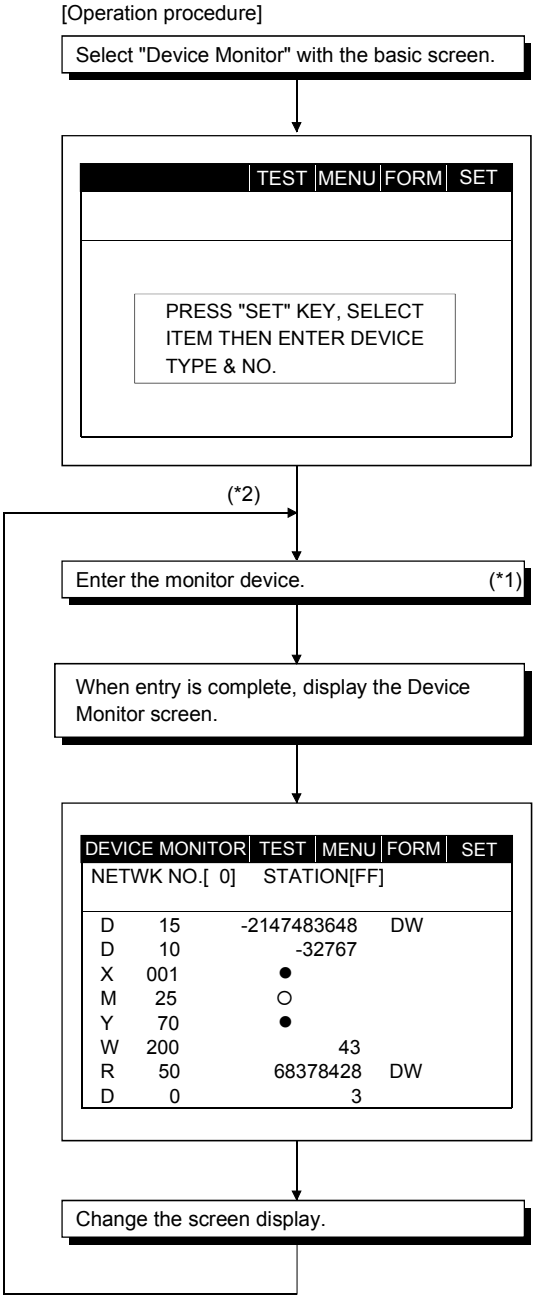


9.2 Entry monitor

Enter the device to be monitored in advance. The function that monitors only the device that was entered is called the "entry monitor".
The entry monitor operation when executing the system monitor function is explained below.

9.2.1 Basic operation

The entry monitor operation procedure is shown below.



See Sec. 9.1.1.

.....When a screen other than the basic screen is displayed, touch MENU at the top of the currently displayed screen, display the basic screen, and select Device Monitor.

.....When you touch MENU, you return to the basic screen.
When you touch FORM, you can change this display (See Sec. 9.1.2.).
When you touch SET, you can specify the monitor station and device (See Sec. 9.1.3.).

.....Set the station and device to be monitored.
For the setting method, see Sec. 9.1.3.

*1 Monitor device entry is in station modules.
If you change the station for the monitor device, all monitor devices entered before that are invalid.

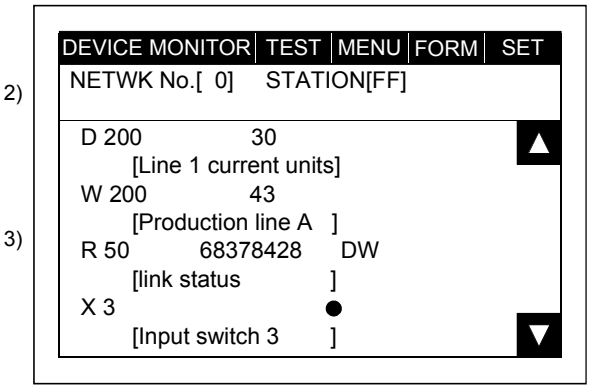
*2 A maximum of 8 entry devices can be entered.
To enter more than 8, delete in order from the old entry device. The 8 most recent entry device will be monitored.
As needed, re-enter after deleting the entry device.
(For the method of deletion, see Sec. 9.2.3.)

.....Do if needed.
For the display change method, see Sec. 9.1.2.

9.2.2 Entry monitor screen display and key functions

In this section, the Entry Monitor screen display and the functions of the keys displayed at the top of the screen are explained.

(1) Display



1)	Displays the keys that are used with the operation of the Entry Monitor screen shown in (2) (Touch input).
2)	Displays the monitor station network No., station No. and CPU No.*1
3)	Displays the status and current value of the device.

*1 Displayed for QCPU monitor only.

(2) Key functions

The chart below shows the functions of the keys that are used with the Entry Monitor screen operation.

Key	Function
MENU	Move to basic screen (function change menu screen) to change to another monitor function or ending the system monitor (See Sec. 9.1.1.).
FORM	Move to the display change menu screen to change the numerical display on the Entry Monitor screen (decimal, hexadecimal) or changing the comment display (on/off) (See Sec. 9.1.2.).
SET	Move to device setting menu screen to enter the monitor device, delete the device, or execute a test. • Entry of monitor device (See Sec. 9.1.3.) • Deletion of entry device (See Sec. 9.2.3.) • Test (See Sec. 9.6.)
▲ ▼	Scroll the display up or down one line, and display the monitor device that is not displayed (just before or after the current display). When five or more monitor devices are entered, operation is enabled when the monitor device comment is displayed. ▼ : Scrolls down one line. ▲ : Scrolls up one line.

9.2.3 Deleting a registered device

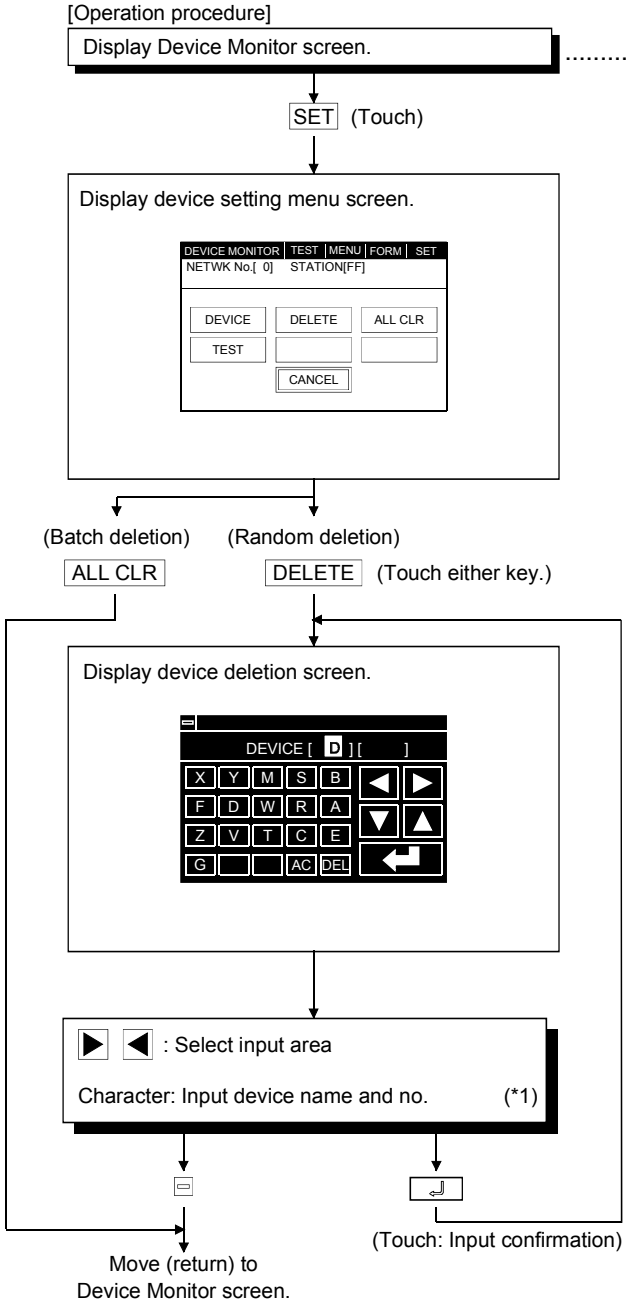
The operation of deleting (erasing) the entry of the device being monitored with the Entry Monitor screen is explained below.

The following two methods can be used to delete the registered device.

- Random deletion .....Deletes only one specified device.
- Batch deletion .....Deletes all devices that are currently registered.

* If there is a ▭ at the upper left of the screen, touching the ▭ returns to the monitor screen.

[Operation procedure]



(1) Specify the device to be deleted.
* Match the data to be enterd; the touch key display at the bottom of the screen will change.

*1 Data being entered can be cleared by the following keys.
AC : Clears all data being entered to the object area.
DEL : Clears one character at the cursor position.

9.3 Batch monitor

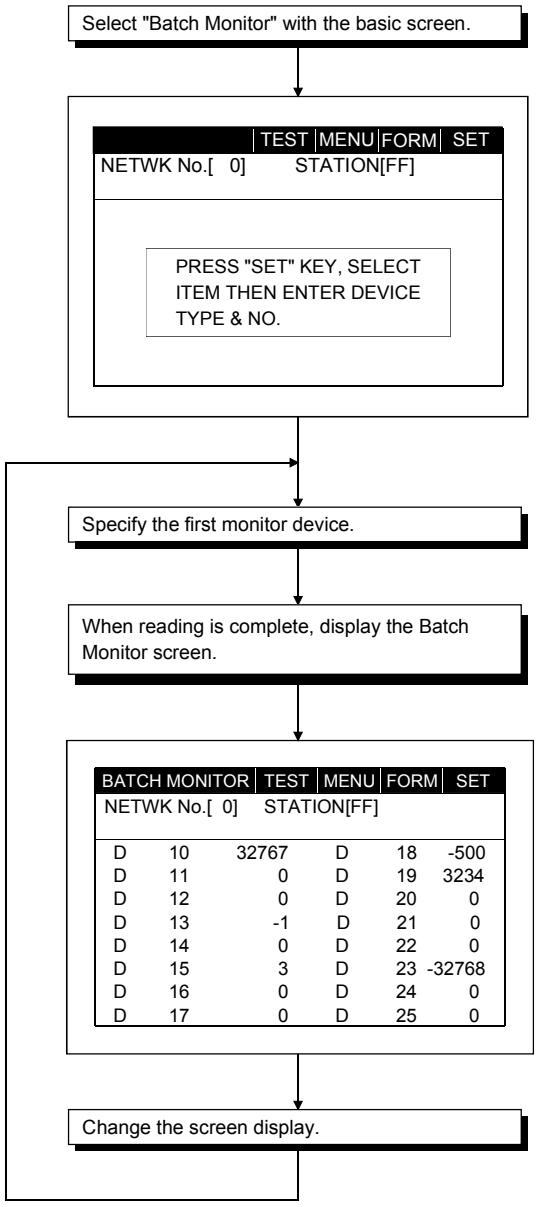
When monitoring, the function of specifying the device at the beginning of an optional device range and monitoring it is called the "batch monitor".
The batch monitor operation when executing the system monitor is explained below.

9.3.1 Basic operation

The batch operation procedure is shown below.

See Sec. 9.1.1.

[Operation procedure]



.....When a screen other than the basic screen is displayed, touch MENU at the top of the currently displayed screen, display the basic screen, and select "Batch monitor".

.....When you touch MENU, you return to the basic screen.
When you touch FORM, you can change this display (See Sec. 9.1.2.).
When you touch SET, the monitor station and device can be specified (See Sec. 9.1.3.)

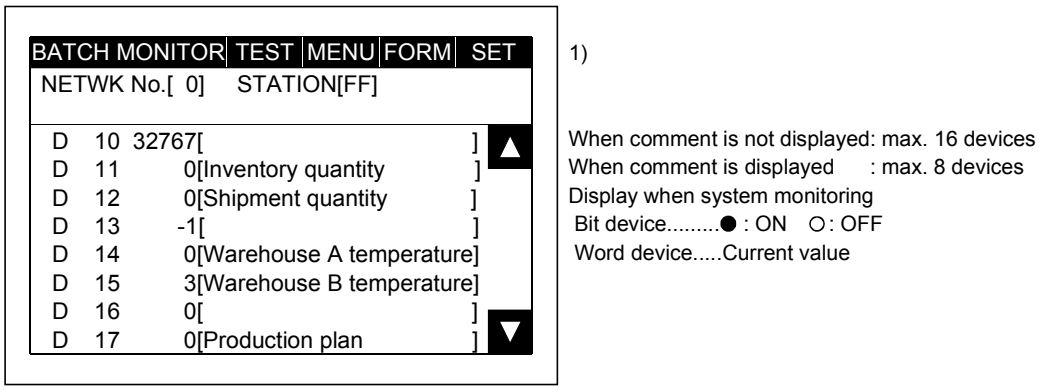
(1) Specify the station and device to be monitored.
For the method of specifying, see Sec. 9.1.3.

.....Do if needed.
For the display change method, see Sec. 9.1.2.

9.3.2 Batch monitor screen display and key functions

In this section, the Batch Monitor screen display and the functions of keys displayed at the top of the screen are explained.

(1) Display



1)	Displays the keys that are used with the operation of the Batch Monitor screen shown in (2) (Touch input).
2)	Displays the monitor station network No., station No. and CPU No.*1
3)	Displays the status and current value of the monitor device (The screen above shows when the monitor module is 16 bits.).

*1 Displayed for QCPU monitor only.

(2) Key functions

The chart below shows the functions of the keys that are used with the Batch Monitor screen operation.

Key	Function
MENU	Move to basic screen (function change menu screen) for changing to another monitor function or ending the system monitor (See Sec. 9.1.1.).
FORM	Move to display change menu screen for changing the numerical display on the Batch Monitor screen (decimal/hexadecimal) or changing the comment display (on/off) (See Sec. 9.1.2.).
SET	Move to device setting menu screen to change the monitor device or execute a test. • Change of monitor device (See Sec. 9.1.3.) • Test (See Sec. 9.6.)
▲ ▼	Scroll the display up or down one line, and display the monitor device that is not displayed (just before or after the current display). ▼ : Scrolls down one line. ▲ : Scrolls up one line.

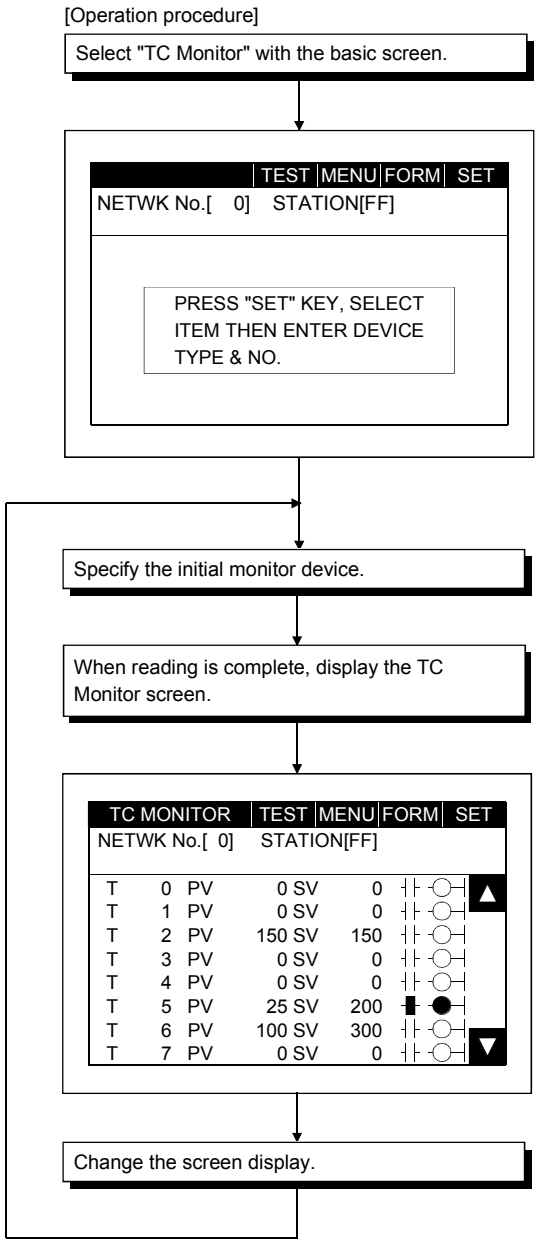
9.4 TC Monitor (monitor of timer and counter)

The function that monitors only the time (T) and counter (c) when monitoring is called the TC monitor.
The TC monitor operation when executing the system monitor is explained below.

9.4.1 Basic operation

The TC operation procedure is shown below.

See Sec. 9.1.1.



.....When a screen other than the basic screen is displayed, touch MENU at the top of the currently displayed screen, display the basic screen, and select "TC Monitor".

.....When you touch MENU, you return to the basic screen.
When you touch FORM, you can change this display (See Sec. 9.1.2.).
When you touch SET, the monitor station and device can be specified (See Sec. 9.1.3.).

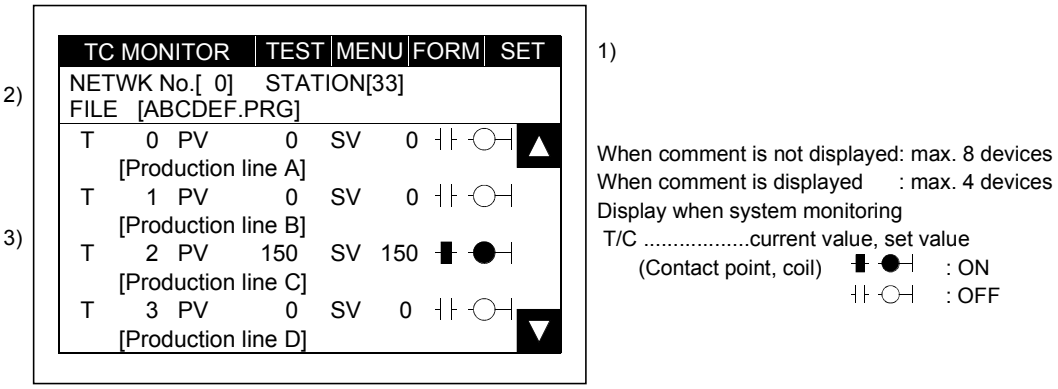
(1) Specify the station and devised to be monitored.
For the method of the specifying, see Sec.9.1.3.

.....Do if needed.
For the display change method, see Sec. 9.1.2.

9.4.2 TC Monitor screen display and key functions

In this section, the TC Monitor screen display contents and the function of keys displayed at the top of the screen are explained.

(1) Display



1)	Displays the keys that are used with the operation of the TC Monitor screen shown in (2) (Touch input).
2)	Displays the monitor station network No., station No. and CPU No.*1 When connected to QCPU and QnACPU, the execution file name is displayed (If there are more than one file, the first file name is displayed.).
3)	Displays the current value, set value, contact point and coil status of the monitor device (The screen above shows when the monitor module is 16 bits.).

*1 Displayed for QCPU monitor only.

(2) Key functions

The chart below shows the function of the keys that are used with the operation of the TC Monitor screen.

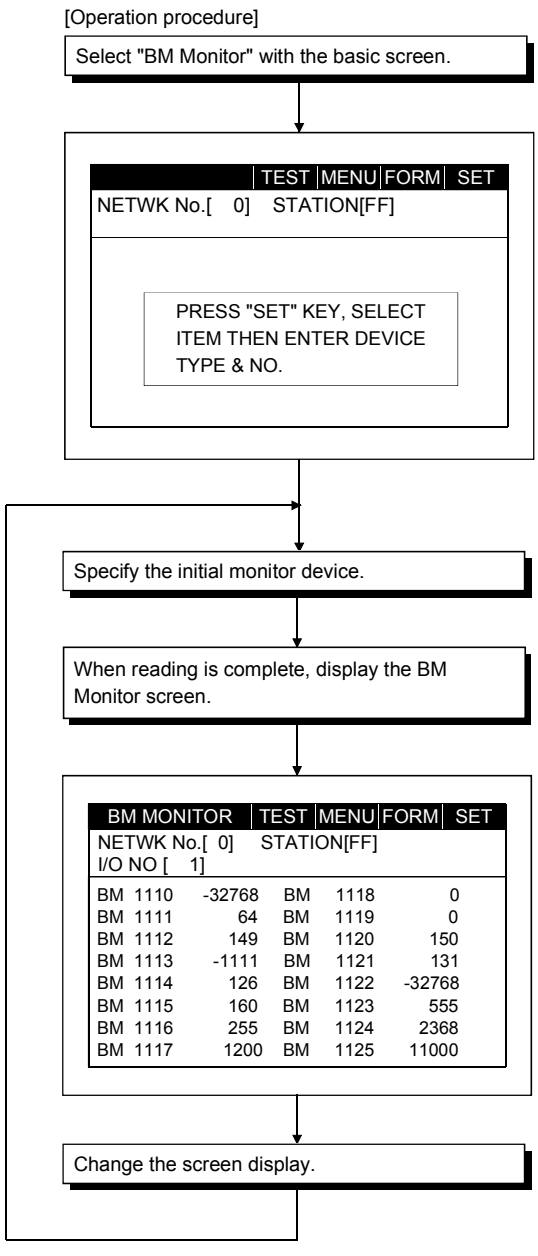
Key	Function
MENU	Move to basic screen (function change menu screen) for changing to another monitor function or ending the system monitor (See Sec. 9.1.1.).
FORM	Move to display change menu screen for changing the numerical display on the TC monitor screen (decimal/hexadecimal) or changing the comment display (on/off) (See Sec. 9.1.2.).
SET	Move to device setting menu screen to change the monitor device or execute a test. • Change of monitor device (See Sec. 9.1.3) • Test (See Sec. 9.6.)
▲ ▼	Scroll the display contents up or down one line to display the monitor device that is not displayed (just before or after the current display). Operation is enabled when monitor device comment is displayed. ▼ : Scrolls down one line. ▲ : Scrolls up one line.

9.5 BM Monitor (monitor of buffer memory)

When monitoring, the function that monitors the buffer memory of the special function module is called the "BM monitor".
The BM monitor screen when executing the system monitor is explained below.

9.5.1 Basic operation

The BM Monitor operation procedure is shown below.



See Sec. 9.1.1.

.....When a screen other than the basic screen is displayed, touch MENU at the top of the currently displayed screen, display the basic screen, and select "BM Monitor".

.....When you touch MENU, you return to the basic screen.
When you touch FORM, you can change this display (See Sec. 9.1.2.).
When you touch SET, the monitor station and device can be specified (See Sec. 9.1.3.).

(1) Specify the station and device to be monitored, and the monitor module (16-/32-bit module).

(2) For the method of the specifying, see Sec.9.1.3. Specify the module to be monitored and the buffer memory as follows.

Initial Y [ ] [ ]

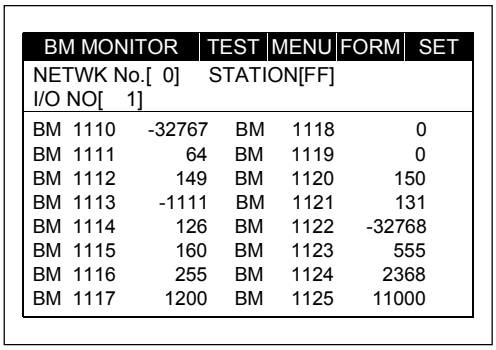
- Specify the initial address of the buffer memory in decimal.
- When the initial I/O signal of module is displayed with three digits, specify the first two digits.

.....Switching between decimal and hexadecimal display is enabled. Do this as needed. For the display change method, see Sec. 9.1.2.

9.5.2 BM Monitor screen display and key functions

In this section, the BM Monitor screen display and the functions of keys displayed at the top of the screen are explained.

(1) Display



1)	Displays the keys that are used with the operation of the BM Monitor screen shown in (2) (Touch input).
2)	Displays the monitor station network No., station No., CPU No.*1 and the first 2 digits of the I/O signal No. of the object module.
3)	Displays the current values of the buffer memory (The screen above shows when the monitor module is 16 bits.).

*1 Displayed for QCPU monitor only.

(2) Key functions

The chart below shows the function of the keys that are used with the operation of the BM Monitor screen.

Key	Function
MENU	This moves to basic screen (function change menu screen) for changing to another monitor function or ending the system monitor (See Sec. 9.1.1.).
FORM	This moves to display change menu screen for changing the number display on the BM monitor screen (decimal/hexadecimal) (See Sec. 9.1.2.).
SET	This moves to device setting menu screen to change the monitor device or execute a test. • Change of monitor device (See Sec. 9.1.3.) • Test (See Sec. 9.6.)

9.6 Test

> **CAUTION**
>
> • Read the manual carefully and fully understand the operation before the test operation (ON/OFF of bit devices, modifying current value of a word device, modifying timer/counter setting, modifying the current value, or modifying the current value of a buffer memory) of system monitor.
> In addition, never modify data in a test operation to a device which performs a crucial operation to the system. It may cause an accident by a false output or malfunction.

When monitoring with the system monitor function, you can specify an optional station or device to be monitored and test it.
The operation of testing a bit device, word device, or special module buffer memory of the PLC CPU is explained in this section.

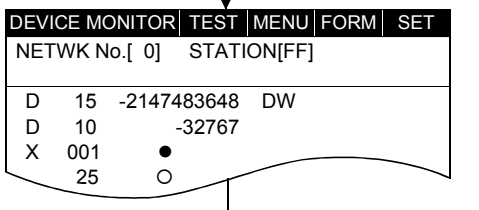
9.6.1 Basic operation

The operation procedure for testing when monitoring with the system monitor function is shown below.

[Operation procedure]

When monitoring with the system monitor function, display any monitor screen.

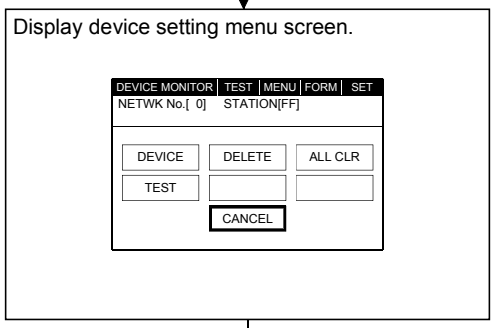
See Sec. 9.□.2.



.....When a screen other than the monitor screen is displayed, display any monitor screen according to the explanatory section for each monitor function.

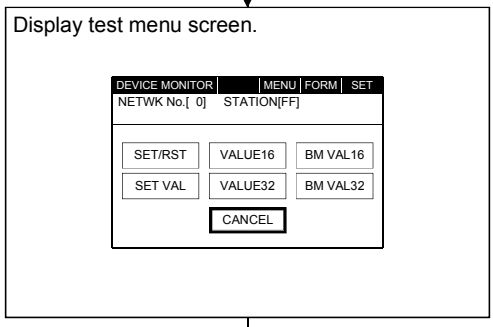
.....When Device Monitor screen is displayed.

SET (Touch)



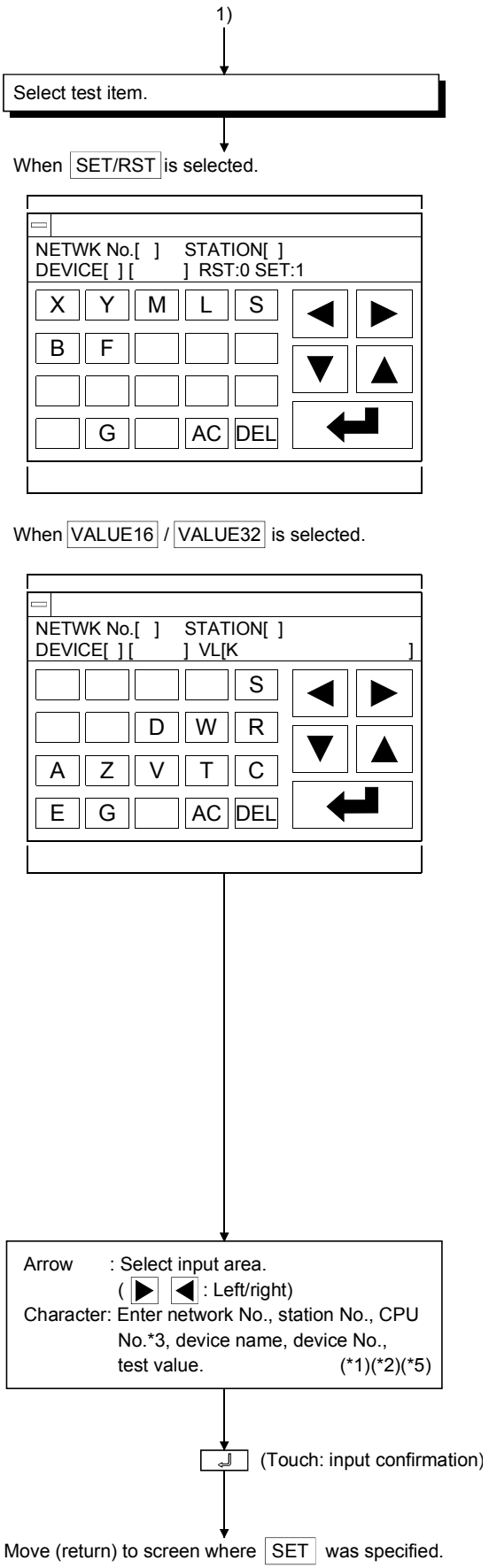
.....When you touch CANCEL, the display moves (returns) to the previous monitor screen.

TEST (Touch)



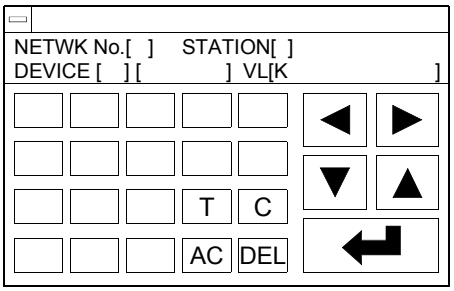
.....When you touch CANCEL , the display moves (returns) to the previous monitor screen.

1)



(1) Touch either, depending on test contents.
SET/RST
SET/RST (set/reset) bit device.
VALUE16 or VALUE32
Change current value of word device.
SET VALUE
Change T, or C set value.
BM VAL16 or BM VAL32
Change current value of buffer memory.
* With VALUE16 or BM VAL16, 16 bits is the object module.
With VALUE32 or BM VAL32, 32 bits is the object module.

When SET VALUE is selected.



(2) Specify the network No., station No. and CPU No. of the object PLC CPU (See Sec. 9.1.3, *1.).
(For data link system)
Network No.: 0
Station : FF (Own station)
0 (Master station)
1 to 64 (Local station)
(For network system)
Network No.: 0 (Host loop)
1 to 255 (Specify loop)
Station : FF (Own station)
0 (Control station)
1 to 64 (Normal station)
(For Ethernet connection)
Network No.: 1 to 239
Station : 1 to 64
(For multi-CPU system) *
CPU No. 0 to 4 (CPU number)
* Displayed for QCPU monitor only.
(3) Specify object device.
(4) Specify test value.
· With SET/RST (set/reset) of bit device, specify 0 (RST) or 1 (SET).
· When changing current value of word device
When changing T or C set value
or
When changing current value of buffer memory
Match current display form (decimal/hexadecimal) and specify change value. (*4)

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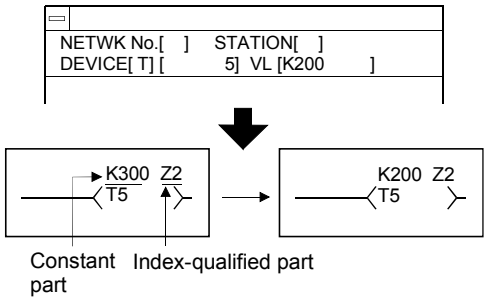
*1 The data being entered can be cleared by using the following keys.
AC : Clear all data being entered in the object area.
DEL : Clear one character from the cursor position.

*2 The format for the data being entered is displayed on the right side of the screen.
DEC : Enter in decimal.
HEX : Enter in hexadecimal.

*3 The monitor target must be preset using GT Designer.
For ACPU monitor, specify the network number/station number set on GT Designer.
Refer to the help of GT Designer for details of the monitor target setting for Ethernet connection.

*4 Even when the setting value/current value is changed after the timer (T) has timed out and the counter (C) has finished counting, the time-up status/count-up status do not change. The current status is maintained.
(When the setting value is changed to a large value/when the current value is changed to a small value)

*5 When an index-qualified T/C set value is changed, only its constant part is changed. Its index-qualified part is not changed.
Example) Changing the set value of T5 from "300" to "200"



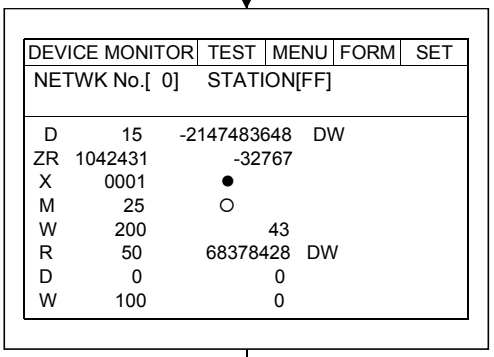
9.6.2 Quick test function

In addition to the existing tests for the direct input of device, station No., etc. during monitoring with the system monitor function, this function enables the bit device SET/RESET, word device, buffer memory data to change by a single touch.

1) Operation to set the quick test function on
To perform the quick test functions, perform the following operations:

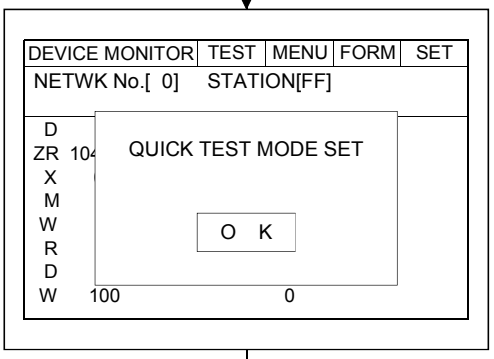
[Operation procedure]

Display one of the system monitor screen.



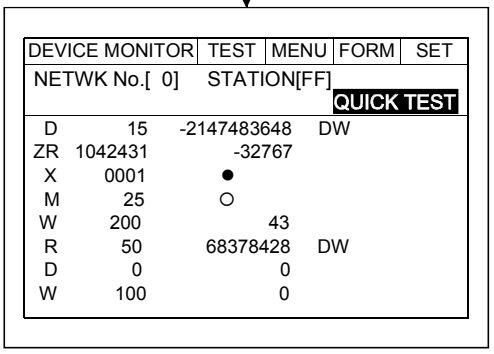
.....When displaying the device monitor screen.

TEST (Touch)



.....The quick test is turned on by clicking on OK.

O K

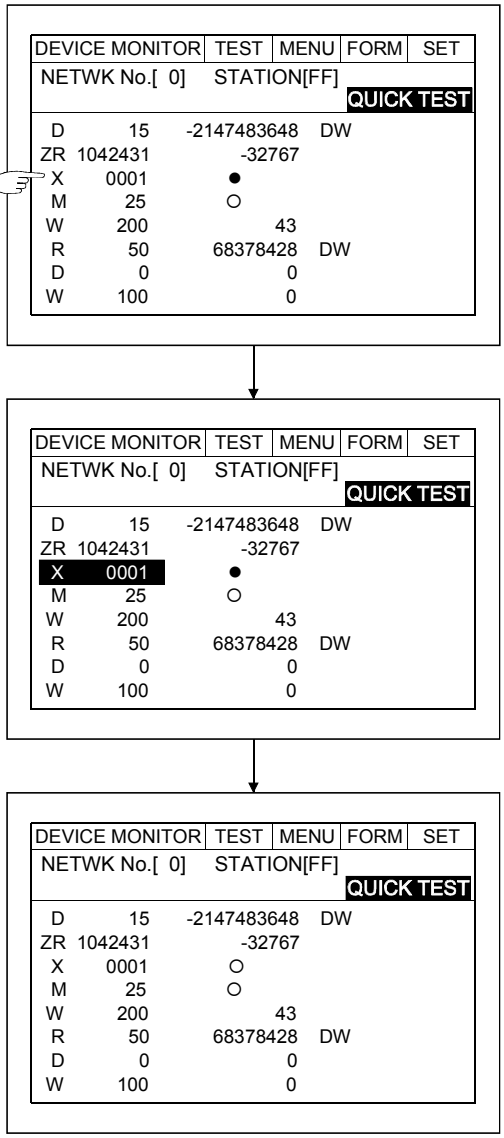


.....Status when the quick test function is on.

2) Operation to turn off the quick test function

When TEST is touched when the quick test function is on, a dialog box is displayed. When OK is touched, the quick test can be canceled.

3) Bit device quick test

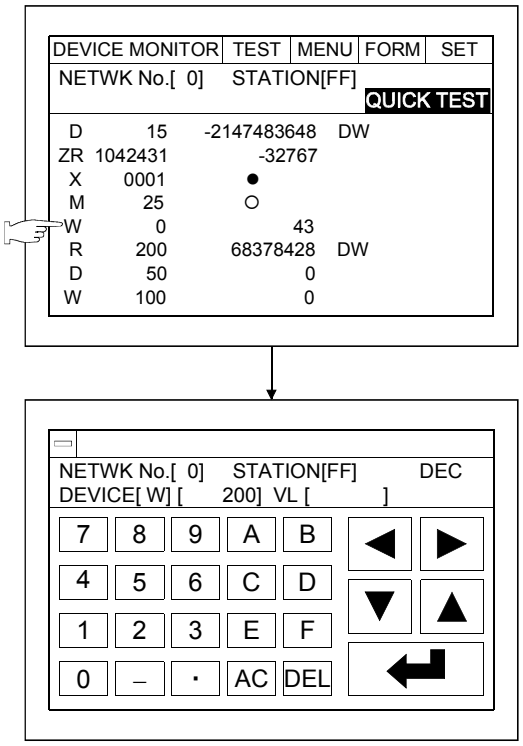


.....When the device monitor screen is displayed.
Touch the device name or device no. display position for the bit device to be SET/RESET.

.....The device name and device no. touched is displayed highlighted.
When the on/off display (○, ●) of the hihglihted display is touched, the status is SET/RESET.
* When the current bit device is ON, then it is turned OFF (RESET).
When OFF, it will be (SET).

.....The on/off display area (○, ●) of the X0001 device is highlighted.

4) Quick test for the word device, T/C monitor, and buffer memory



.....When displaying the device monitor screen.
Touch the display position of the device to be changed.

.....The change value input screen is displayed.
Enter the current value to be changed in the KEY window.
See Section 8.1.3 for the KEY window operations.

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CHAPTER10 ERROR DISPLAY AND HANDLING WITH SYSTEM MONITORING

The following chart shows the error messages that may be displayed when operating the system monitor and the method of handling them.

Error Message	Description	Method of Handling
PLC communications error	Communication could not be established with the PLC CPU.	Check the following: • Connections between the PLC CPU and the GOT (disconnected or cut cables). • Has an error occurred in the PLC CPU?

MEMO

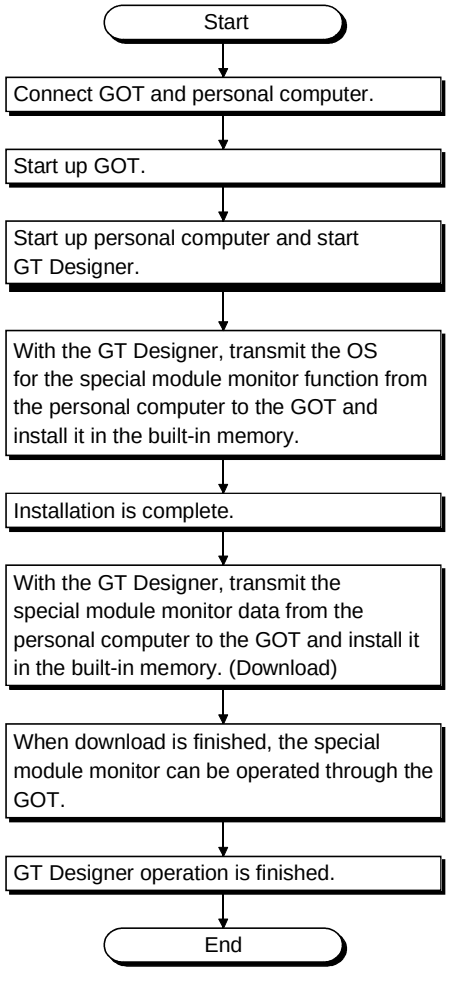
10 - 2

CHAPTER11 OPERATION PROCEDURES FOR SPECIAL MODULE MONITOR FUNCTION

The operation procedure when using the special module monitor function is explained in this chapter.

11.1 Operation procedures before starting special module monitoring

This section contains a summary of the procedure for transmitting the system program (OS) for the special module monitor function and the special module monitor data from the personal computer to the GOT until it is installed in built-in memory.
For details, please refer to the Help in GT Designer. Details of the screen display and key operation are shown in the Help.



It is not necessary to set up and operate the GOT after startup.

Transmit the data using the installation dialog box.

When installation is finished, "Completed" is displayed on the installation dialog box.

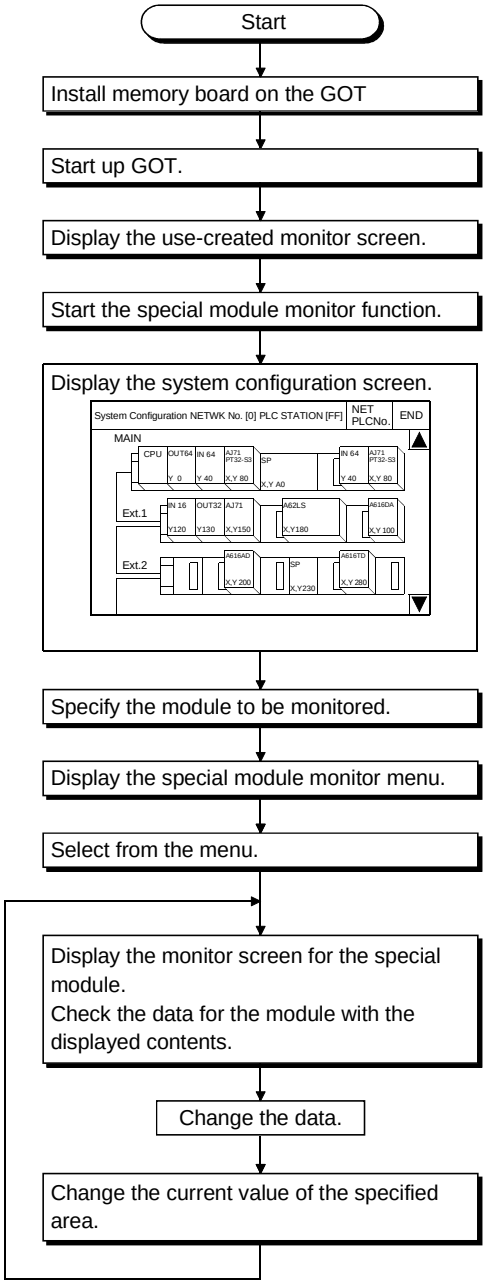
Transmit the data using the download dialog box.

When download is finished, "Completed" is displayed on the download dialog box.

Proceed to Section 12.2 to operate the special module monitor.

11.2 Operation procedures from user-created monitor screen display to start of special module monitor

This section describes the operation procedure for the GOT when starting each operation of the special module monitor function after the system program (OS) of the special module monitor function has been installed in the GOT built-in memory, and downloading the special module monitor data.



··· (∗1)

··· When starting, the module format and related data are not displayed.
When reading of module data from the PLC CPU is complete, the module format and related data is displayed.
When using the QCPU(Q mode), you can also check the PLC CPU status (PC Infomation) and module error information, etc. (Unit Dtail info). See Sec. 12.1.1.
When END is selected, the special module monitoring ends and the display moves to the original screen where the special module monitor function was begun.

··· See Secs. 12.1.3, 12.1.4.

··· See Sec. 12.1.4.

··· The Special Module Monitor Screen is displayed by selecting it from the menu.
See Sec. 12.1.4.

··· See Sec. 12.1.2.
See Secs. 12.2 to 12.27.

··· Carry out the following operation when changing the current values of the buffer memory that is displayed on the monitor screen.
See Sec. 12.1.5.

∗1 Touch the key where the touch switch (expanded) function was set with the drawing software, and start the system monitor function.
When the Utility screen is displayed, touch SP.Mon. to start the special module monitor function.

CHAPTER12 OPERATION OF EACH SPECIAL MODULE MONITOR SCREEN

Each screen operation when using the special module monitor function is explained in this chapter.

12.1 Screen configuration, common operation and changing screens when monitoring

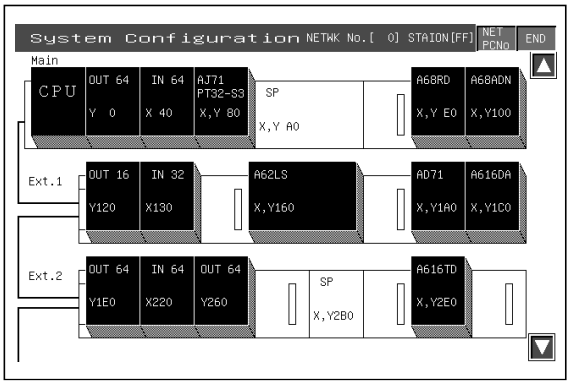
The screen configuration and common operations used when executing the special module monitor are explained in this section.

12.1.1 Composition of system configuration screen and key functions

This section describes the structure of the system configuration screen that is displayed after starting the special module monitor function and the key functions displayed on the screen.

(1) When using the QCPU(A mode), QnACPU or ACPU

(a) Display



The module format and related data are displayed at the end of the module data readout from the PLC CPU.
(OS executes it automatically.)
When connected to MELSECNET, the screen shown in Section 12.1.3 is displayed.

1)	Displays network No. and station No.. of monitor station.
2)	With the module installed in the monitor station, the special function module displays the format and the initial no. of the I/O signal with the sequencer CPU; the I/O module displays "Input"/"Output" and the I/O points. For a special function module that cannot be monitored, "Special" and the initial no. of the I/O signal are displayed. The display position of the module is the key for moving the special function module monitor of that module to the screen where it is executed (Touch input)
3)	The keys used for the operation with the System Configuration screen shown in (b) are displayed. (Touch input)

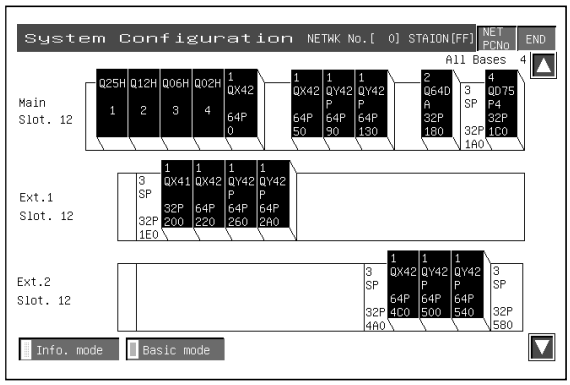
(b) Key functions

The chart below shows the functions of the keys that are used with the System Configuration screen operation.

Key	Function
END	Monitoring ends; and display returns to the screen where the special module monitor function was begun.
Module display position	Moves to screen where the special module monitor for that module is executed. Slots 0 through 7 are valid for each base module.
▲ ▼	Scrolls display up or down one level to display the system configuration of the level number just before or after the one that is currently displayed. Operation of these keys is enabled when the system configuration extends to three levels or more. ▼: Scrolls down one level. ▲: Scrolls up one level.

(2) When using the QCPU(Q mode)

(a) Display



The module format and related data are displayed on completion of module data read from the PLC CPU.
(OS executes it automatically.)

1)	Displays the network number and station number of the monitor station.
2)	For the modules installed in the monitor station, their formats, I/O points and first I/O numbers are displayed. For special function modules which cannot be monitored, their formats are displayed as "Special". The module display position acts as the key to shift to the screen where the module will be monitored. (Touch input) In case of a multi-CPU system, the CPU No. is displayed for the CPU and the control CPU No. is displayed for the installed module.
3)	The keys used for the operation on the System Configuration screen shown in (b) are displayed. (Touch input)

(b) Key functions

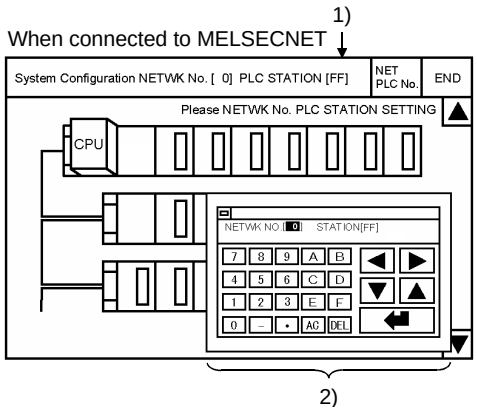
The following table indicates the functions of the keys used to perform operation on the System Configuration screen.

Key	Function
END	Monitoring ends, and the display returns to the screen where the special module monitor function was started.
QCPU	Shifts to the PC Information screen. (Refer to Section 12.1.3)
Module display position	Basic mode: Shifts to the screen where that special module will be monitored. Info. mode: Shifts to the screen which shows the detail information of the selected module.
Basic mode	Switches the System Configuration screen to the info. mode. (Refer to Section 12.1.4)
Info. mode	Switches the System Configuration screen to the Basic mode.
▲ ▼	Scrolls the display one base up or down to display the system configuration of the currently undisplayed base immediately before/after the currently displayed base. This operation cannot be performed when the system has three or more extension bases. ▼: Scrolls one base down. ▲: Scrolls one base up.

12.1.2 Setting method for remote station monitoring

The setting method to perform remote station monitoring during special module monitoring is described below.

<Special Module Monitor>



Touch SP.UNIT to display the system configuration screen. Depending on the connection method, the screen first displayed will be different as indicated below.

Bus connection and CPU direct connection	The base of the connection station is displayed.
Ethernet connection	The base of the station set as the host is displayed.
CC-Link (via G4) connection	The base of the master station is displayed.
MELSECNET (II), /B connection	No system configuration display
MELSECNET/10 connection CC-Link connection (Intelligent device station)	No system configuration display

for MELSECNET/CC-Link connections, the following operations will always be required:

1) Touch NETPCNo. to display the window shown in 2)

2) Touch Alphanumeric to specify the network No. and PLC station No..

Alphanumeric .. Enter the network No. and PLC station No..

◀ ▶ ..... Select the input area.

↵ ..... Set the area value.

In the case of data link systems
NETWK NO. : 0
STATION : FF (Host)
: 0 (Master station)
: 1 to 64 (Local station)

In the case of network systems
NETWK NO. : 0 (Host loop)
: 1 to 255 (Specified loop)
STATION : FF (Host)
: 0 (Station number of management station)
: 1 to 64 (Normal station)

For Ethernet connection *1
NETWK NO. : 1 to 239
STATION : 1 to 64

CC-Link system
NETWK NO. : 0
STATION : 0 (master station)

*1 The monitor target must be preset using GT Designer.
For ACPU monitor, specify the network number/station number set on GT Designer.
Refer to the help of GT Designer for details of the monitor target setting for Ethernet connection.

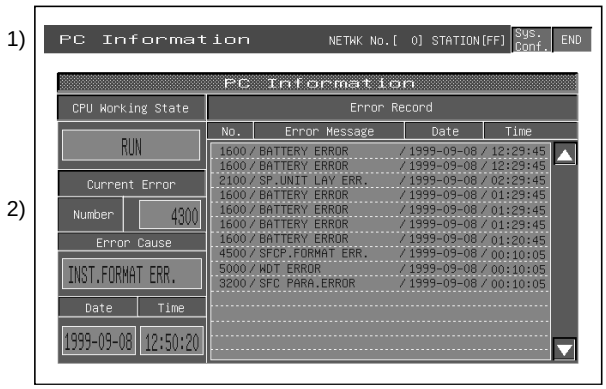
When the setting is finished, the system configuration of the specified station is displayed.

See Sec. 12.1.6 for operations which come after these operations.

12.1.3 Composition of PC Information screen and key functions (only when QCPU(Q mode) is used)

This section describes the structure of the PC Information screen that is displayed by specifying the QCPU(Q mode) on the System Configuration screen, and the key functions displayed on the screen.

(1) Display



1)	Displays the network number and station number of the monitor station.
2)	Displays the operating status, error information and the like of the corresponding PLC CPU.
3)	The keys used for the operation on the System Configuration screen shown in (2) are displayed. (Touch input)

(2) Key functions

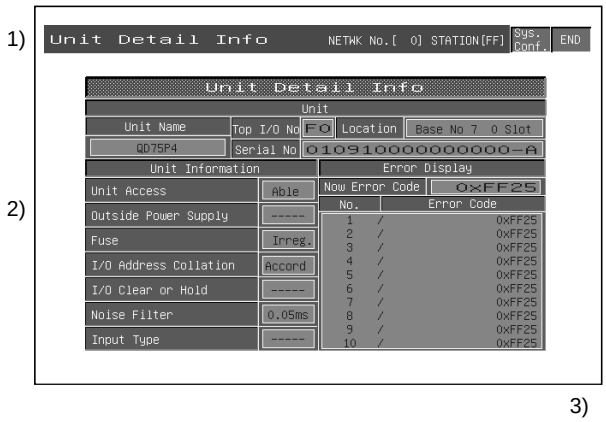
The following table indicates the functions of the keys used to perform operation on the System Configuration screen.

Key	Function
END	Monitoring ends, and the display returns to the screen where the special module monitor function was started.
Sys. Conf.	Shifts to the System Configuration screen. (Refer to Section 12.1.1)
▲ ▼	Scrolls the display one page up or down. ▼: Scrolls one page down. ▲: Scrolls one page up.

12.1.4 Composition of Unit Detail info screen and key functions (only when QCPU(Q mode) is used)

This section describes the structure of the Unit Detail info screen that is displayed by specifying the module in the info. mode of the System Configuration screen, and the key functions displayed on the screen.

(1) Display



1)	Displays the network number and station number of the monitor station.
2)	Displays the module information, error information and the like of the corresponding module.
3)	The keys used for the operation on the System Configuration screen shown in (2) are displayed. (Touch input)

(2) Key functions

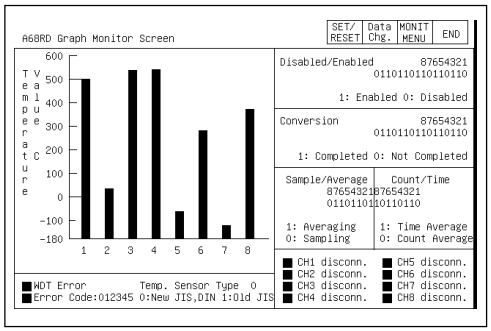
The following table indicates the functions of the keys used to perform operation on the System Configuration screen.

Key	Function
END	Monitoring ends, and the display returns to the screen where the special module monitor function was started.
Sys. Conf.	Shifts to the System Configuration screen. (Refer to Section 12.1.1)
▲ ▼	Scrolls the display one page up or down. ▼: Scrolls one page down. ▲: Scrolls one page up.

12.1.5 Monitor screen configuration and key functions

This section describes the structure of the monitor screen that is displayed by specifying the module on the system configuration screen (in the Basic mode when the QCPU(Q mode) is used), and the key functions displayed on the screen.

(1) Display (with A68RD)



All types of data are displayed when the readout from the special function module is complete.
(OS executes it automatically.)

1)	Displays format of module being monitored.
2)	Displays buffer memory data of object module in its current form, or in a graph. Display status of I/O signal with the PLC CPU. When testing, tests after moving the cursor to the display position of the target data.
3)	The keys used for the operation with the monitor screen shown in (2) are displayed. (Touch input)

(2) Key functions

The chart below shows the functions of the keys that are used with the System monitor screen operation.

Key	Function
END	Monitoring ends; and display returns to the screen where the special module monitor function was begun.
MONIT MENU	Ends current monitoring and moves to screen that shows monitor menu. Operation can be used only if the special function module has a Monitor menu.
Data Chg.	Starts change of current values for buffer memory of special function module displayed on screen.
SET/ RESET	Starts test set/reset for I/O signal between PLC CPU and special function module.

12.1.6 Specifying monitor module and selecting monitor menu

The operation when starting the special module monitor for an optional module is explained, using the positioning module (AD71) as an example.

[Operation procedure]

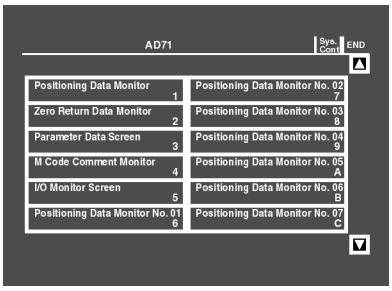
Display System Configuration screen. ··· See Sec. 12.1.1.

↓

[Specify module to be monitored] (Touch display position of module.)

↓

Display screen that shows monitor menu.

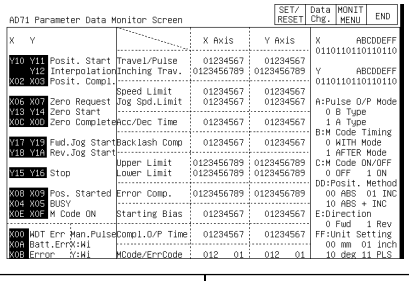


↓

[Specify menu to be monitored] (Touch display position of menu.)

↓

Display monitor screen of specified menu.



↓

Proceed to Sec. 12.1.7 and Secs. 12.2 to 12.31.

(1) From among the modules installed in the corresponding base unit, specify the special function module whose format is displayed.
* For modules where the format is not displayed, monitor with the system monitor function (See Sec. 9.5.).
Specify input/output modules according to Sec. 13.1.

(2) Specify the menu corresponding to the type of data to be monitored.

(3) With modules for which the monitor menu cannot all be displayed in one screen, touch the ▲ ▼ keys at the right of the screen to scroll the display menu.

(4) Check the contents of the display. Carry out the subsequent operation according to Sec. 12.2 to 12.31.

(5) Carry out tests for the displayed data according to Sec. 12.1.7.
- Change current value of buffer memory
- Turn output signal from PLC CPU on and off

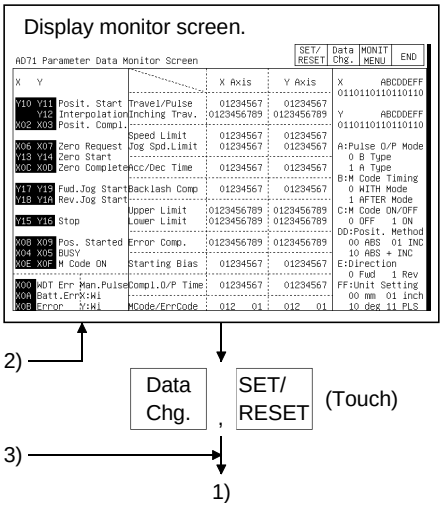
12.1.7 Test for special function module

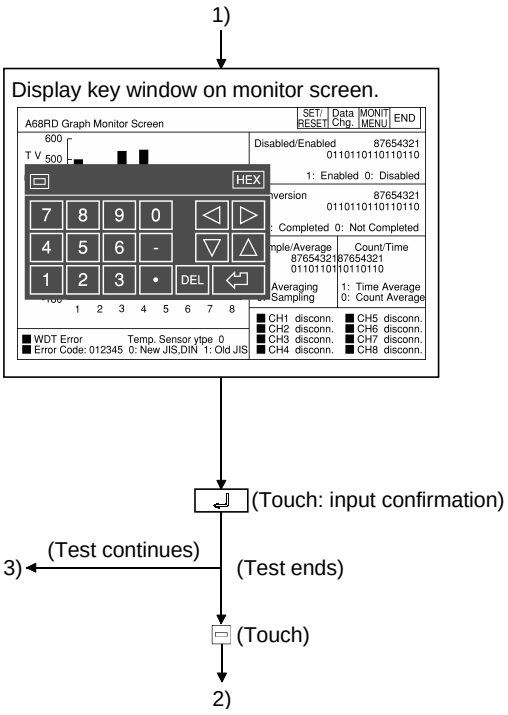
CAUTION	• Read the manual carefully and fully understand the operation before the test operation (modifying the current value of a buffer memory) of special function module monitor. In addition, never modify data in a test operation to a device which performs a crucial operation to the system. It may cause an accident by a false output or malfunction.

Testing can be performed for all buffer memory data displayed on the current monitor screen.
This section describes the operation for changing the current value of the buffer memory and turning the output signal from the PLC CPU to the special module on and off.

POINTS
(1) When testing, test for the buffer memory to be written in from the PLC CPU and the output signal that is output from the PLC CPU. (2) Be sure to carry out the test operation with the PLC CPU in STOP status. If the PLC CPU is tested during RUN status, it returns to the output values and output status from the sequence program.

[Operation procedure]





When [Data Chg.] is touched (changes current value of buffer memory)

- All of the following operations can be carried out by touching the keys in the displayed key window.
- When you touch [▭] at the upper left of the key window, the key window closes and the display returns to the monitor screen.

(1) Move the cursor to the position where the data to be tested is displayed. (*1)
([▲] [▼] : Up/down [▶] [◀] : Left/right)

(2) Use the numeric keys to specify the value to be changed. (*2)
The [DEL] key can be used to clear individual characters among those input.

When [SET/ RESET] is touched (tests the I/O signal)

- All of the following operations can be carried out by touching the keys in the displayed key window.
- When you touch [▭] at the upper left of the key window, the key window closes and the display returns to the monitor screen.

(1) Use the alphabetic character keys to specify the name of the device to be tested, and then touch [▶] . (*1)

(2) Use the numeric keys to specify the device number, and then touch [▶] .

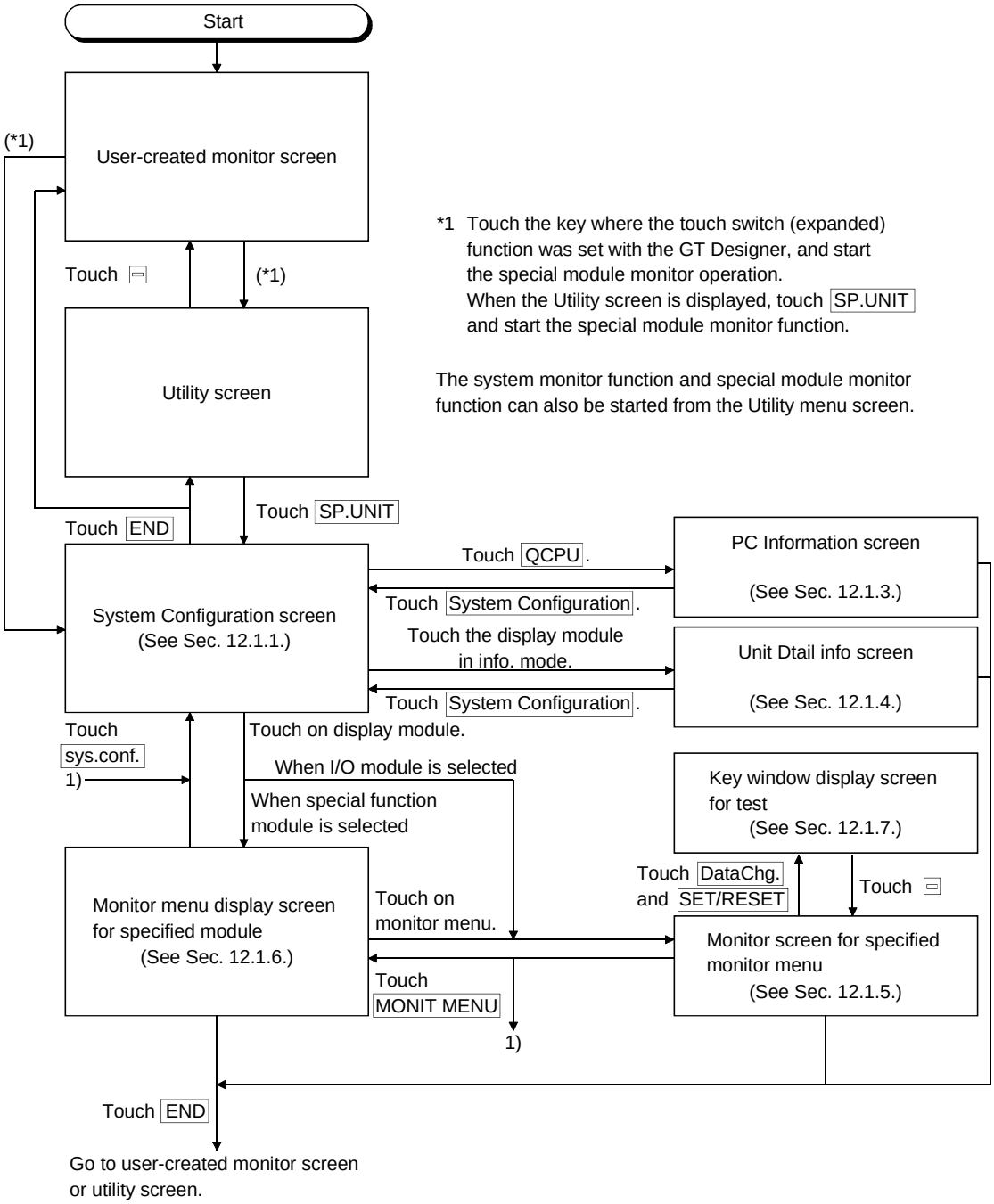
(3) Use the numeric keys to specify "Set" or "Reset".
[0] : OFF [1] : ON

*1 Do not perform the following tests.
When testing, the module may not operate correctly or the buffer memory/input signal may return to the output value/output status from the special function module.
1) Test the buffer memory for reading-only from the PLC CPU.
2) Test the input signal to the PLC CPU from the special function module.

*2 When testing buffer memory data, specify the change value in the following way.
1) For data where 16/32 bits is displayed with one number, specify the change value in decimal.
2) For data where one number of 16/32 bits is displayed as a percent, such as with an A/D conversion module, specify the change value corresponding to the percentage in decimal.
Example:
When the set value of the offset or gain is 0 to 2000, when specifying a change value of 50%, input 1000.
3) For data where 16 bits is displayed one bit at a time as "0" and "1", specify the change value of 16 bits in decimal.

12.1.8 Changing the screen

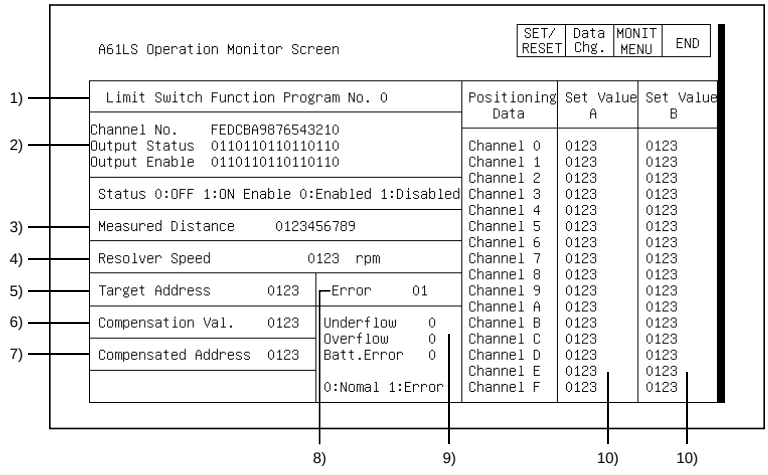
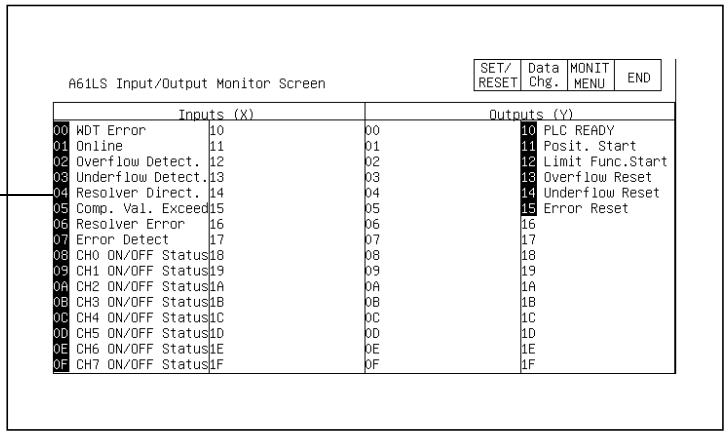
This section describes how to change the screen when executing each monitor function of the special module monitor function from the status where the user-created monitor screen is displayed.



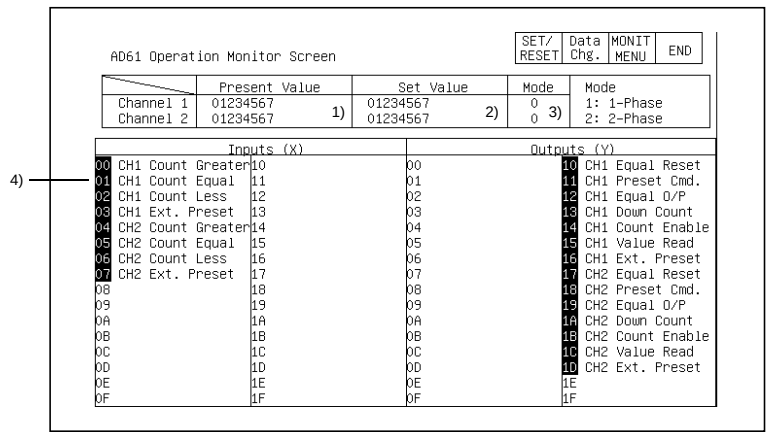
*1 Touch the key where the touch switch (expanded) function was set with the GT Designer, and start the special module monitor operation.
When the Utility screen is displayed, touch SP.UNIT and start the special module monitor function.

The system monitor function and special module monitor function can also be started from the Utility menu screen.

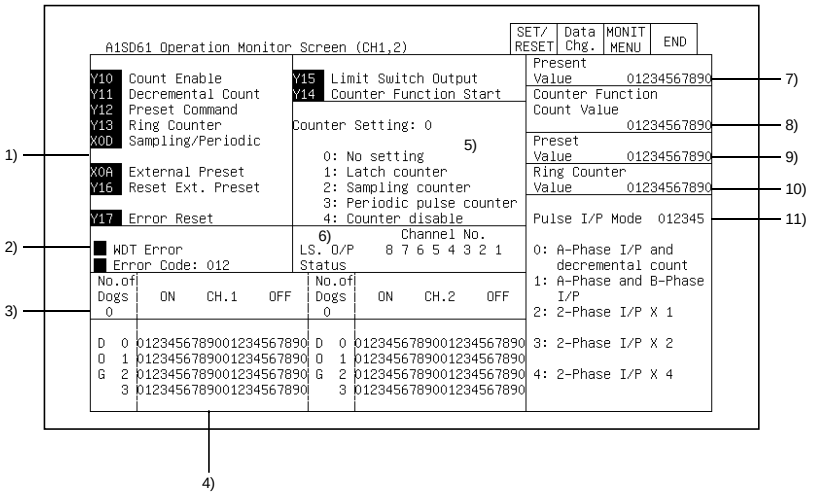
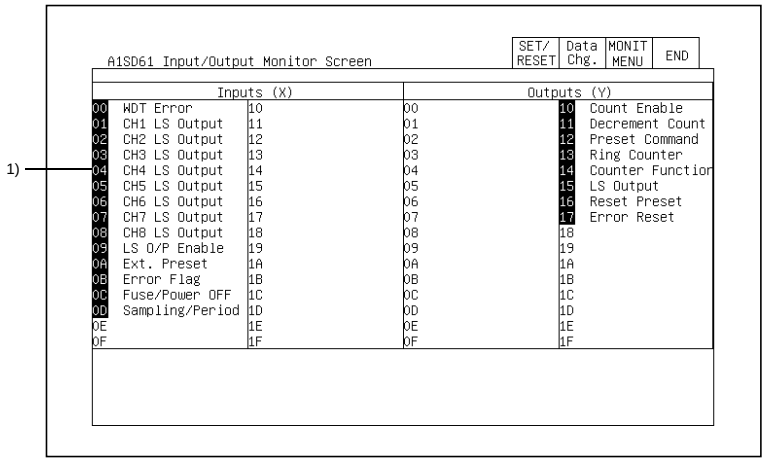
12.2 A61LS Module Monitor

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	11	000B
	2)	4	0004
	3)	10	000A
	4)	5, 6	0005, 0006
	5)	3	0003
	6)	12	000C
	7)	7	0007
	8)	0	0000
	9)	8	0008
	10)	2	0002
	11)	1	0001
	12)	9	0009
	13)	13 to 44	000D to 002C
	—	———	———
	1)	———	———
	—	———	———

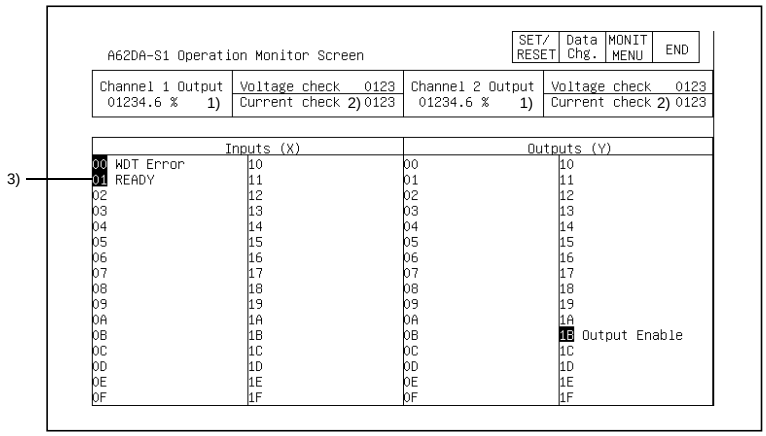
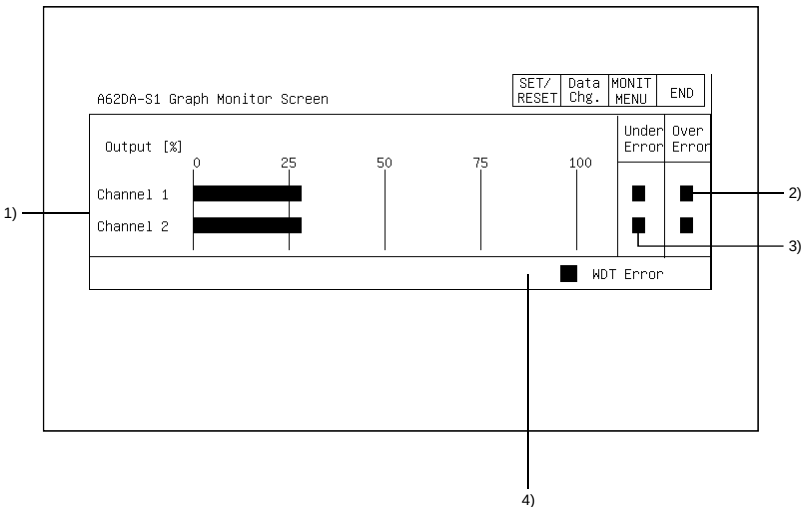
12.3 AD61 Module Monitor

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	4, 5, 36, 37	0004, 0005, 0024, 0025
	2)	6, 7, 38, 39	0006, 0007, 0026, 0027
	3)	3, 35	0003, 0023
	4)	———	———
	—	———	———

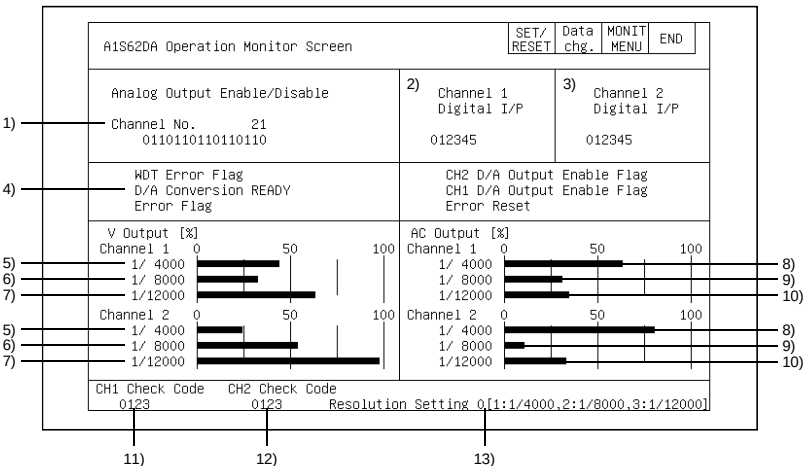
12.4 A1SD61 Module Monitor

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	—	—
	2)	—	—
	3)	11	000B
	4)	12 to 147	000C to 0093
	5)	12 to 147	000C to 0093
	6)	5	0005
	7)	—	—
	8)	0, 1	0000, 0001
	9)	2, 3	0002, 0003
	10)	6, 7	0006, 0007
	11)	8, 9	0008, 0009
	12)	4	0004
	—	———	———
	1)	———	———
	—	———	———

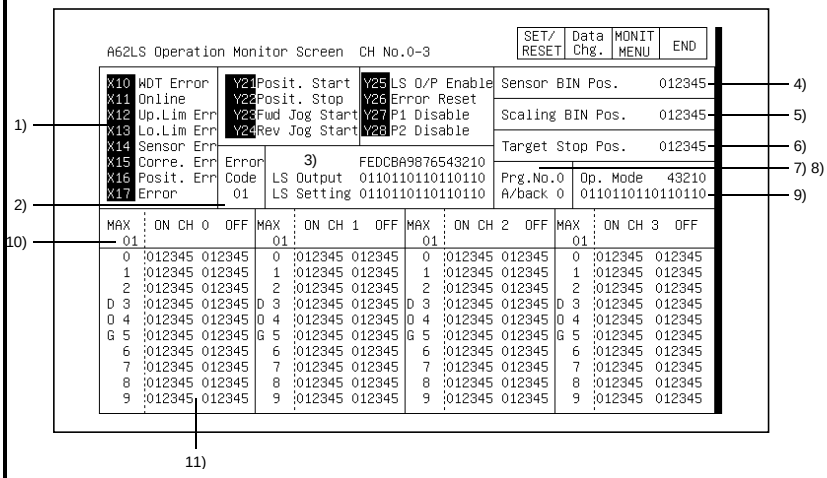
12.5 A62DA-S1 Module Monitor

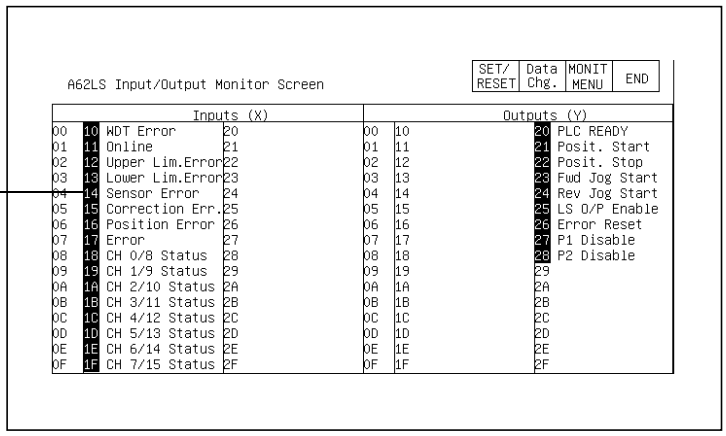
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	0, 1	0000, 0001
	2)	2 to 5	0002 to 0005
	3)	————	————
	—	————	————
	1)	0, 1	0000, 0001
	2)	2, 4	0002, 0004
	3)	3, 5	0003, 0005
	4)	————	————
	—	————	————

12.6 A1S62DA Module Monitor

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	0	0000
	2)	1	0001
	3)	2	0002
	4)	————	————
	5)	1, 2	0001, 0002
	6)		
	7)		
	8)		
	9)		
	10)		
	11)	10	000A
	12)	11	000B
	13)	9	0009
	—	————	————

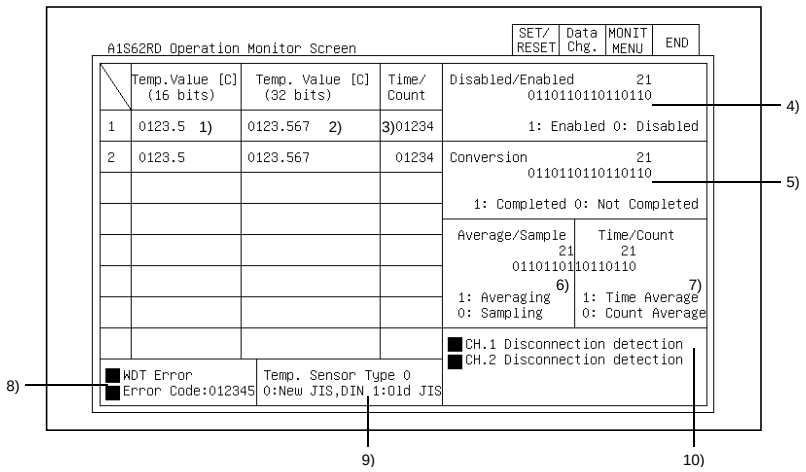
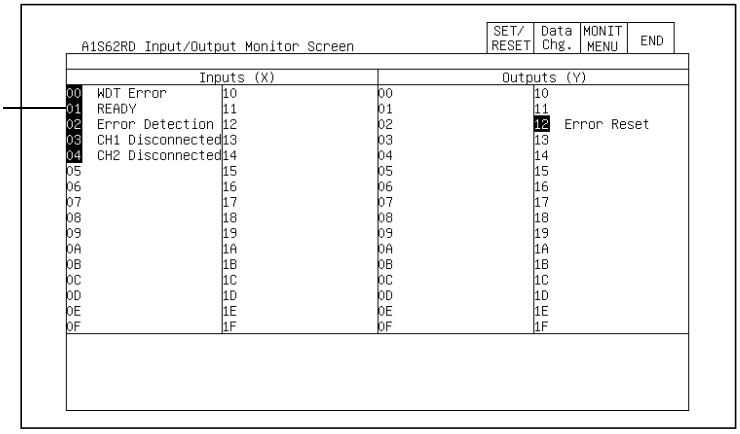
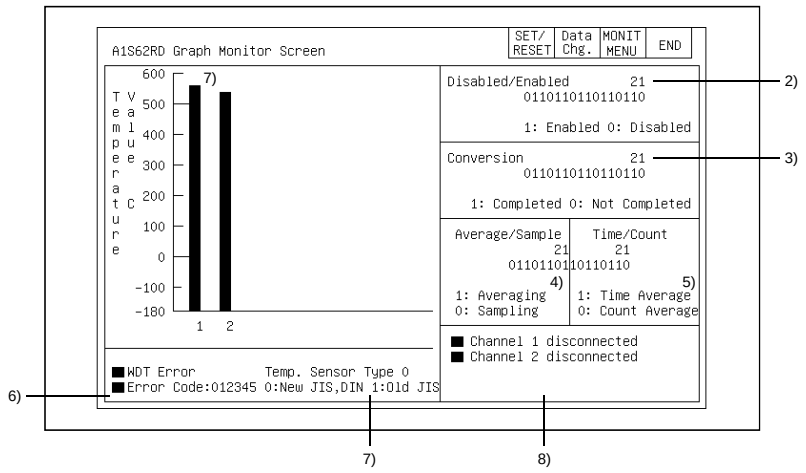
12.7 A62LS Module Monitor



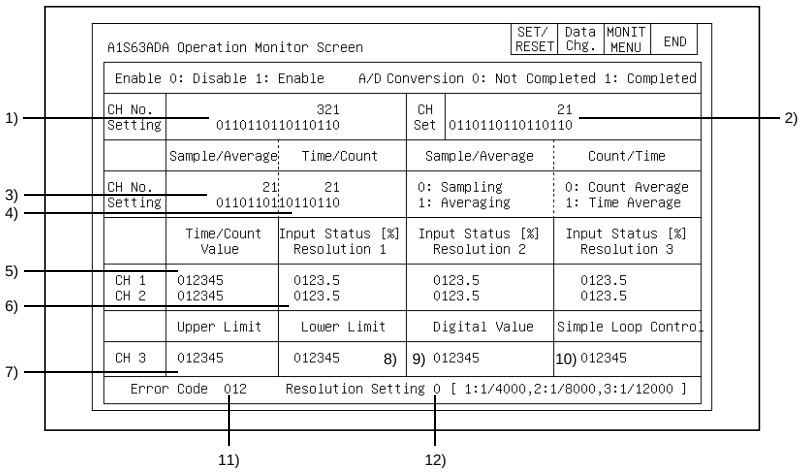
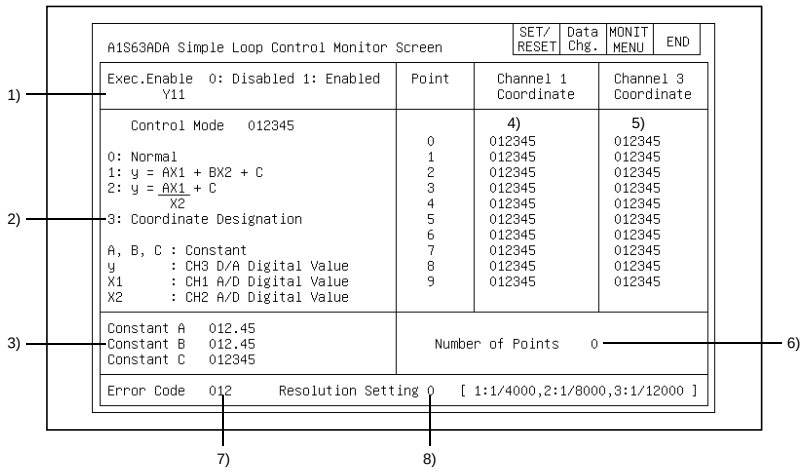
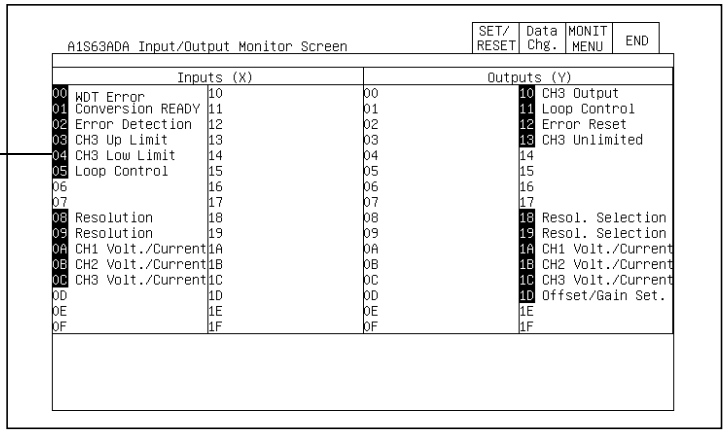


No.	Buffer memory address	
	dec.	hex.
1)	———	———
2)	7	0007
3)	4	0004
	8	0008
4)	2, 3	0002, 0003
5)	0, 1	0000, 0001
6)	10, 11	000A, 000B
7)	9	0009
8)	5	0005
9)	6	0006
10)	12 to 226	000C to 00E2
11)	12 to 226	000C to 00E2
—	———	———
1)	———	———
—	———	———

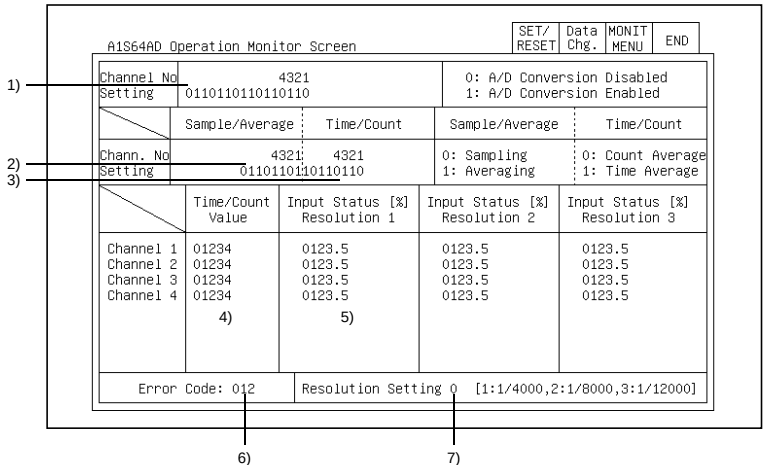
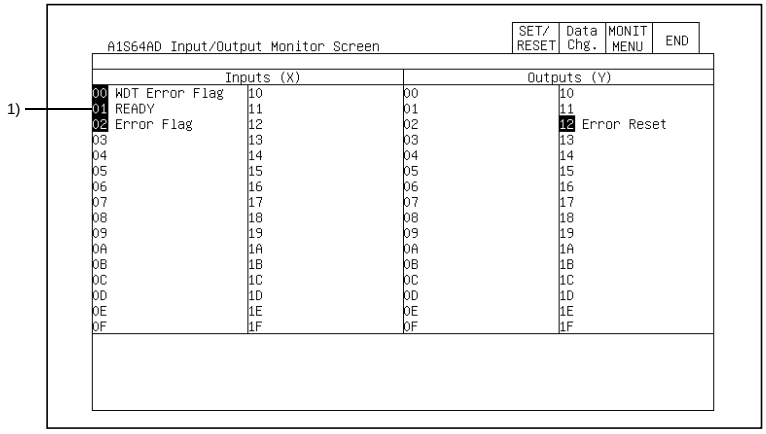
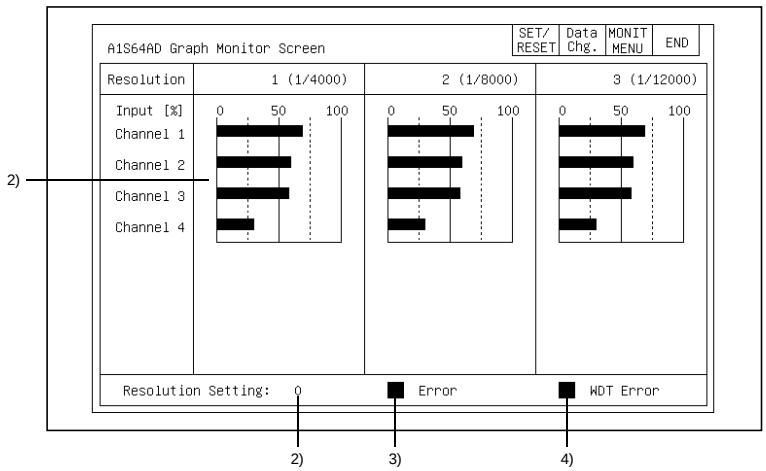
12.8 A1S62RD Module Monitor

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	10, 11	000A, 000B
	2)	18 to 21	0012 to 0015
	3)	2, 3	0002, 0003
	4)	0	0000
	5)	35	0023
	6)	1	0001
	7)	1	0001
	8)	—	—
		34	0022
	9)	36	0024
	10)	—	—
	—	———	———
	1)	———	———
	—	———	———
	1)	10, 11	000A, 000B
	2)	0	0000
	3)	35	0023
	4)	1	0001
	5)	1	0001
	6)	———	———
		34	0022
	7)	36	0024
	8)	———	———
	—	———	———

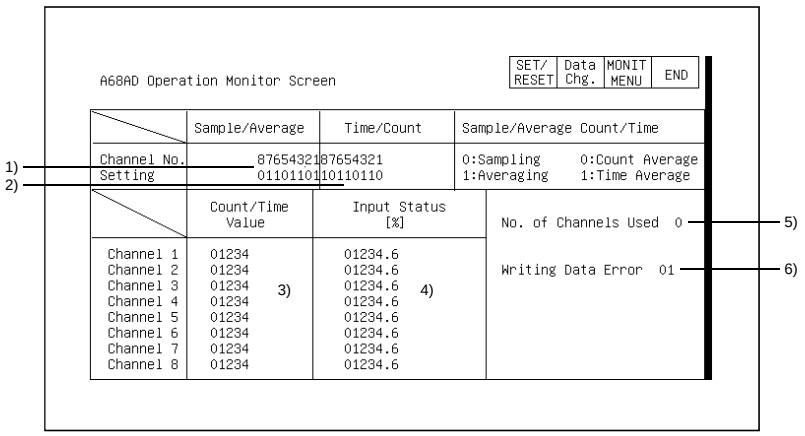
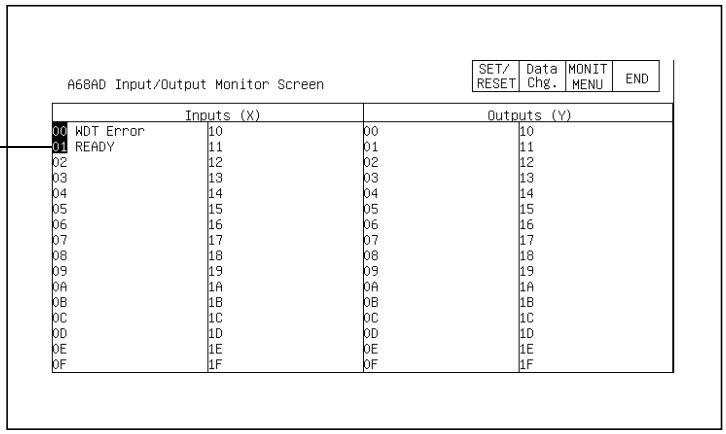
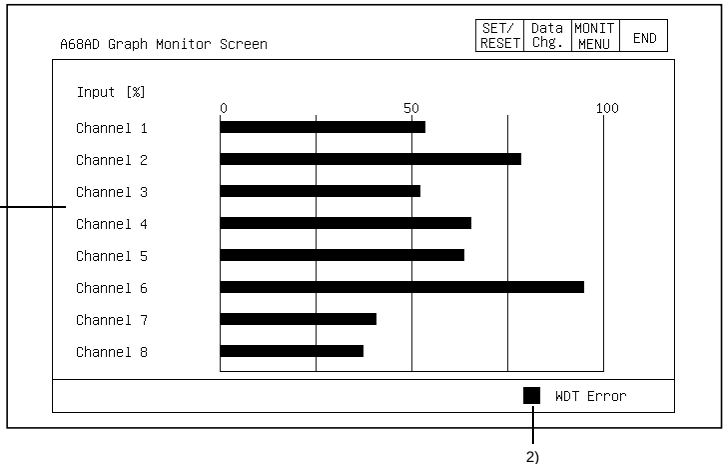
12.9 A1S63ADA Module Monitor

Screen Image	No.	Buffer memory address dec.	Buffer memory address hex.
	1)	0	0000
	2)	15	000F
	3)	1	0001
	4)		
	5)	2, 3	0002, 0003
	6)	11, 12	000B, 000C
	7)	4	0004
	8)	5	0005
	9)	10	000A
	10)	13	000D
	11)	16	0010
	12)	14	000E
	—	———	———
	1)	———	———
	2)	6	0006
	3)	7, 8, 9	0007, 0008, 0009
	4)	18 to 37	0012 to 0025
	5)		
	6)	17	0011
	7)	16	0010
	8)	14	000E
	—	———	———
	1)	———	———
	—	———	———

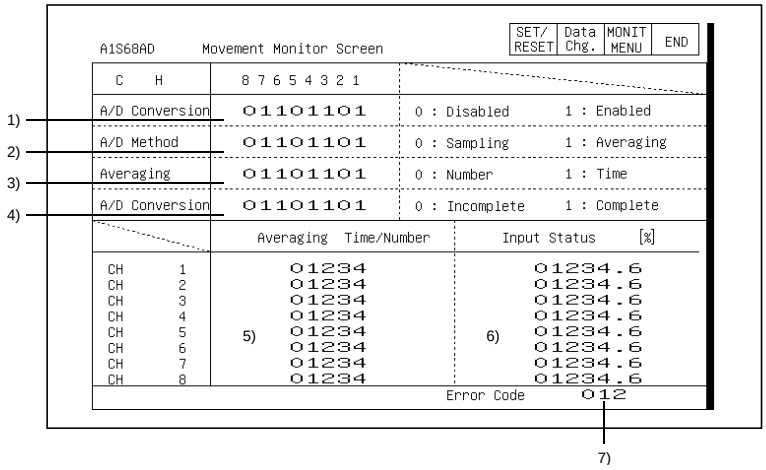
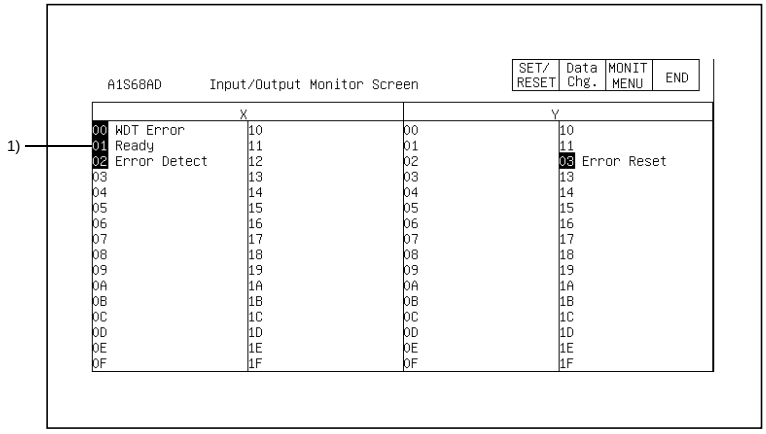
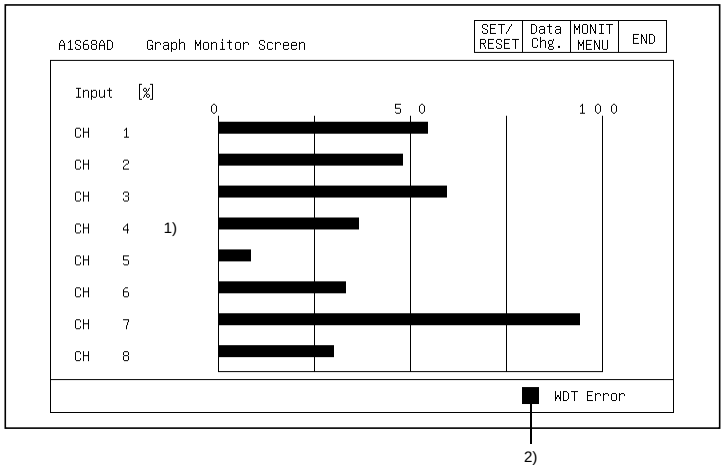
12.10 A1S64AD Module Monitor

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	0	0000
	2)	1	0001
	3)	1	0001
	4)	2 to 5	0002 to 0005
	5)	10 to 13	000A to 000D
	6)	18	0012
	7)	20	0014
	—	———	———
	1)	———	———
	—	———	———
	1)	10 to 13	000A to 000D
	2)	20	0014
	3)	———	———
	4)	———	———
	—	———	———

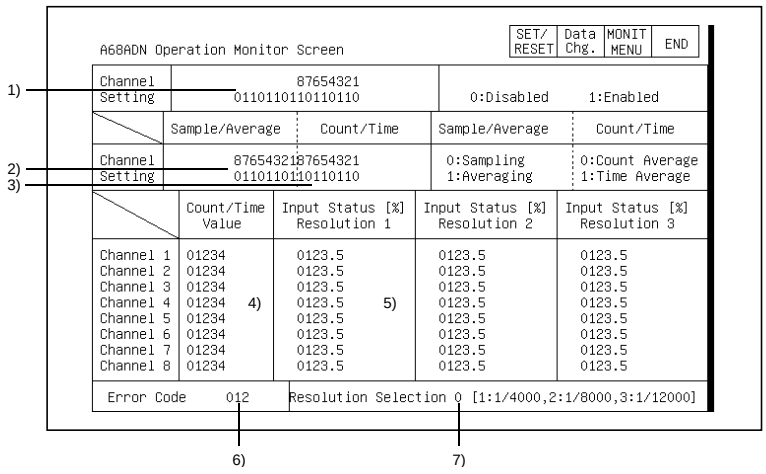
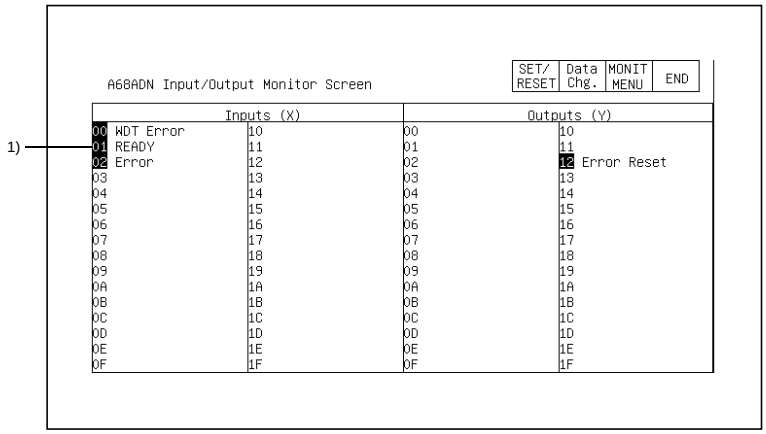
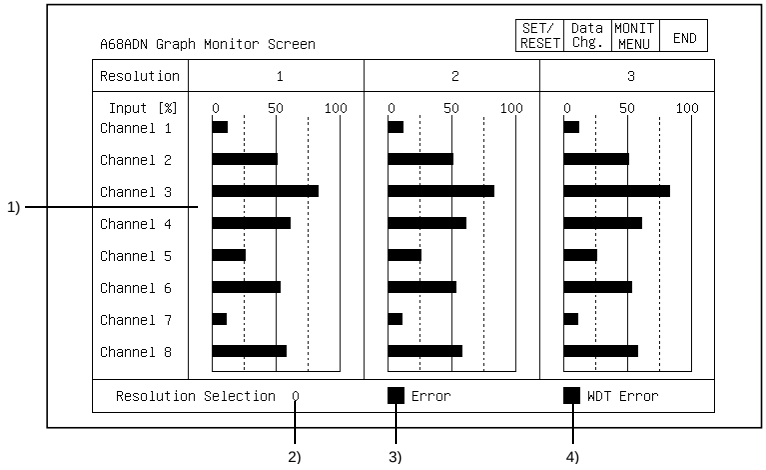
12.11 A68AD Module Monitor

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	1	0001
	2)	1	0001
	3)	2 to 9	0002 to 0009
	4)	10 to 17	000A to 0011
	5)	0	0000
	6)	34	0022
	—	———	———
	1)	———	———
	—	———	———
	1)	10 to 17	000A to 0011
	2)	—	—
	—	———	———

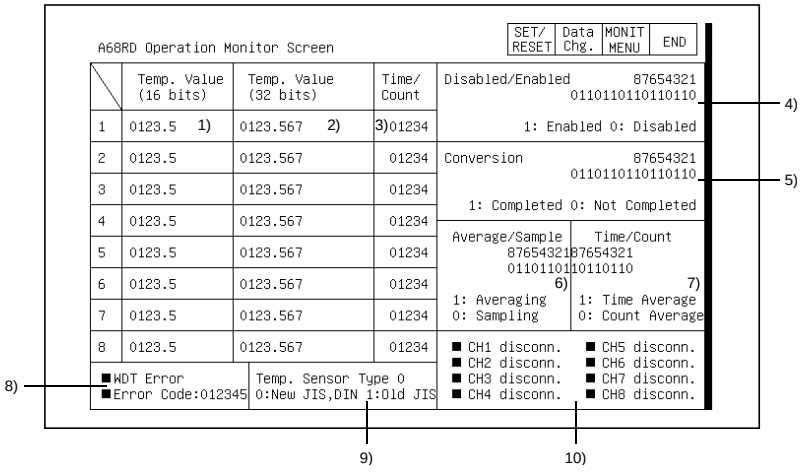
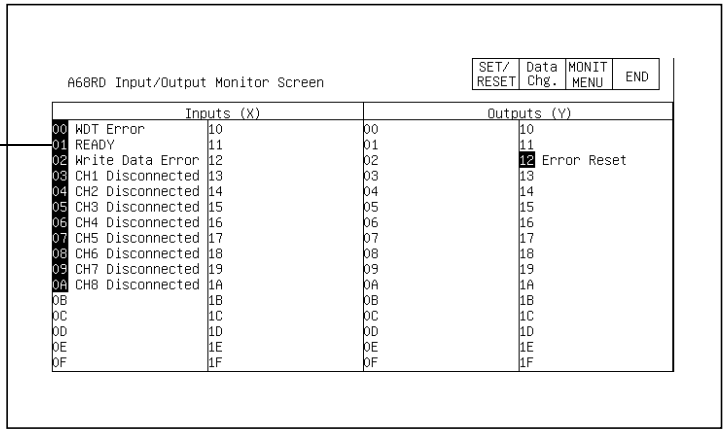
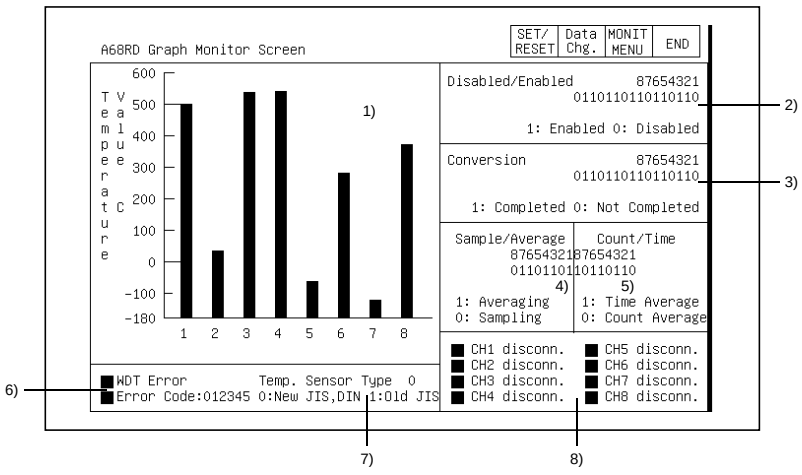
12.12 A1S68AD Module Monitor

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	0	0000
	2)	2	0002
	3)	2	0002
	4)	28	001C
	5)	10 to 17	000A to 0011
	6)	20 to 27	0014 to 001B
	7)	1	0001
	—	———	———
	1)	———	———
	—	———	———
	1)	20 to 27	0014 to 001B
	2)	———	———
	—	———	———

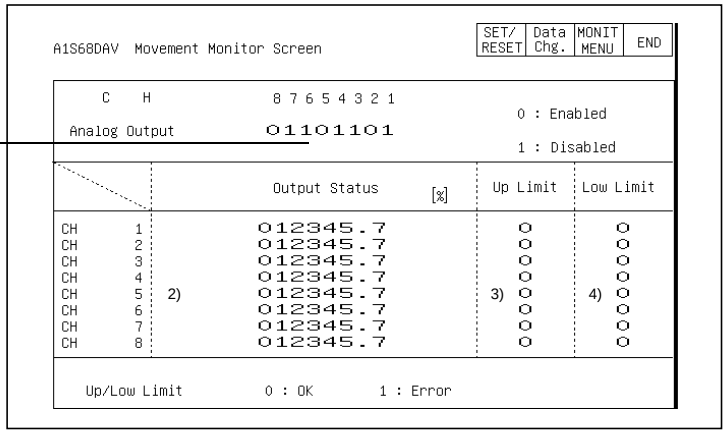
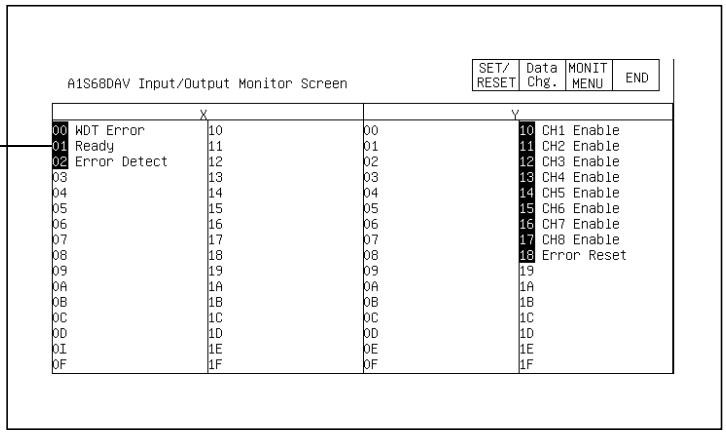
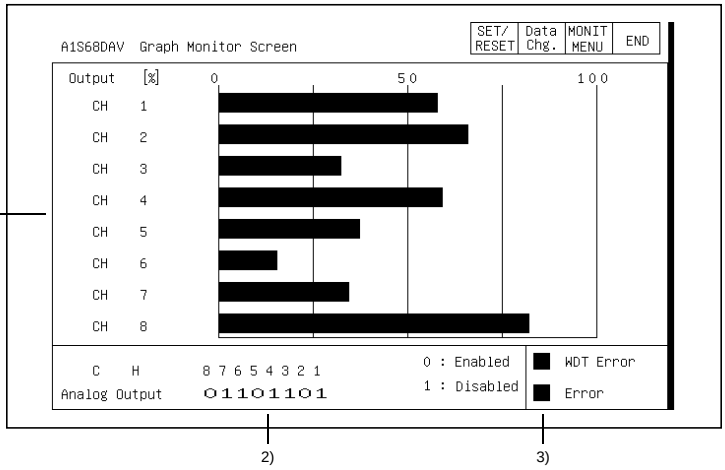
12.13 A68ADN Module Monitor

Screen Image	No.	Buffer memory address dec.	Buffer memory address hex.
	1)	0	0000
	2)	1	0001
	3)	1	0001
	4)	2 to 9	0002 to 0009
	5)	10 to 17	000A to 0011
	6)	18	0012
	7)	20	0014
	—	———	———
	1)	———	———
	—	———	———
	1)	10 to 17	000A to 0011
	2)	20	0014
	3)	———	———
	4)	———	———
	—	———	———

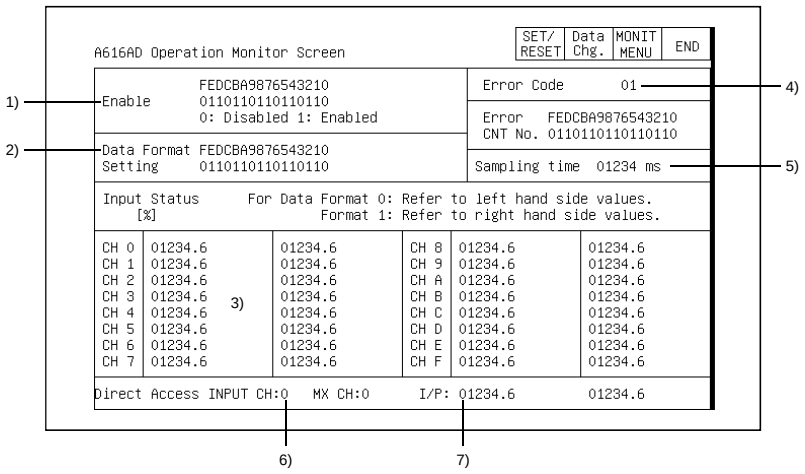
12.14 A68RD Module Monitor

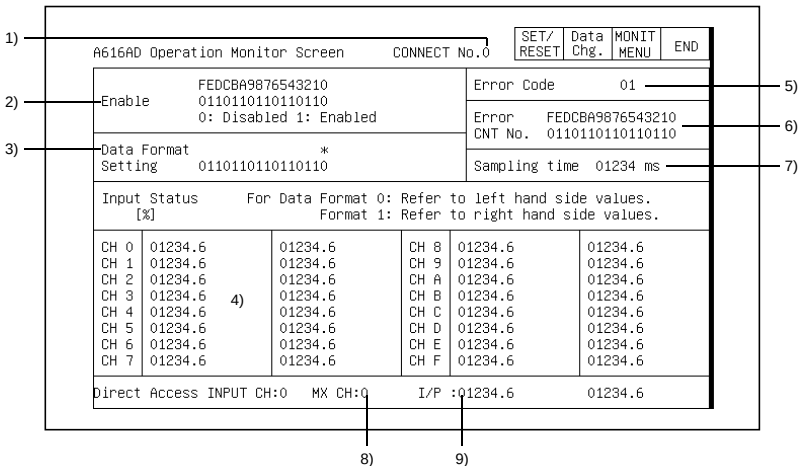
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	10 to 17	000A to 0011
	1)	18 to 33	0012 to 0021
	2)	2 to 9	0002 to 0009
	3)	0	0000
	4)	35	0023
	5)	1	0001
	6)	1	0001
	7)	———	———
	8)	34	0022
	9)	36	0024
	10)	———	———
	—	———	———
	1)	———	———
	—	———	———
	1)	10 to 17	000A to 0011
	2)	0	0000
	3)	35	0023
	4)	1	0001
	5)	1	0001
	6)	—	—
		34	0022
	7)	36	0024
	8)	—	—
	—	———	———

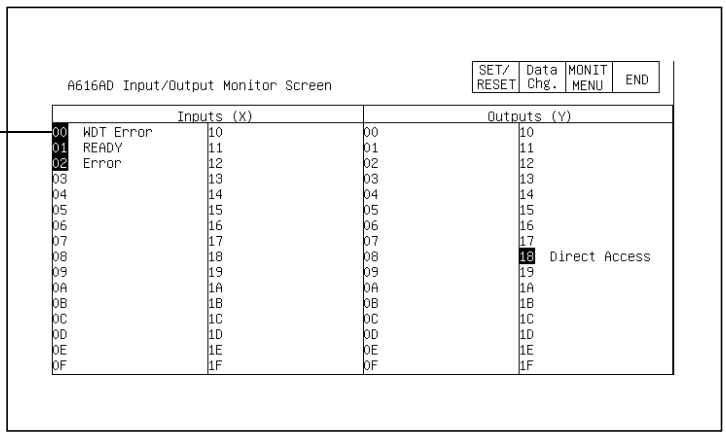
12.15 A1S68DAI,A1S68DAV Module Monitor

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	0	0000
	2)	1 to 8	0001 to 0008
	3)	10 to 17	000A to 0011
	4)	10 to 17	000A to 0011
	—	———	———
	1)	———	———
	—	———	———
	1)	1 to 8	0001 to 0008
	2)	0	0000
	3)	———	———
	4)	10 to 17	000A to 0011
	—	———	———

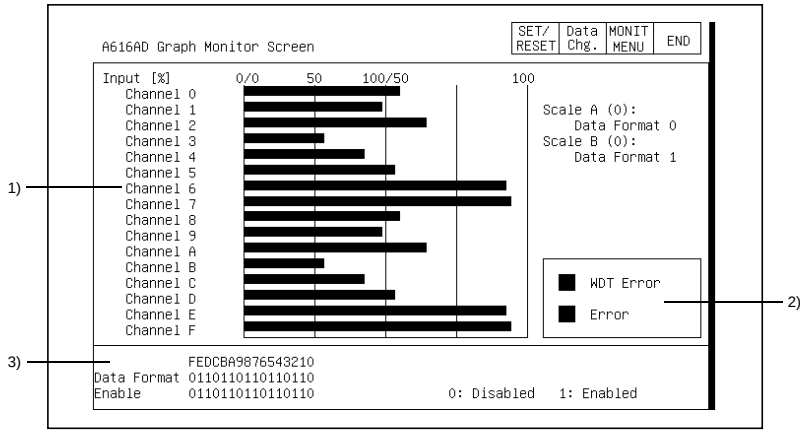
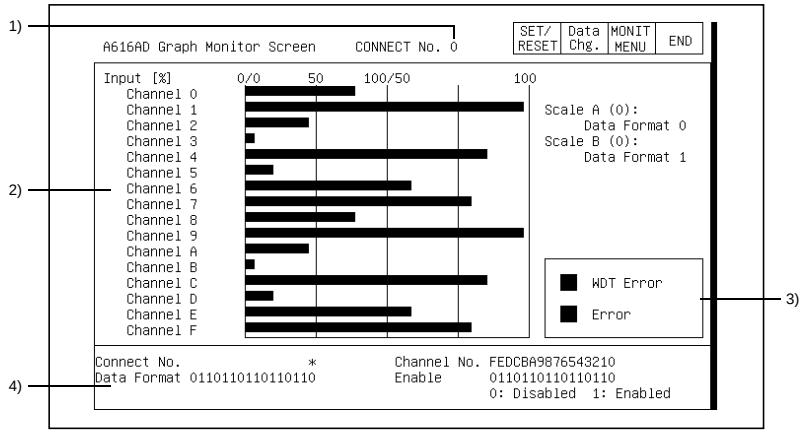
12.16 A616AD Module Monitor



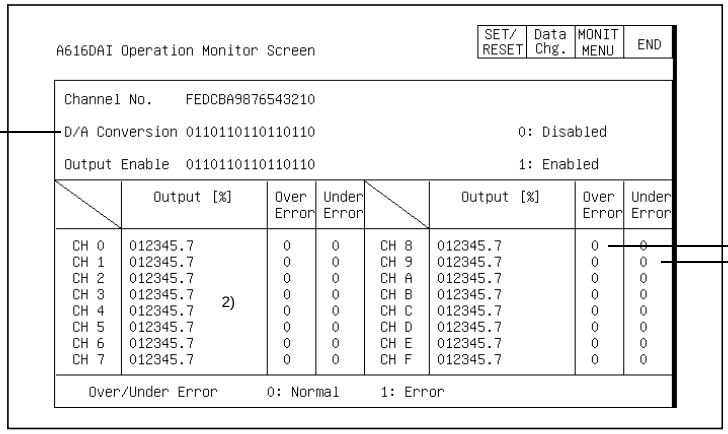
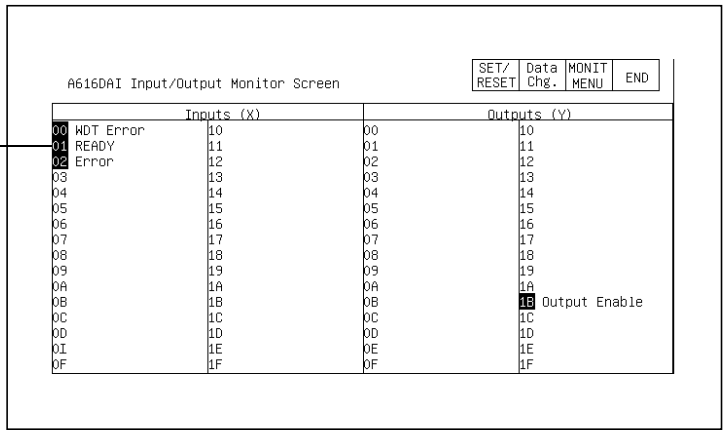
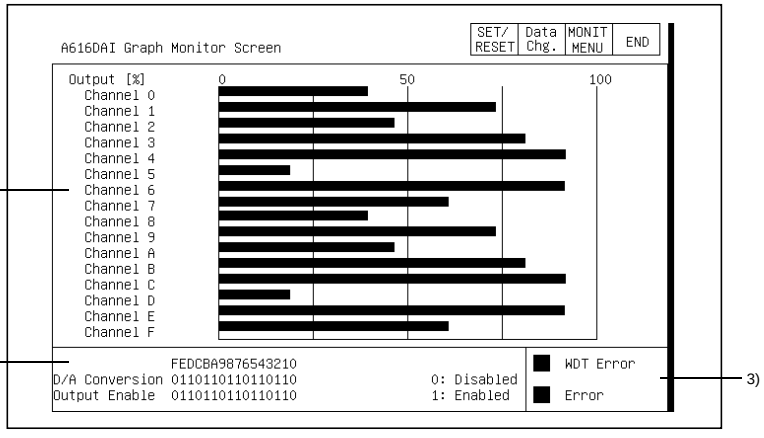




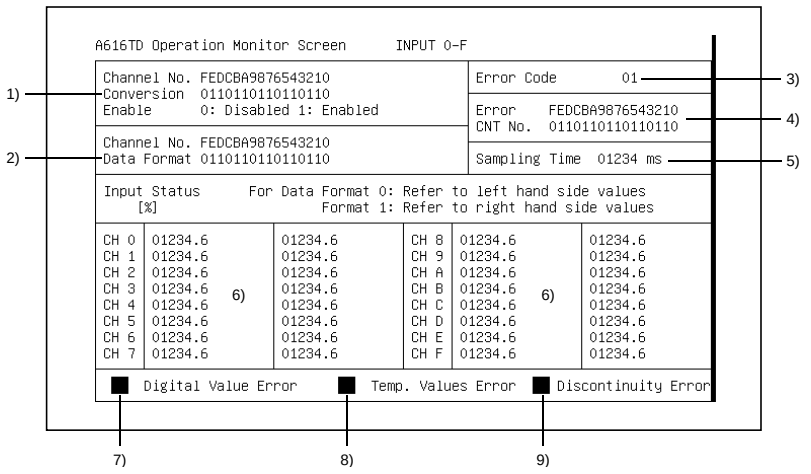
Screen Image	No.	Buffer memory address	
		dec.	hex.
A616AD Operation Monitor Screen	1)	15	000F
	2)	4	0004
	3)	48 to 63	0030 to 003F
	4)	5	0005
	5)	3	0003
	6)	0	0000
	7)	2	0002
	—	———	———
A616AD Operation Monitor Screen CONNECT No.0	1)	———	———
	2)	16 to 23	0010 to 0017
	3)	4	0004
	4)	256 to 383	0100 to 017F
	5)	5	0005
	6)	6	0006
	7)	3	0003
	8)	1	0001
	9)	2	0002
	—	———	———
A616AD Input/Output Monitor Screen	1)	———	———
	—	———	———

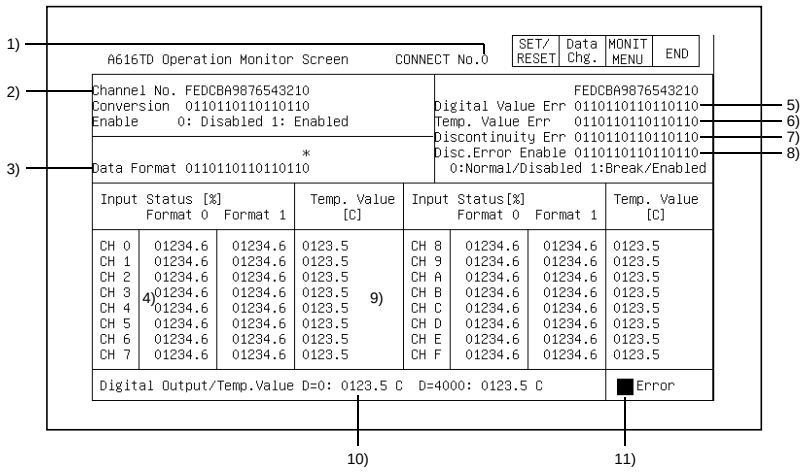
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	48 to 63	0030 to 003F
	2)	———	———
		———	———
	3)	4	0004
		15	000F
	—	———	———
	1)	———	———
	2)	256 to 383	0100 to 017F
	3)	—	—
		—	—
	4)	4	0004
		16 to 23	0010 to 0017
	—	———	———

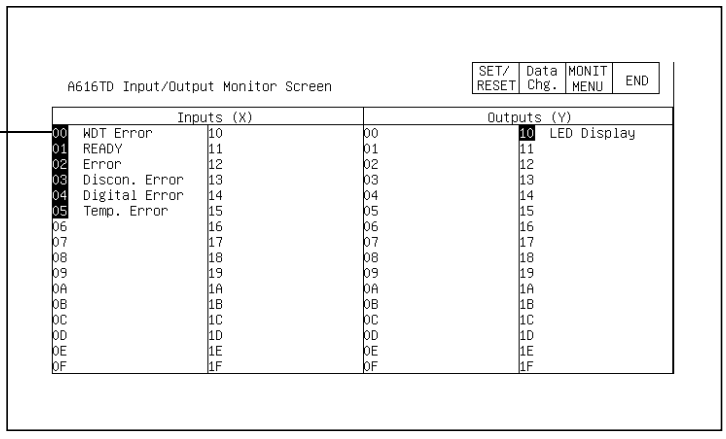
12.17 A616DAI,A616DAV Module Monitor

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	0	0000
		1	0001
	2)	—	0010 to 001F
	3)	48 to 63	0030 to 003F
	4)	48 to 63	0030 to 003F
	—	———	———
	1)	———	———
	—	———	———
	1)	16 to 31	10 to 1F
	2)	0	0
		1	1
	3)	———	———
		———	———
	—	———	———

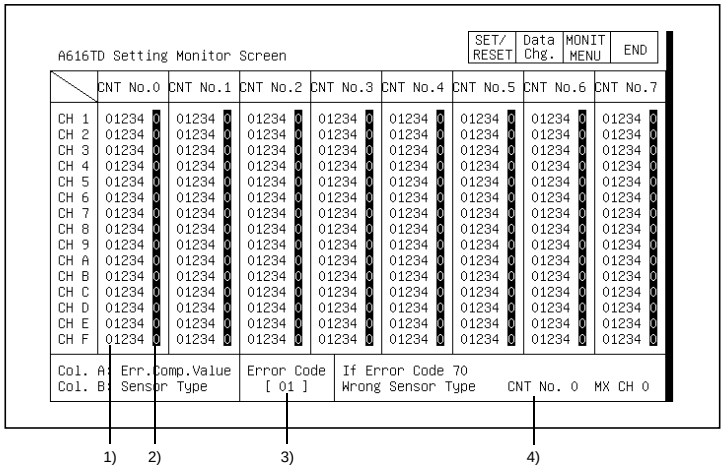
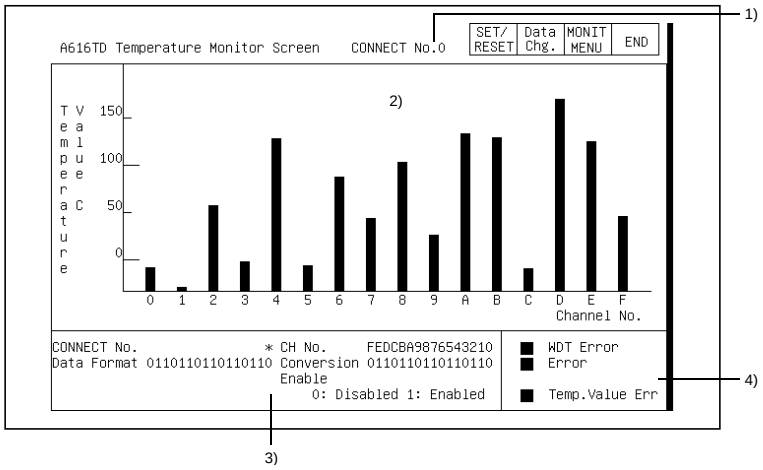
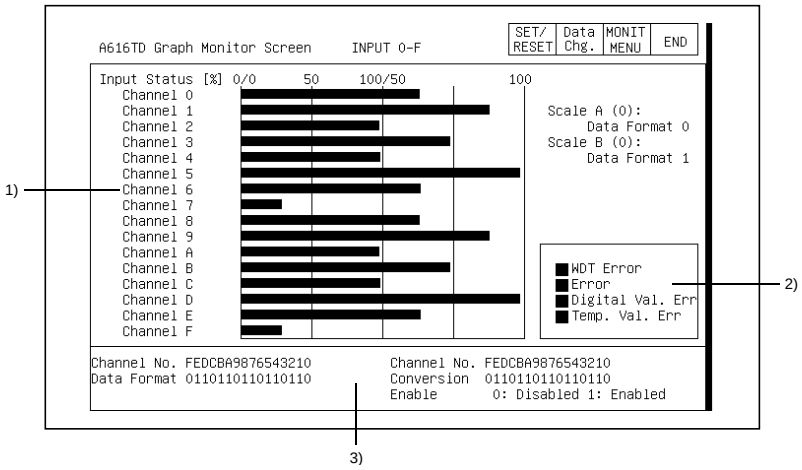
12.18 A616TD Module Monitor

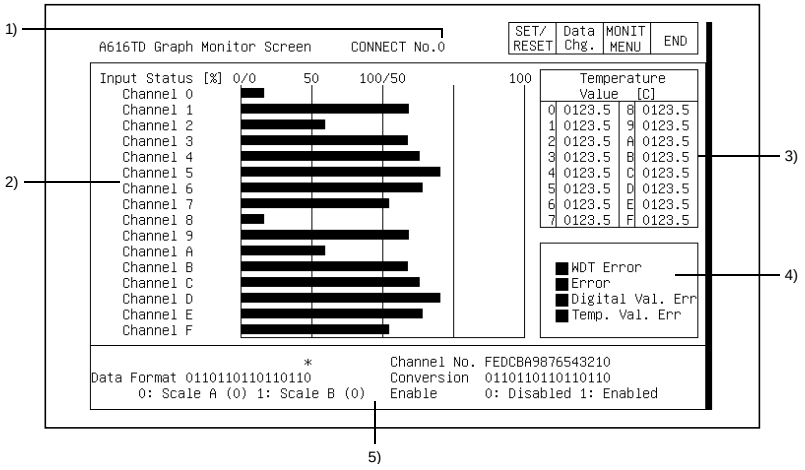






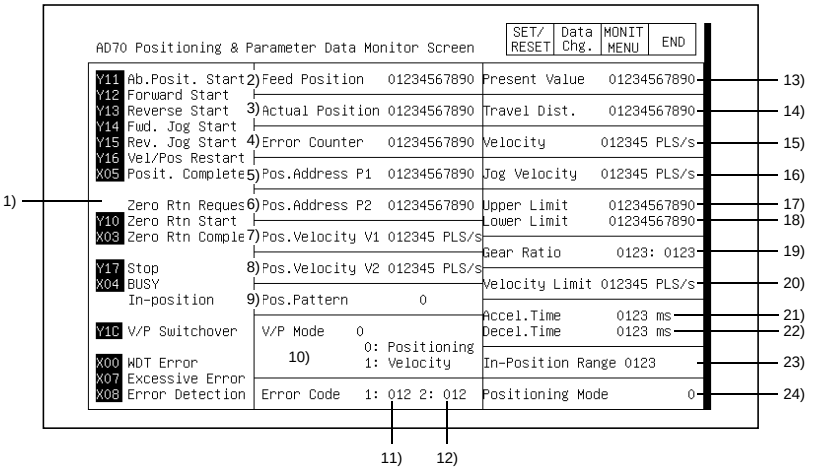
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	15	000F
	2)	0	0000
	3)	1	0001
	4)	2	0002
	5)	4	0004
	6)	112 to 127	0070 to 007F
	7)	———	———
	8)	———	———
	9)	———	———
	—	———	———
	1)	———	———
	2)	16 to 23	0010 to 0017
	3)	0	0000
	4)	384 to 511	0180 to 01FF
	5)	80 to 87	0050 to 0057
	6)	96 to 103	0060 to 0067
	7)	64 to 71	0040 to 0047
	8)	32 to 39	0020 to 0027
	9)	512 to 639	0200 to 027F
	10)	48 to 63	0030 to 003F
	11)	———	———
	—	———	———
	1)	———	———
	—	———	———

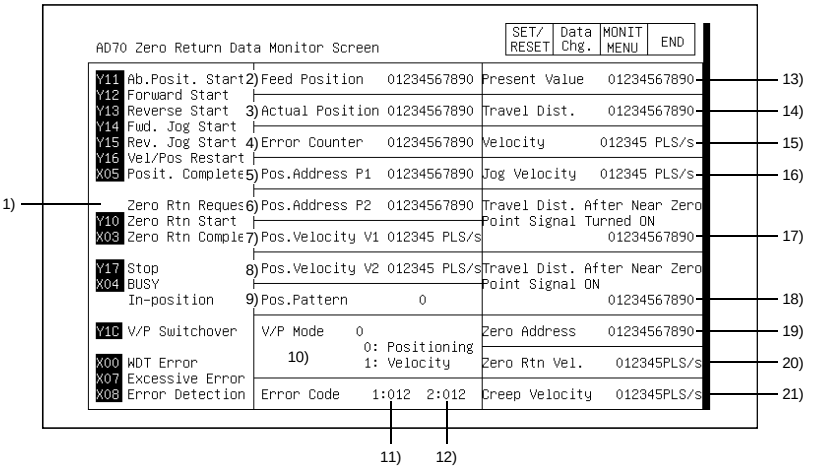
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	256 to 383	0100 to 017F
	2)	128 to 255	0080 to 00FF
	3)	1	0001
	4)	3	0003
	—	———	———
	1)	———	———
	2)	512 to 639	0200 to 027F
	3)	0	0000
		16 to 23	0010 to 0017
	4)	———	———
	—	———	———
	1)	16 to 23	0070 to 007F
	2)	———	———
	3)	0	0000
	4)	15	000F
	—	———	———

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	———	———
	2)	384 to 511	0180 to 01FF
	3)	512 to 639	0200 to 027F
	4)	———	———
	5)	0	0000
		16 to 23	0010 to 0017
	—	———	———

12.19 AD70,A1SD70 Module Monitor

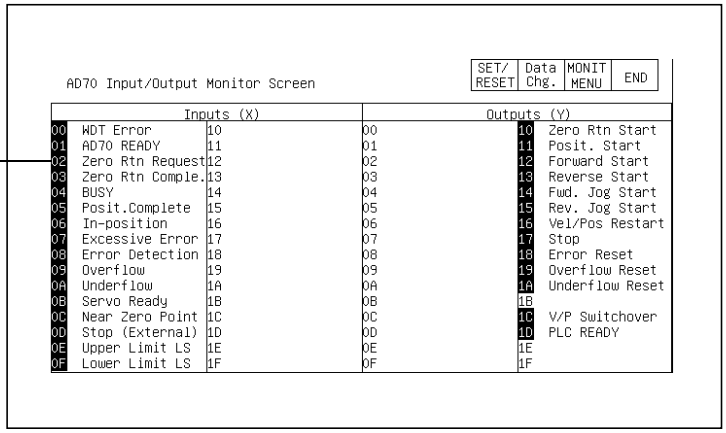
Screen Image





No.	Buffer memory address	
	dec.	hex.
1)	———	———
2)	100, 101	0064, 0065
3)	102, 103	0066, 0067
4)	106, 107	006A, 006B
5)	61, 62	003D, 003E
6)	65, 66	0041, 0042
7)	63, 64	003F, 0040
8)	67, 68	0043, 0044
9)	60	003C
10)	111	006F
11)	104	0068
12)	105	0069
13)	80, 81	0050, 0051
14)	88, 89	0058, 0059
15)	82, 83	0052, 0053
16)	84, 85	0054, 0055
17)	0, 1	0000, 0001
18)	2, 3	0002, 0003
19)	4, 5	0004, 0005
20)	20, 21	0014, 0015
21)	22	0016
22)	23	0017
23)	24	0018
24)	25	0019

No.	Buffer memory address	
	dec.	hex.
1)	———	———
2)	100, 101	0064, 0065
3)	102, 103	0066, 0067
4)	106, 107	006A, 006B
5)	61, 62	003D, 003E
6)	65, 66	0041, 0042
7)	63, 64	003F, 0040
8)	67, 68	0043, 0044
9)	60	003C
10)	111	006F
11)	104	0068
12)	105	0069
13)	80, 81	0050, 0051
14)	88, 89	0058, 0059
15)	82, 83	0052, 0053
16)	84, 85	0054, 0055
17)	108, 109	006C, 006D
18)	46, 47	002E, 002F
19)	40, 41	0028, 0029
20)	42, 43	002A, 002B
21)	44, 45	002C, 002D

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	————	————
	—	————	————

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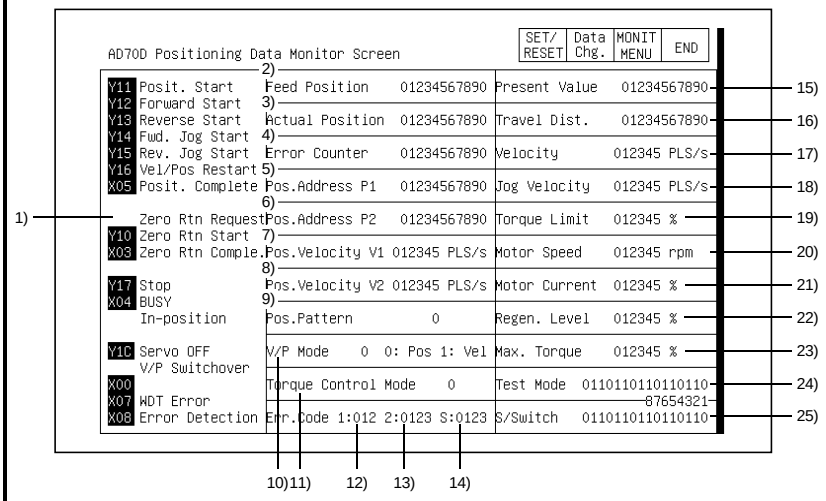
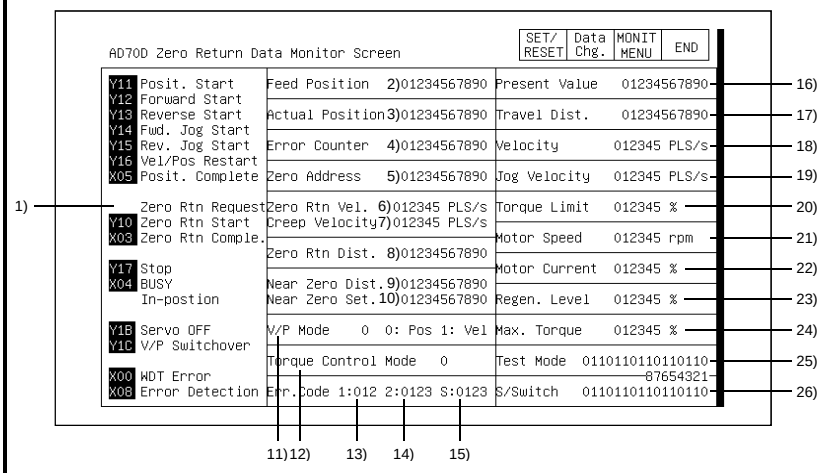
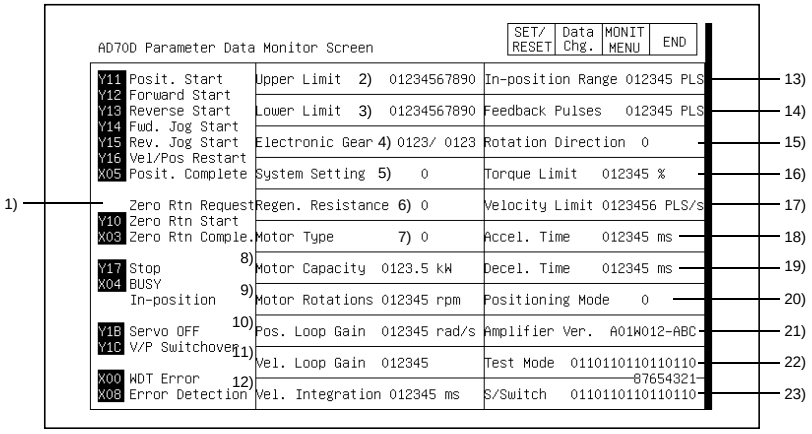
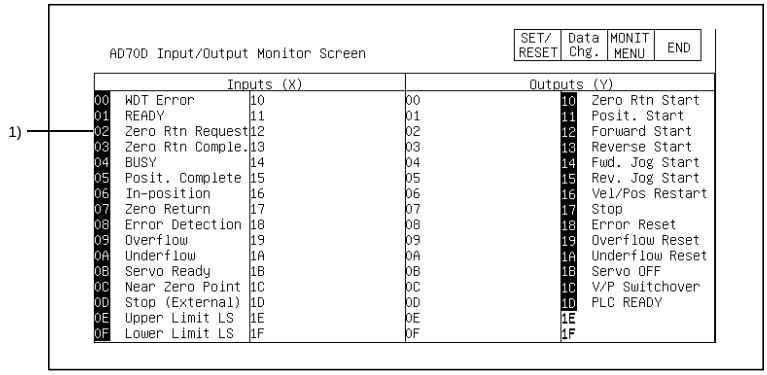
12.20 AD70D Module Monitor



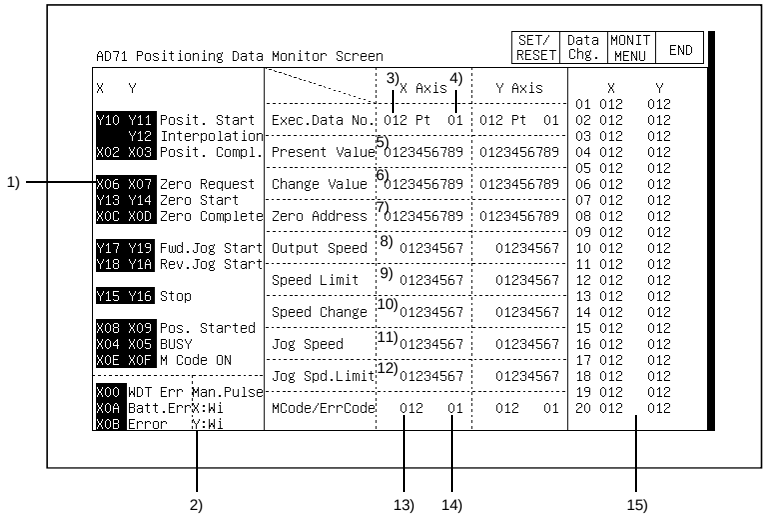
No.	Buffer memory address	
	dec.	hex.
1)	———	———
2)	100, 101	0064, 0065
3)	102, 103	0066, 0067
4)	104, 105	0068, 0069
5)	61, 62	003D, 003E
6)	65, 66	0041, 0042
7)	63, 64	003F, 0040
8)	67, 68	0043, 0044
9)	60	003C
10)	119	0077
11)	120	0078
12)	121	0079
13)	122	007A
14)	123	007B
15)	80, 81	0050, 0051
16)	86, 87	0056, 0057
17)	82, 83	0052, 0053
18)	84, 85	0054, 0055
19)	89	0059
20)	110	006E
21)	111	006F
22)	112	0070
23)	113	0071
24)	125	007D
25)	126	007E

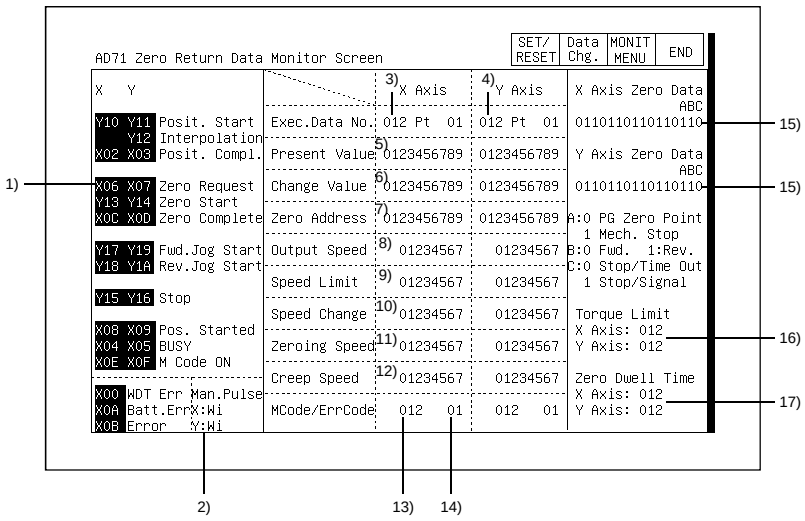


No.	Buffer memory address	
	dec.	hex.
1)	———	———
2)	100, 101	0064, 0065
3)	102, 103	0066, 0067
4)	104, 105	0068, 0069
5)	30, 31	001E, 001F
6)	32, 33	0020, 0021
7)	34, 35	0022, 0023
8)	108, 109	006C, 006D
9)	106, 107	006A, 006B
10)	36, 37	0024, 0025
11)	119	0077
12)	120	0078
13)	121	0079
14)	122	007A
15)	123	007B
16)	80, 81	0050, 0051
17)	86, 87	0056, 0057
18)	82, 83	0052, 0053
19)	84, 85	0054, 0055
20)	89	0059
21)	110	006E
22)	111	006F
23)	112	0070
24)	113	0071
25)	125	007D
26)	126	007E

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	———	———
	2)	0, 1	0000, 0001
	3)	2, 3	0002, 0003
	4)	4, 5	0004, 0005
	5)	10	000A
	6)	11	000B
	7)	12	000C
	8)	13	000D
	9)	14	000E
	10)	15	000F
	11)	16	0010
	12)	17	0011
	13)	18	0012
	14)	19	0013
	15)	20	0014
	16)	21	0015
	17)	40, 41	0028, 0029
	18)	42	002A
	19)	43	002B
	20)	44	002C
	21)	114 to 117	0072 to 0075
	22)	125	007D
	23)	126	007E
	1)	———	———
	—	———	———

12.21 AD71 Module Monitor

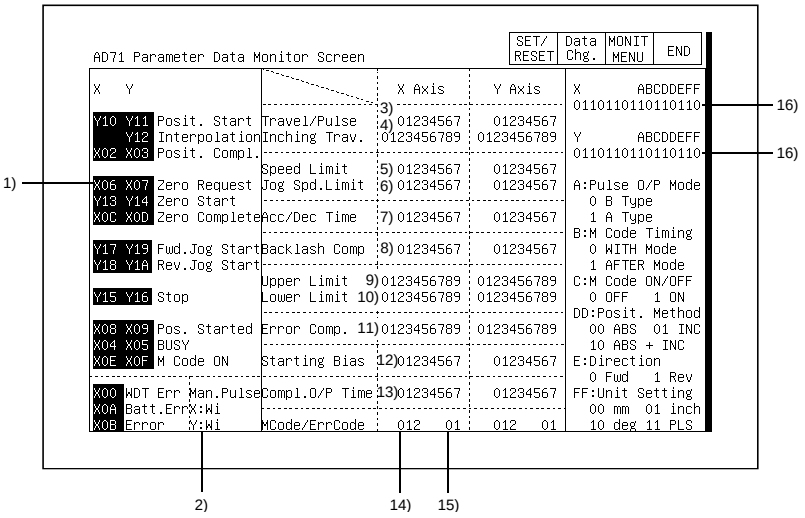


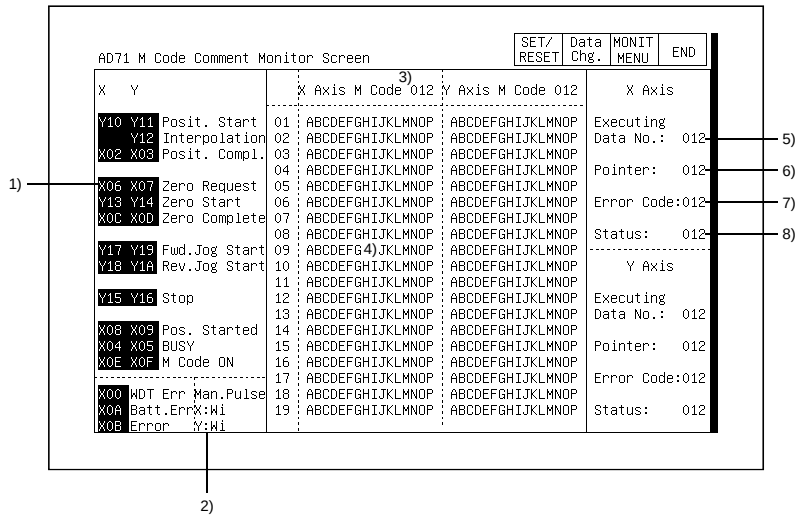


No.	Buffer memory address			
	X		Y	
	dec.	hex.	dec.	hex.
1)	———	———	———	———
2)	47	002F	347	015B
3)	48	0030	348	015C
4)	39	0027	339	0153
5)	602	025A	604	025C
	603	025B	605	025D
6)	41	0029	341	0155
	42	002A	342	0156
7)	7912	1EE8	7922	1EF2
	7913	1EE9	7923	1EF3
8)	600	0258	601	0259
9)	7874	1EC2	7894	1ED6
10)	40	0028	340	0154
11)	44	002C	344	0158
12)	7875	1EC3	7895	1ED7
13)	46	002E	346	015A
14)	45	002D	345	0159
15)	0 to 37	0000 to 0025	300 to 337	012C to 0151

No.	Buffer memory address			
	X		Y	
	dec.	hex.	dec.	hex.
1)	———	———	———	———
2)	47	002F	347	015B
3)	48	0030	348	015C
4)	39	0027	339	0153
5)	602	025A	604	025C
	603	025B	605	025D
6)	41	0029	341	0155
	42	002A	342	0156
7)	7912	1EE8	7922	1EF2
	7913	1EE9	7923	1EF3
8)	600	0258	601	0259
9)	7874	1EC2	7894	1ED6
10)	40	0028	340	0154
11)	7914	1EEA	7924	1EF4
12)	7915	1EEB	7925	1EF5
13)	46	002E	346	015A
14)	45	002D	345	0159
15)	7918	1EEE	7928	1EF8
16)	7917	1EED	7927	1EF7
17)	7916	1EEC	7926	1EF6

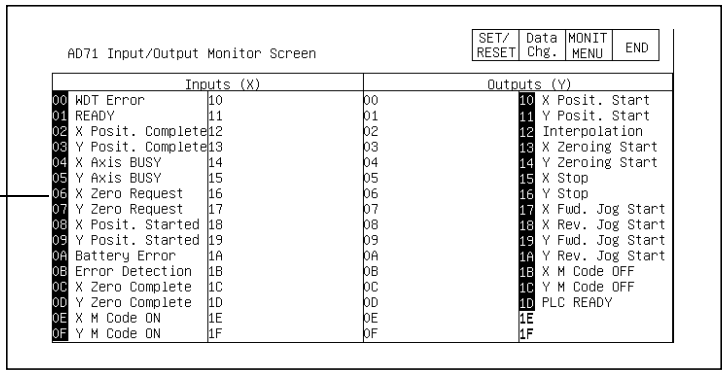
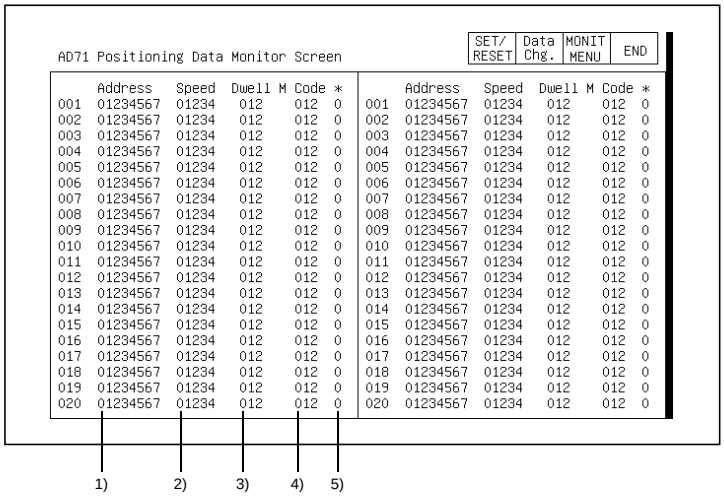
Screen Image



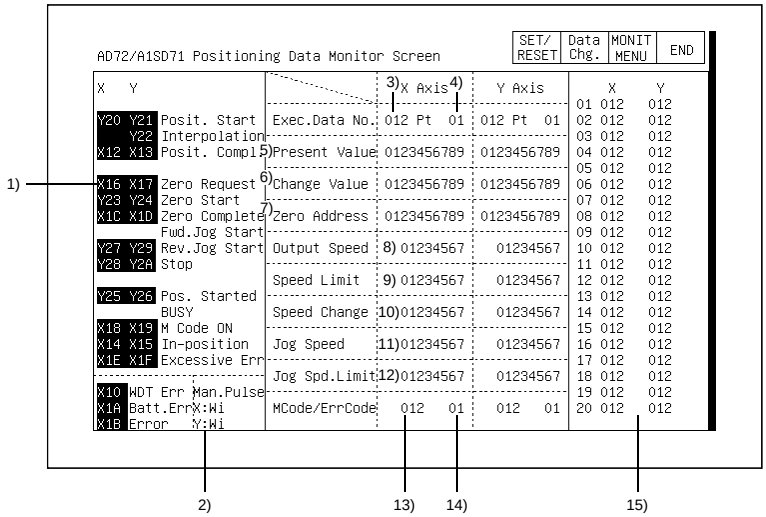
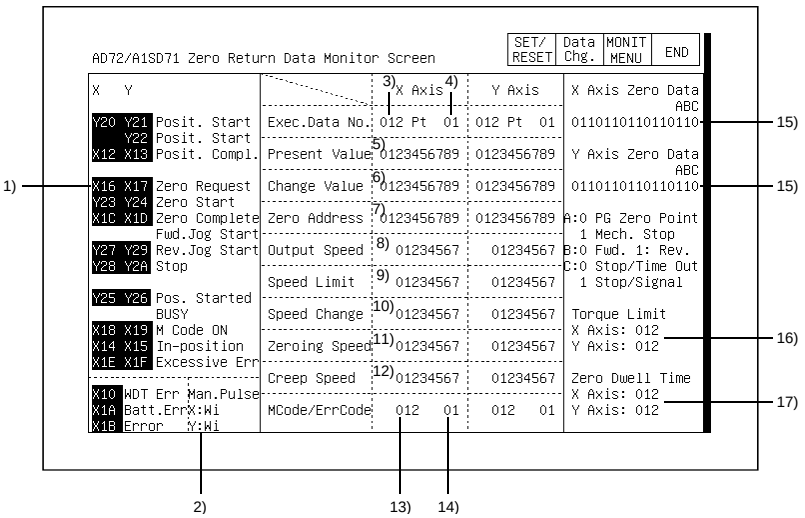


No.	Buffer memory address			
	X		Y	
	dec.	hex.	dec.	hex.
1)	———	———	———	———
2)	47	002F	347	015B
3)	7873	1EC1	7893	1ED5
4)	7884	1ECC	7904	1EE0
	7885	1ECD	7905	1EE1
5)	7874	1EC2	7894	1ED6
6)	7875	1EC3	7895	1ED7
7)	7876	1EC4	7896	1ED8
8)	7877	1EC5	7897	1ED9
9)	7878	1EC6	7898	1EDA
	7879	1EC7	7899	1EDB
10)	7880	1EC8	7900	1EDC
	7881	1EC9	7901	1EDD
11)	7882	1ECA	7902	1EDE
	7883	1ECB	7903	1EDF
12)	7886	1ECE	7906	1EE2
13)	7887	1ECF	7907	1EE3
14)	46	002E	346	015A
15)	45	002D	345	0159
16)	7872	1EC0	7892	1ED4

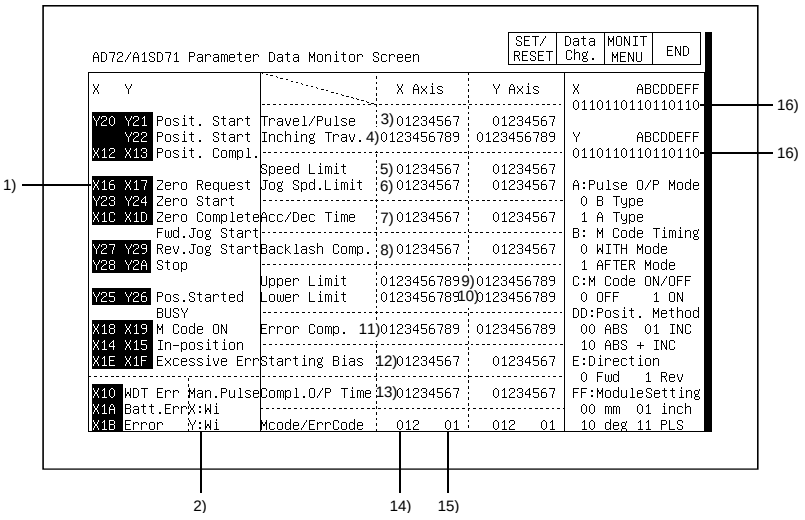
No.	Buffer memory address			
	X		Y	
	dec.	hex.	dec.	hex.
1)	———	———	———	———
2)	47	002F	347	015B
3)	46	002E	346	015A
4)	49 to 200	0031 to 00C8	349 to 500	015D to 01F4
5)	48	0030	348	015C
6)	39	0027	339	0153
7)	45	002D	345	0159
8)	43	002B	343	0157
—	———	———	———	———

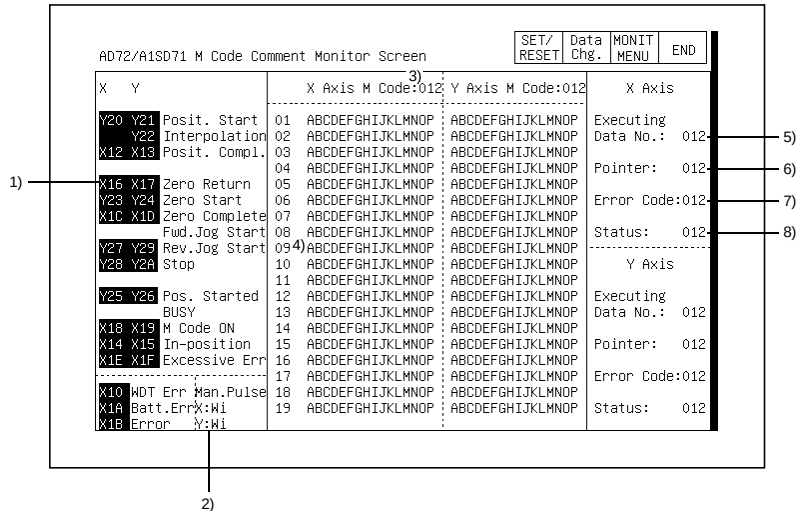
Screen Image	No.	Buffer memory address			
		X		Y	
		dec.	hex.	dec.	hex.
	1)	———	———	———	———
	—	———	———	———	———
	1)	5072 to 5111	13D0 to 13F7	7072 to 7111	1BA0 to 1BC7
	2)	4272 to 4291	10B0 to 10C3	6272 to 6291	1880 to 1893
	3)	4672 to 4691	1240 to 1253	6672 to 6691	1A10 to 1A23
	4)	3872 to 3891	0F20 to 0F33	5872 to 5891	16F0 to 1703
	5)	3872 to 3891	0F20 to 0F33	5872 to 5891	16F0 to 1703
	—	———	———	———	———

12.22 AD72,A1SD71 Module Monitor

Screen Image	No.	Buffer memory address			
		X		Y	
		dec.	hex.	dec.	hex.
	1)	——	——	——	——
	2)	47	002F	347	015B
	3)	48	0030	348	015C
	4)	39	0027	339	0153
	5)	602	025A	604	025C
		603	025B	605	025D
	6)	41	0029	341	0155
		42	002A	342	0156
	7)	7912	1EE8	7922	1EF2
		7913	1EE9	7923	1EF3
	8)	600	0258	601	0259
	9)	7874	1EC2	7894	1ED6
	10)	40	0028	340	0154
	11)	44	002C	344	0158
	12)	7875	1EC3	7895	1ED7
	13)	46	002E	346	015A
	14)	45	002D	345	0159
	15)	0 to 37	0000 to 0025	300 to 337	012C to 0151
	1)	——	——	——	——
	2)	47	002F	347	015B
	3)	48	0030	348	015C
	4)	39	0027	339	0153
	5)	602	025A	604	025C
		603	025B	605	025D
	6)	41	0029	341	0155
		42	002A	342	0156
	7)	7912	1EE8	7922	1EF2
		7913	1EE9	7923	1EF3
	8)	600	0258	601	0259
	9)	7874	1EC2	7894	1ED6
	10)	40	0028	340	0154
	11)	7914	1EEA	7924	1EF4
	12)	7915	1EEB	7925	1EF5
	13)	46	002E	346	015A
	14)	45	002D	345	0159
	15)	7918	1EEE	7928	1EF8
	16)	7917	1EED	7927	1EF7
	17)	7916	1EEC	7926	1EF6

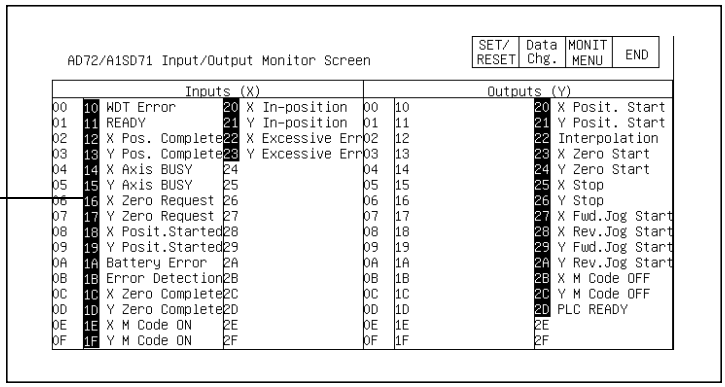
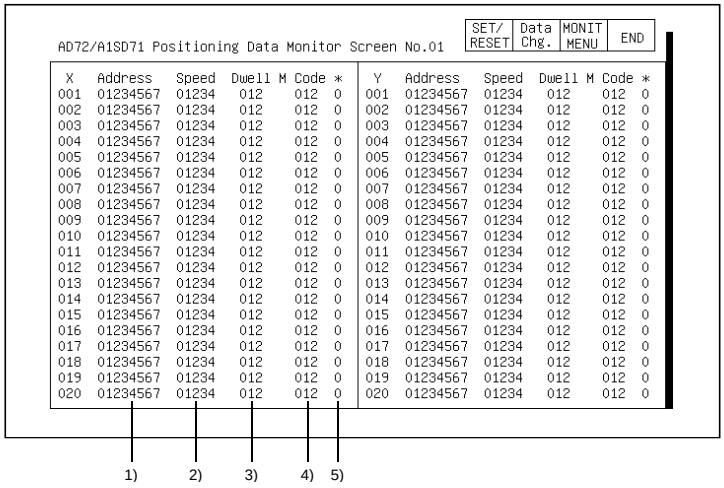
Screen Image



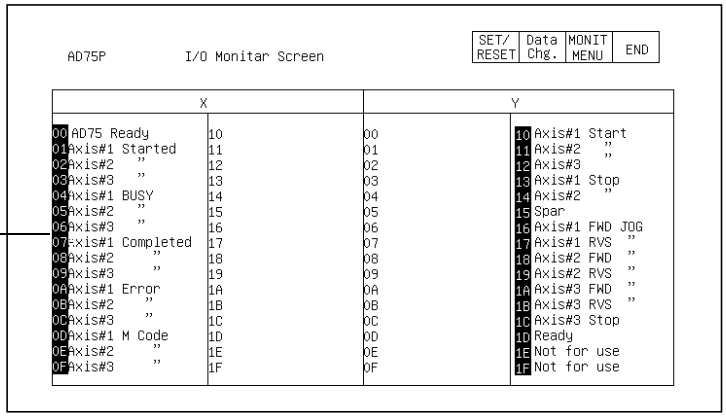
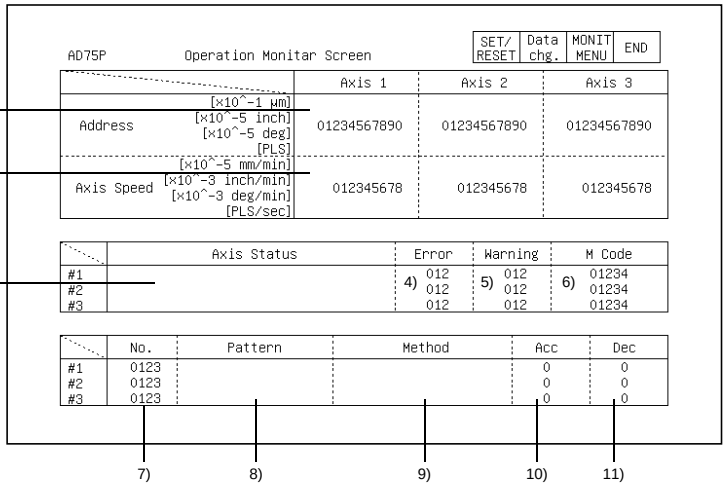
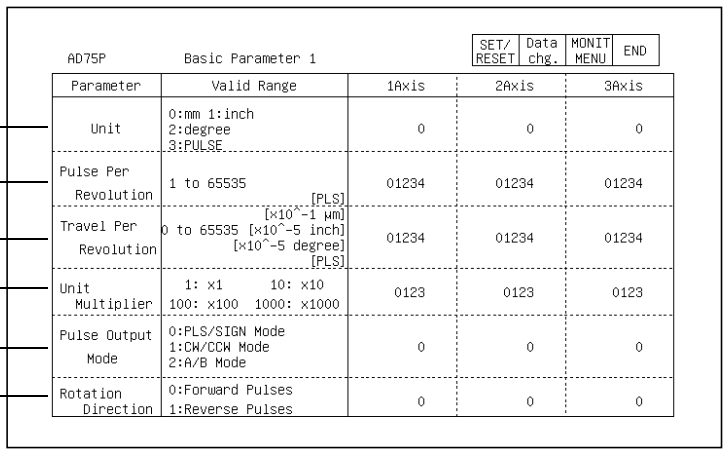


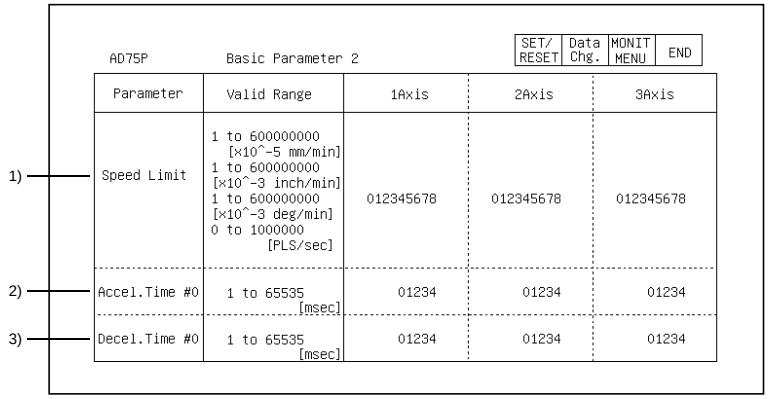
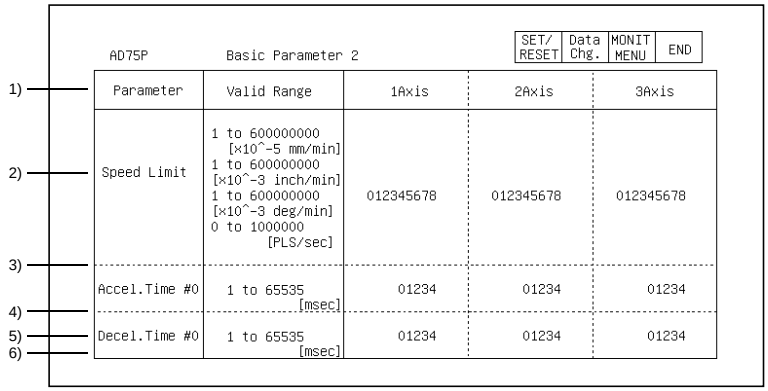
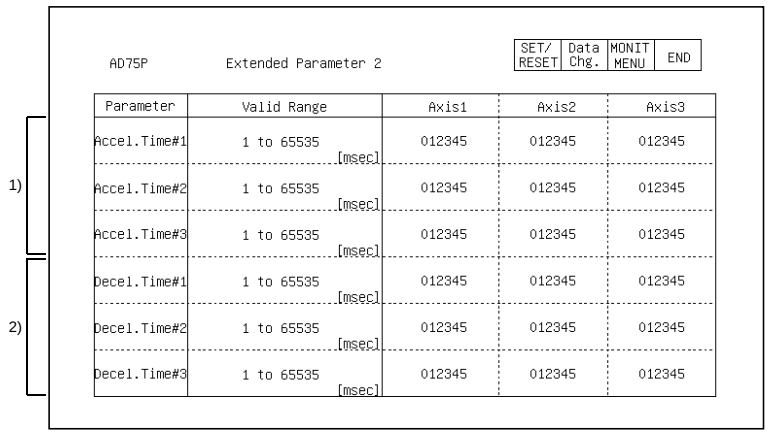
No.	Buffer memory address			
	X		Y	
	dec.	hex.	dec.	hex.
1)	———	———	———	———
2)	47	002F	347	015B
3)	7873	1EC1	7893	1ED5
4)	7884	1ECC	7904	1EE0
	7885	1ECD	7905	1EE1
5)	7874	1EC2	7894	1ED6
6)	7875	1EC3	7895	1ED7
7)	7876	1EC4	7896	1ED8
8)	7877	1EC5	7897	1ED9
9)	7878	1EC6	7898	1EDA
	7879	1EC7	7899	1EDB
10)	7880	1EC8	7900	1EDC
	7881	1EC9	7901	1EDD
11)	7882	1ECA	7902	1EDE
	7883	1ECB	7903	1EDF
12)	7886	1ECE	7906	1EE2
13)	7887	1ECF	7907	1EE3
14)	46	002E	346	015A
15)	45	002D	345	0159
16)	7872	1EC0	7892	1ED4

No.	Buffer memory address			
	X		Y	
	dec.	hex.	dec.	hex.
1)	———	———	———	———
2)	47	002F	347	015B
3)	46	002E	346	015A
4)	49 to 200	0031 to 00C8	349 to 500	015D to 01F4
5)	48	0030	348	015C
6)	39	0027	339	0153
7)	45	002D	345	0159
8)	43	002B	343	0157
—	———	———	———	———

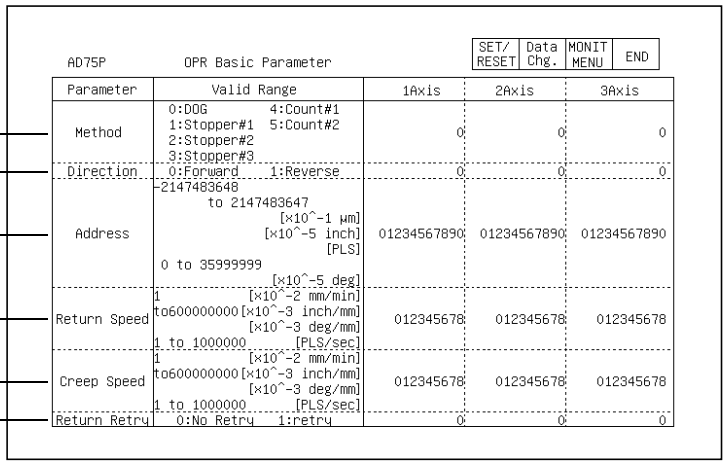
Screen Image	No.	Buffer memory address			
		X		Y	
		dec.	hex.	dec.	hex.
	1)	———	———	———	———
	—	———	———	———	———
	1)	5072 to 5111	13D0 to 13F7	7072 to 7111	1BA0 to 1BC7
	2)	4272 to 4291	10B0 to 10C3	6272 to 6291	1880 to 1893
	3)	4672 to 4691	1240 to 1253	6672 to 6691	1A10 to 1A23
	4)	3872 to 3891	0F20 to 0F33	5872 to 5891	16F0 to 1703
	5)	3872 to 3891	0F20 to 0F33	5872 to 5891	16F0 to 1703
	—	———	———	———	———

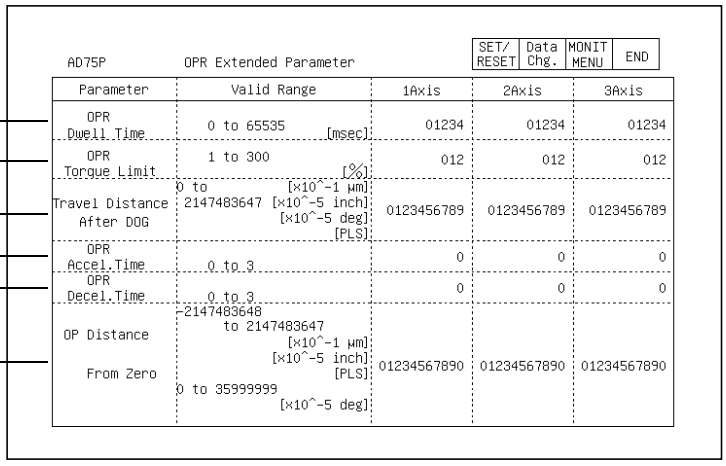
12.23 AD75 A1SD75 Module Monitor

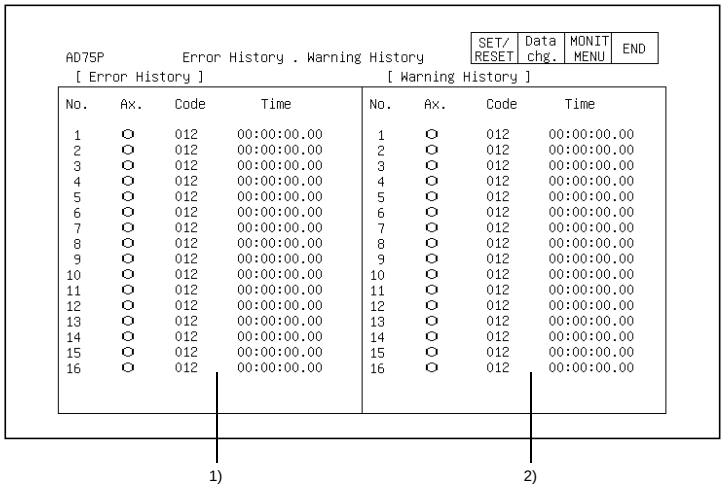
Screen Image	No.	Buffer memory address					
		1		2		3	
		dec.	hex.	dec.	hex.	dec.	hex.
	1)	———	———	———	———	———	———
	—	———	———	———	———	———	———
	1)	800	0320	900	0384	1000	03E8
		801	0321	901	0385	1001	03E9
	2)	812	032C	912	0390	1012	03F4
		813	032D	913	0391	1013	03F5
	3)	809	0329	909	038D	1009	03F1
	4)	807	0327	907	038B	1007	03EF
	5)	808	0328	908	038C	1008	03F0
	6)	806	0326	906	038A	1006	03EE
	7)	835	0343	935	03A7	1035	040B
	8) 9) 10) 11)	838	0346	938	03AA	1038	040E
	—	———	———	———	———	———	———
	1)	0	0000	150	0096	300	012C
	2)	1	0001	151	0097	301	012D
	3)	2	0002	152	0098	302	012E
	4)	3	0003	153	0099	303	012F
	5)	4	0004	154	009A	304	0130
	6)	5	0005	155	009B	305	0131
	—	———	———	———	———	———	———

Screen Image	No.	Buffer memory address					
		1		2		3	
		dec.	hex.	dec.	hex.	dec.	hex.
	1)	6	0006	156	009C	306	0132
		7	0007	157	009D	307	0133
	2)	8	0008	158	009E	308	0134
		9	0009	159	009F	309	0135
	3)	10	000A	160	00A0	310	0136
		11	000B	161	00A1	311	0137
	—	———	———	———	———	———	———
	1)	15	000F	165	00A5	315	013B
	2)	16	0010	166	00A6	316	013C
		17	0011	167	00A7	317	013D
	3)	18	0012	168	00A8	318	013E
		19	0013	169	00A9	319	013F
	4)	20	0014	170	00AA	320	0140
	5)	21	0015	171	00AB	321	0141
	6)	24	0018	174	00AE	324	0144
	—	———	———	———	———	———	———
	1)	36 to 41	0024 to 0029	186 to 191	00BA to 00BF	336 to 341	0150 to 0155
	2)	42 to 47	002A to 002F	192 to 197	00C0 to 00C5	342 to 347	0156 to 015B
	—	———	———	———	———	———	———

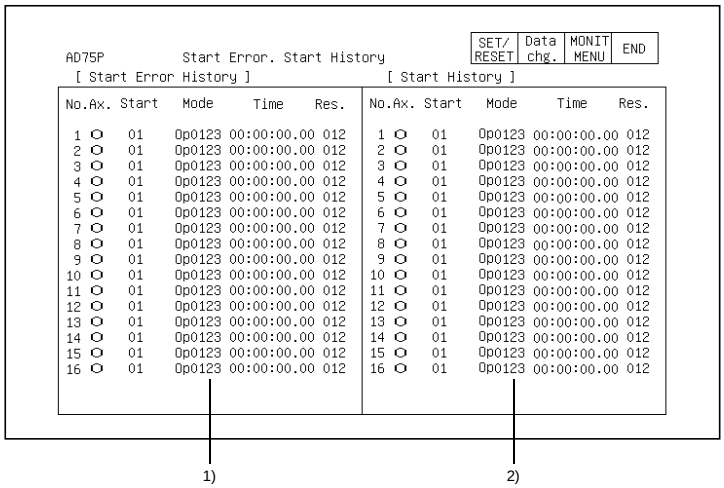
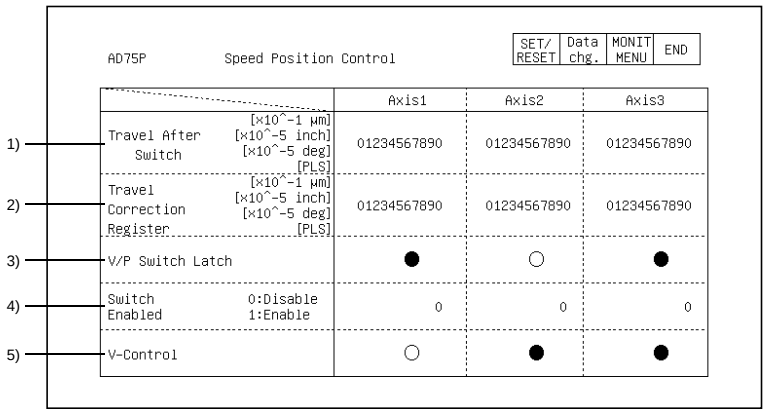
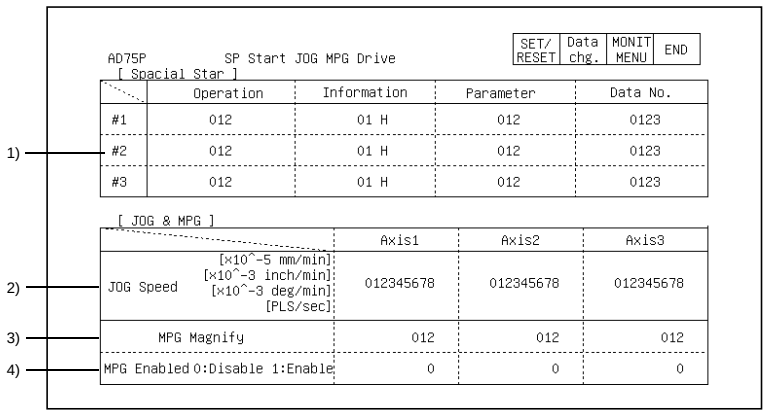
Screen Image

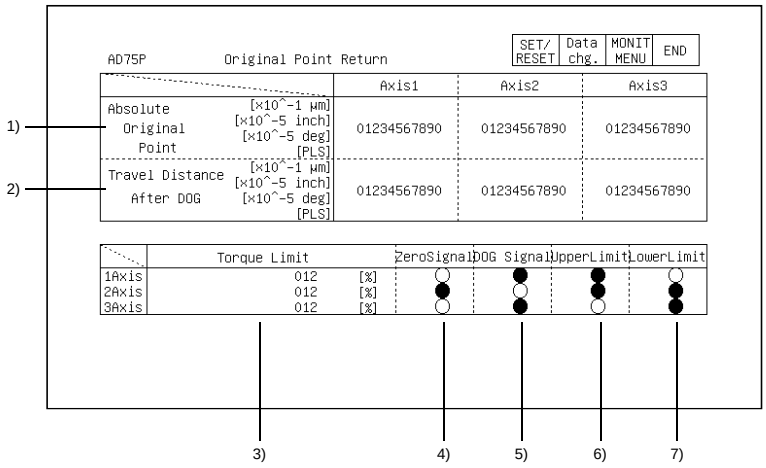


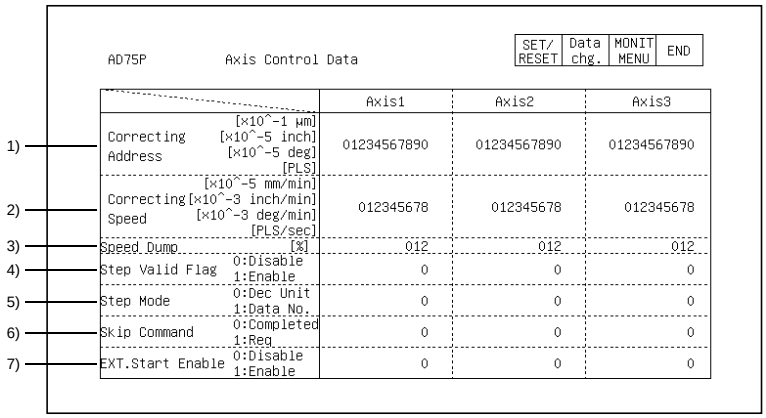


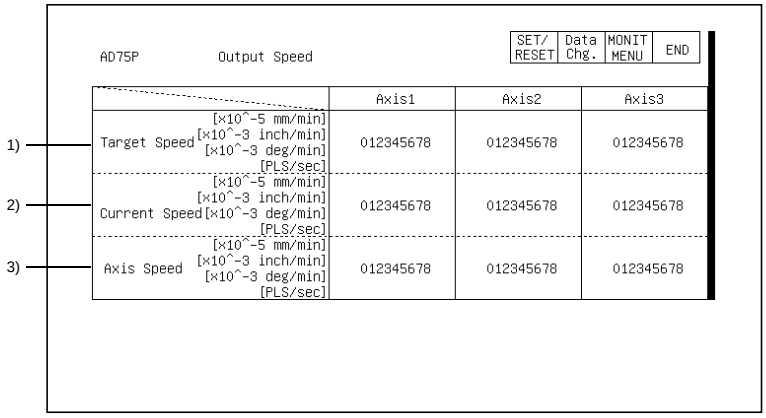


No.	Buffer memory address 1 dec.	1 hex.	2 dec.	2 hex.	3 dec.	3 hex.
1)	70	0046	220	00DC	370	0172
2)	71	0047	221	00DD	371	0173
3)	72	0048	222	00DE	372	0174
	73	0049	223	00DF	373	0175
4)	74	004A	224	00E0	374	0176
	75	004B	225	00E1	375	0177
5)	76	004C	226	00E2	376	0178
	77	004D	227	00E3	377	0179
6)	78	004E	228	00E4	378	017A
__	____	____	____	____	____	____
1)	79	004F	229	00E5	379	017B
2)	86	0056	236	00EC	386	0182
3)	80	0050	230	00E6	380	017C
	81	0051	231	00E7	381	017D
4)	82	0052	232	00E8	382	017E
5)	83	0053	233	00E9	383	017F
6)	84	0054	234	00EA	384	0180
	85	0055	235	00EB	385	0181
__	____	____	____	____	____	____
1)	624 to 687	0270 to 02AF	624 to 687	0270 to 02AF	624 to 687	0270 to 02AF
2)	689 to 752	02B1 to 02F0	689 to 752	02B1 to 02F0	689 to 752	02B1 to 02F0
__	____	____	____	____	____	____

Screen Image	No.	Buffer memory address					
		1		2		3	
		dec.	hex.	dec.	hex.	dec.	hex.
	1)	543 to 622	021F to 026E	543 to 622	021F to 026E	543 to 622	021F to 026E
	2)	462 to 541	01CE to 021D	462 to 541	01CE to 021D	462 to 541	01CE to 021D
	—	—	—	—	—	—	—
	1)	814	032E	914	0392	1014	03F6
		815	032F	915	0393	1015	03F7
	2)	1164	048C	1214	04BE	1264	04F0
		1165	048D	1215	04BF	1265	04F1
	3)	817	0331	917	0395	1017	03F9
	4)	1163	048B	1213	04BD	1263	04EF
	5)	817	0331	917	0395	1017	03F9
	—	—	—	—	—	—	—
	1)	832	0340	932	03A4	1032	0408
		827	033B	927	039F	1027	0403
		828	033C	928	03A0	1028	0404
		829	033D	929	03A1	1029	0405
	2)	1160	0488	1210	04BA	1260	04EC
		1161	0489	1211	04BB	1261	04ED
	3)	1168	0490	1218	04C2	1268	04F4
		1169	0491	1219	04C3	1269	04F5
	4)	1167	048F	1217	04C1	1267	04F3
	—	—	—	—	—	—	—



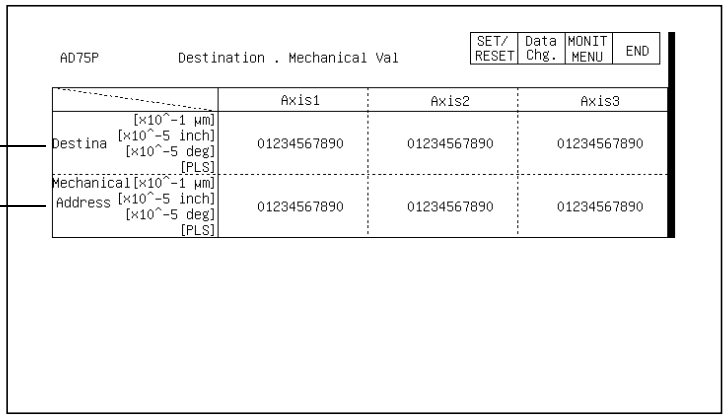
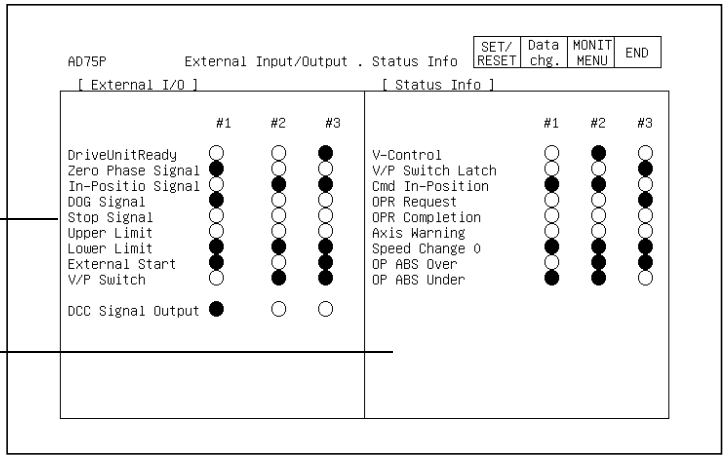
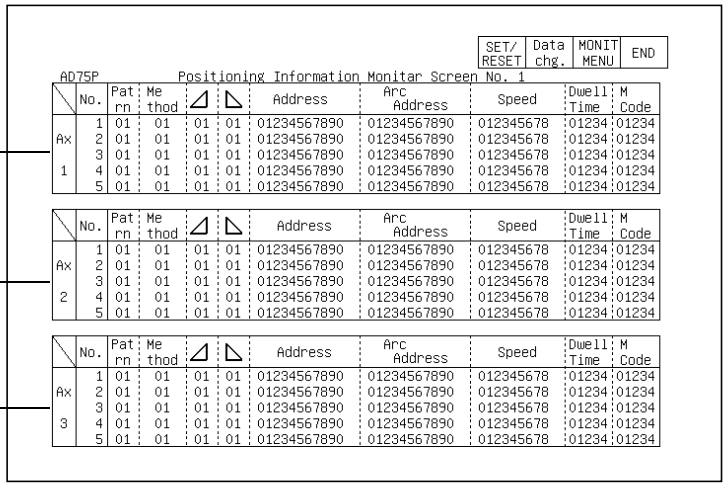




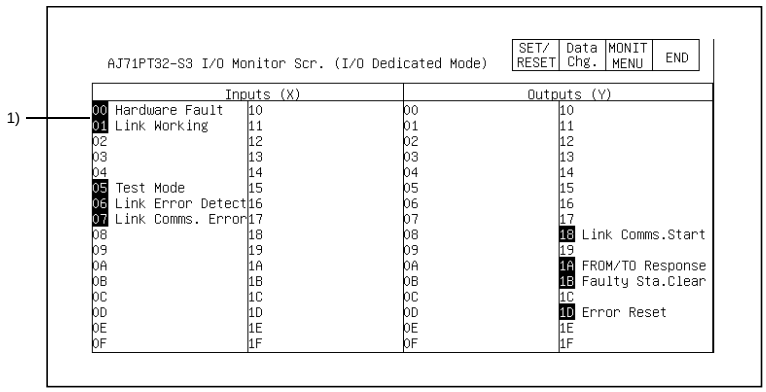
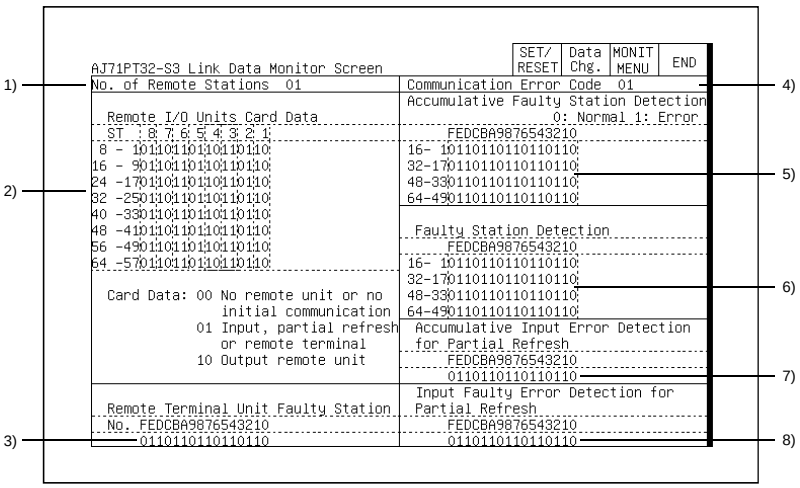
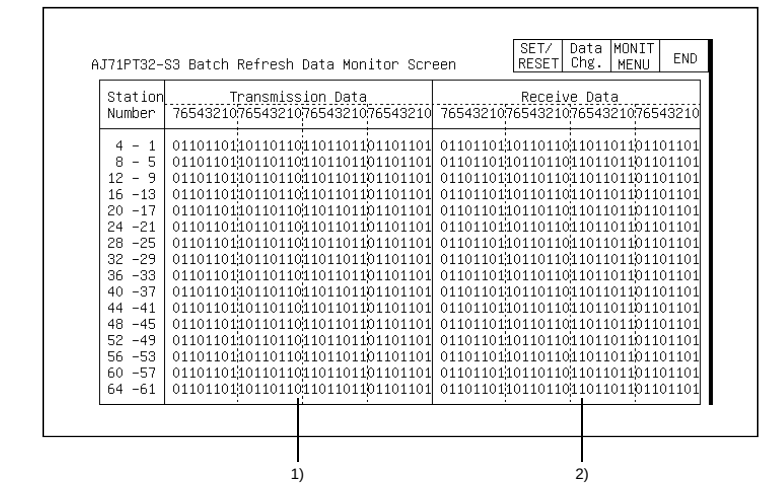
No.	Buffer memory address					
	1		2		3	
	dec.	hex.	dec.	hex.	dec.	hex.
1)	822	0336	922	039A	1022	03FE
	823	0337	923	039B	1023	03FF
2)	824	0338	924	039C	1024	0400
	825	0339	925	039D	1025	0401
3)	826	033A	926	039E	1026	0402
4) 5) 6) 7)	816	0330	916	0394	1016	03F8
—	—	—	—	—	—	—

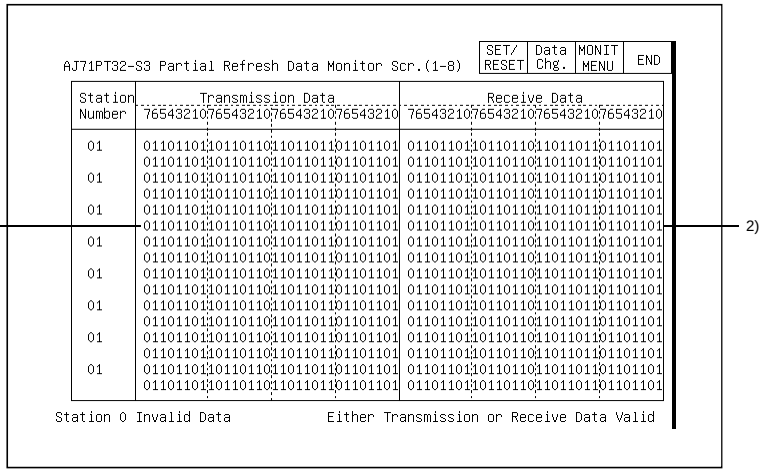
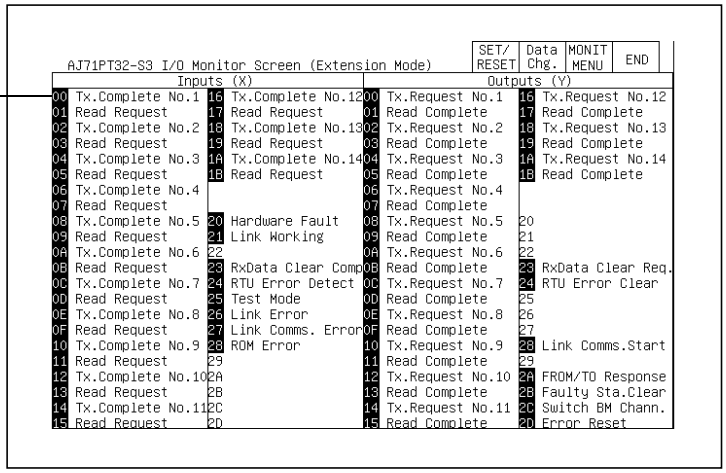
No.	Buffer memory address					
	1		2		3	
	dec.	hex.	dec.	hex.	dec.	hex.
1)	1154	0482	1204	04B4	1254	04E6
	1155	0483	1205	04B5	1255	04E7
2)	1156	0484	1206	04B6	1256	04E8
	1157	0485	1207	04B7	1257	04E9
3)	1159	0487	1209	04B9	1259	04EB
4)	1172	0494	1222	04C6	1272	04F8
5)	1173	0495	1223	04C7	1273	04F9
6)	1175	0497	1225	04C9	1275	04FB
7)	1171	0493	1221	04C5	1271	04F7
—	—	—	—	—	—	—

No.	Buffer memory address					
	1		2		3	
	dec.	hex.	dec.	hex.	dec.	hex.
1)	820	0334	920	0398	1020	03FC
	821	0335	921	0399	1021	03FD
2)	810	032A	910	038E	1010	03F2
	811	032B	911	038F	1011	03F3
3)	812	032C	912	0390	1012	03F4
	813	032D	913	0391	1013	03F5
—	—	—	—	—	—	—

Screen Image	No.	Buffer memory address 1 dec.	1 hex.	2 dec.	2 hex.	3 dec.	3 hex.
	1)	818	0332	918	0396	1018	03FA
		819	0333	919	0397	1019	03FB
	2)	802	0322	902	0386	1002	03EA
		803	0323	903	0387	1003	03EB
	—	——	——	——	——	——	——
	1)	816	0330	916	0394	1016	03F8
	2)	817	0331	917	0395	1017	03F9
	—	——	——	——	——	——	——
	1) 2) 3)	1300 to 2299	0514 to 08FB	2300 to 3299	08FC to 0CE3	3300 to 4299	0CE4 to 10CB
	—	——	——	——	——	——	——

12.24 AJ71PT32-S3,A1SJ71PT32-S3 Module Monitor

Screen Image	No.	Buffer memory address dec.	Buffer memory address hex.
	1)	———	———
	—	———	———
	1)	0	0000
	2)	70 to 77	0046 to 004D
	3)	195	00C3
	4)	107	006B
	5)	90 to 93	005A to 005D
	6)	100 to 103	0064 to 0067
	7)	598	0256
	8)	599	0257
	—	———	———
	1)	10 to 41	000A to 0029
	2)	110 to 141	006E to 008D
	—	———	———

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	300 to 363	012C to 016B
	2)	600 to 663	0258 to 0297
	—	———	———
	1)	———	———
	—	———	———

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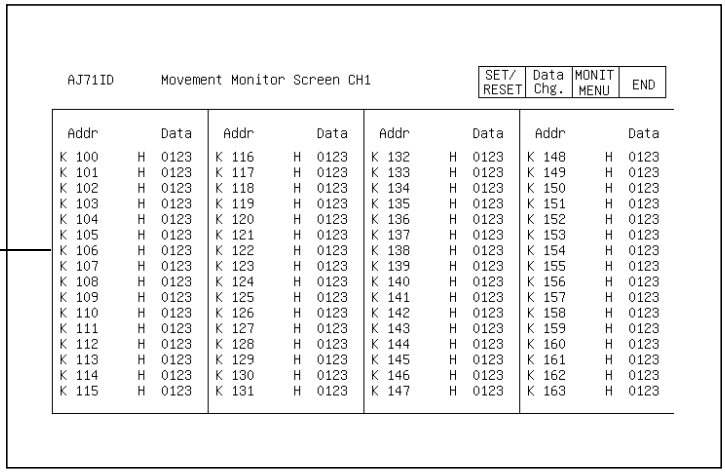
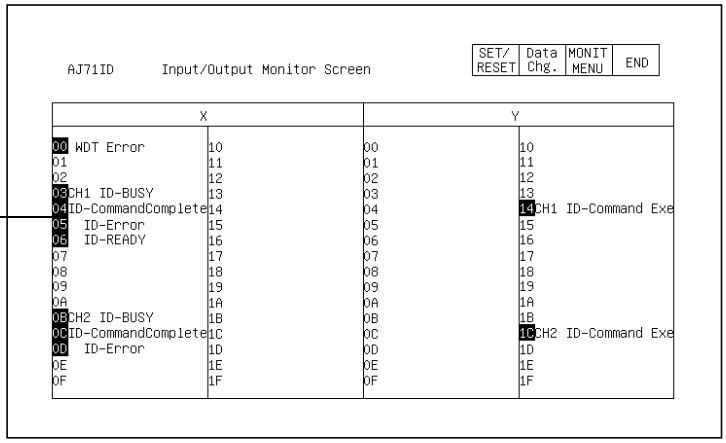
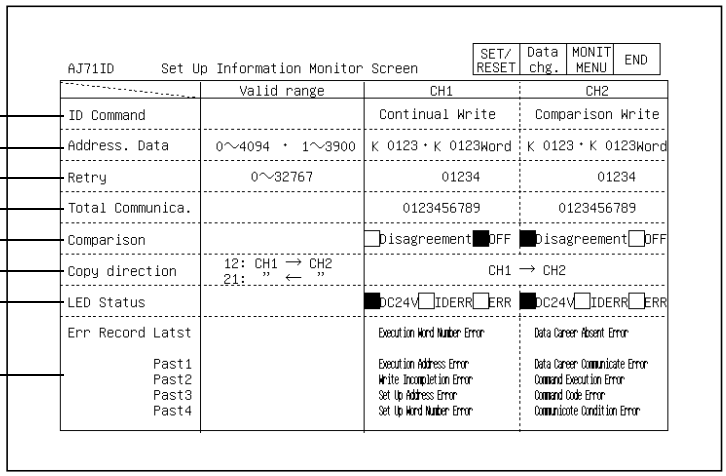
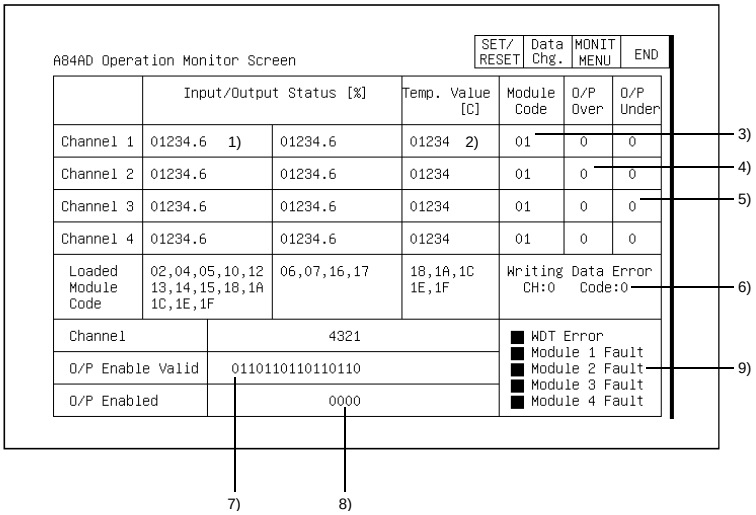
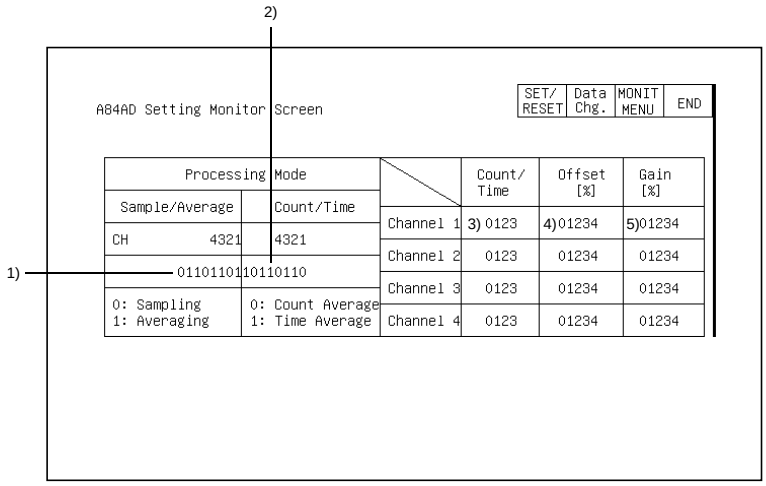
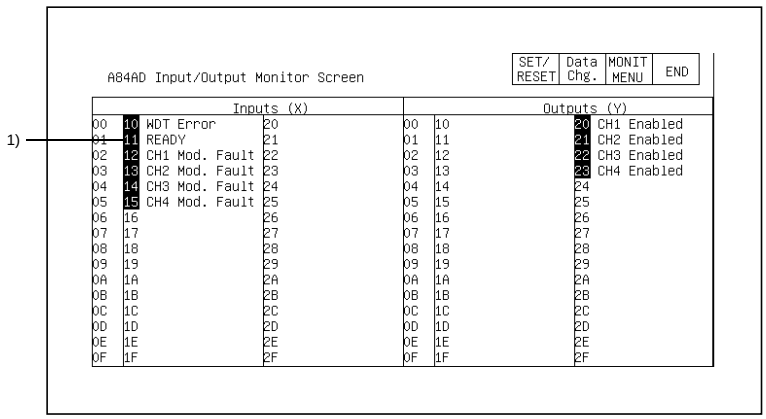
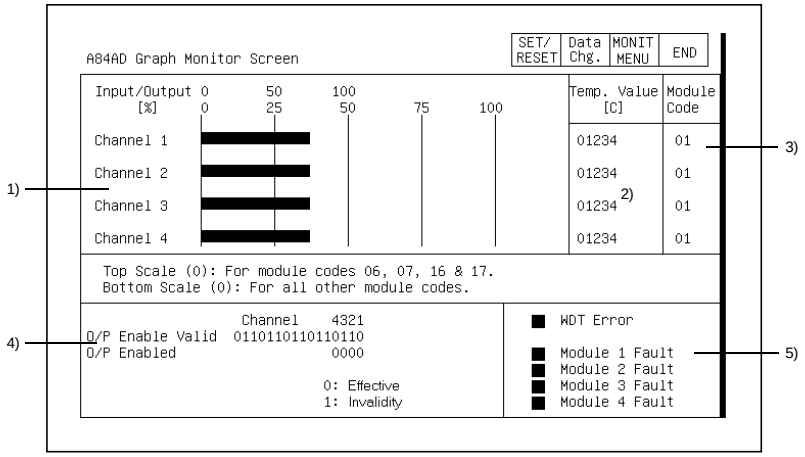
12.25 AJ71ID1(ID2) -R4,A1SJ71ID1(ID2) -R4 Module Monitor

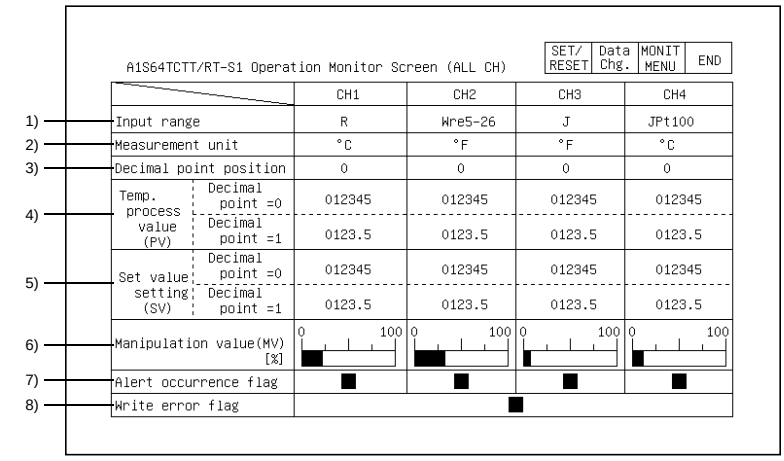
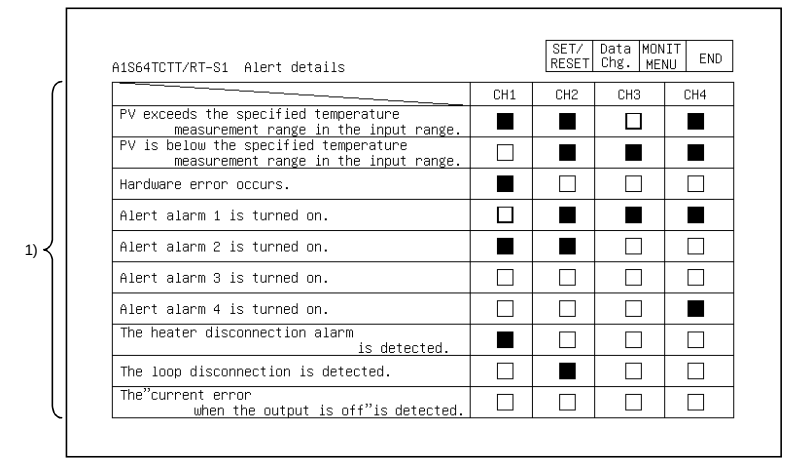
Screen Image	No.	Buffer memory address			
		X		Y	
		dec.	hex.	dec.	hex.
	1)	100 to 163	0064 to 00A3	4100 to 4163	1004 to 1043
	—	——	——	——	——
	1)	——	——	——	——
	—	——	——	——	——
	1)	0	0000	4000	0FA0
	2)	1	0001	4001	0FA1
		2	0002	4002	0FA2
	3)	8	0008	4008	0FA8
	4)	22	0016	4022	0FB6
		23	0017	4023	0FB7
	5)	4	0004	4004	0FA4
		5	0005	4005	0FA5
	6)	—	—	4010	0FAA
	7)	12	000C	4012	0FAC
	8)	14 to 18	000E to 0012	4014 to 4018	0FAE to 0FB2
	—	——	——	——	——

12.26 A84AD Module Monitor

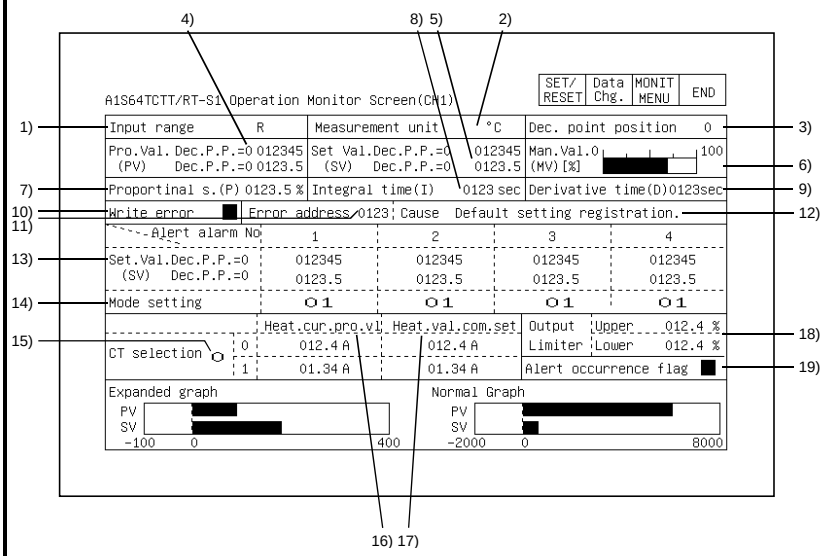
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	10 to 13	000A to 000D
	2)	18 to 21	0012 to 0015
	3)	28 to 31	001C to 001F
	4)	22 to 25	0016 to 0019
	5)	22 to 25	0016 to 0019
	6)	26	001A
	7)	27	001B
	8)	———	———
	9)	———	———
	—	———	———
	1)	1	0001
	2)	1	0001
	3)	2 to 5	0002 to 0005
	4)	32, 34, 36, 38	0020, 0022, 0024, 0026
	5)	33, 35, 37, 39	0021, 0023, 0025, 0027
	—	———	———
	1)	———	———
	—	———	———

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	10 to 13	000A to 000D
	2)	18 to 21	0012 to 0015
	3)	28 to 31	001C to 001F
	4)	27	001B
		———	———
	5)	———	———
	—	———	———

12.27 A1S64TCTT(BW)-S1, A1S64TCRT(BW)-S1 Module Monitor

Screen Image	No.	Buffer memory address							
		CH1		CH2		CH3		CH4	
		dec.	hex.	dec.	hex.	dec.	hex.	dec.	hex.
	1)	32	0020	64	0040	96	0060	128	0080
	2)	32	0020	64	0040	96	0060	128	0080
	3)	1	0001	2	0002	3	0003	4	0004
	4)	9	0009	10	000A	11	000B	12	000C
	5)	34	0022	66	0042	98	0062	130	0082
	6)	13	000D	14	000E	15	000F	16	0010
	7) 8)	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—
	1)	5	0005	6	0006	7	0007	8	0008
	—	—	—	—	—	—	—	—	—

Screen Image



No.	Buffer memory address							
	CH1		CH2		CH3		CH4	
	dec.	hex.	dec.	hex.	dec.	hex.	dec.	hex.
1)	32	0020	64	0040	96	0060	128	0080
2)	32	0020	64	0040	96	0060	128	0080
3)	1	0001	2	0002	3	0003	4	0004
4)	9	0009	10	000A	11	000B	12	000C
5)	34	0022	66	0042	98	0062	130	0082
6)	13	000D	14	000E	15	000F	16	0010
7)	35	0023	67	0043	99	0063	131	0083
8)	36	0024	68	0044	100	0064	132	0084
9)	37	0025	69	0045	101	0065	133	0085
10)	—	—	—	—	—	—	—	—
11)	0	0000	0	0000	0	0000	0	0000
12)	0	0000	0	0000	0	0000	0	0000
13)	38 to 41	0026 to 0029	70 to 73	0046 to 0049	102 to 105	0066 to 0069	134 to 137	0086 to 0089
14)	160 to 163	00A0 to 00A3	160 to 163	00A0 to 00A3	160 to 163	00A0 to 00A3	160 to 163	00A0 to 00A3
15)	57	0039	89	0059	121	0079	153	0099
16)	25	0019	26	001A	27	001B	28	001C
17)	171	00AB	172	00AC	173	00AD	174	00AE
18)	42	002A	74	004A	106	006A	138	008A
	43	002B	75	004B	107	006B	139	008B
19	—	—	—	—	—	—	—	—

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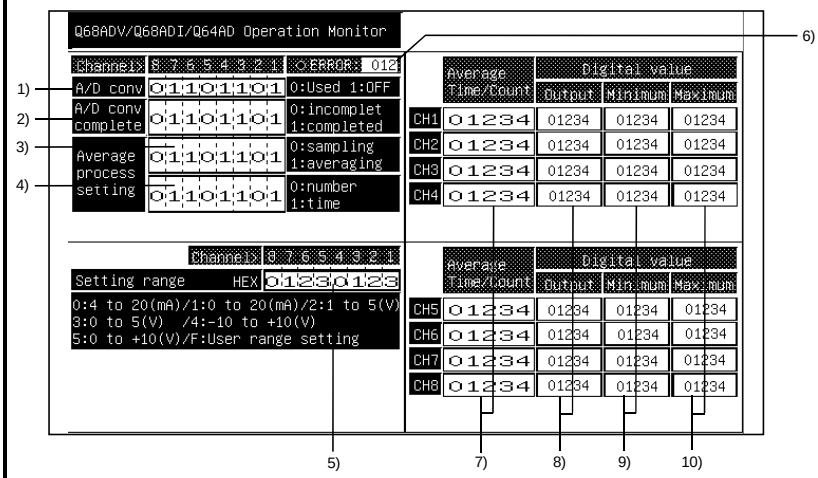
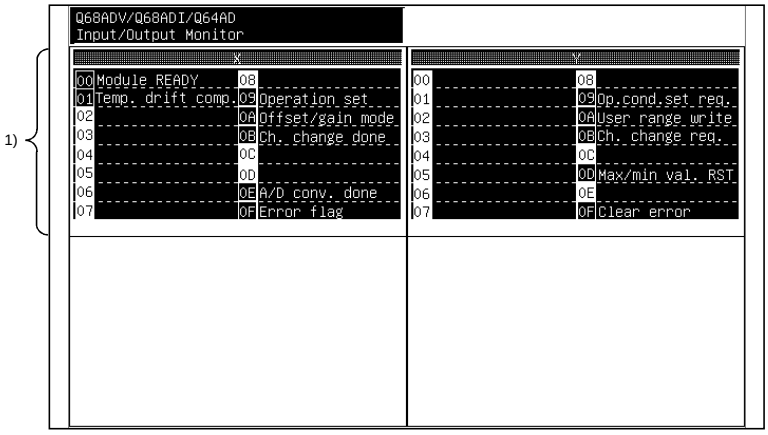
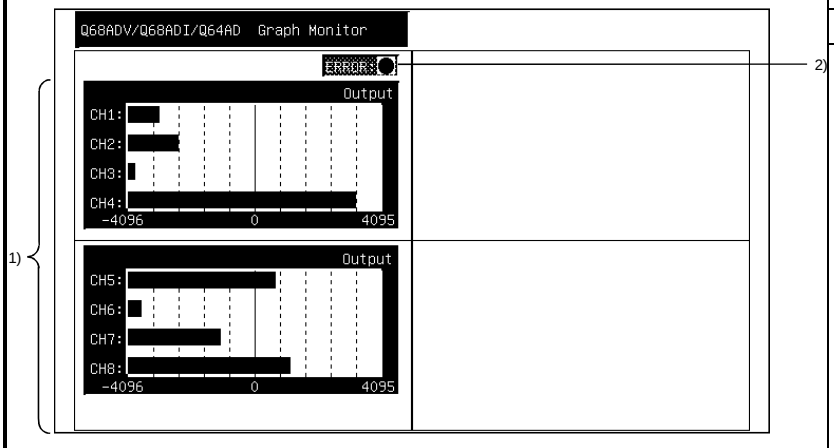
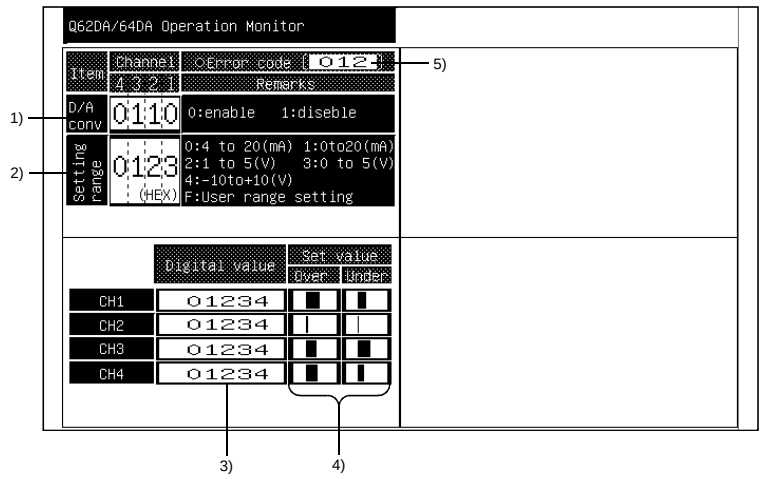
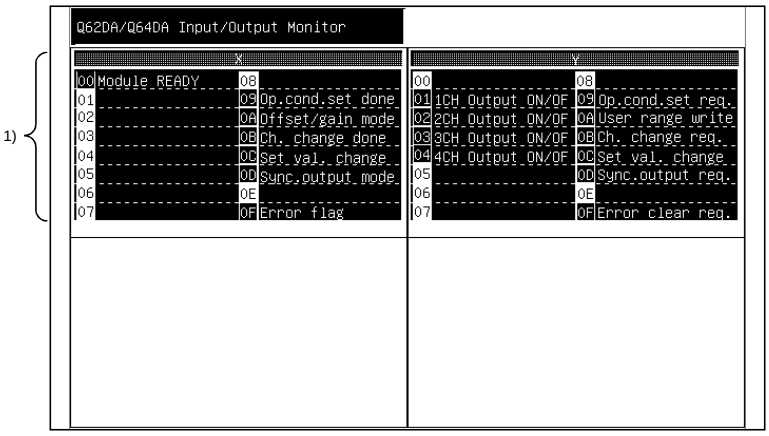
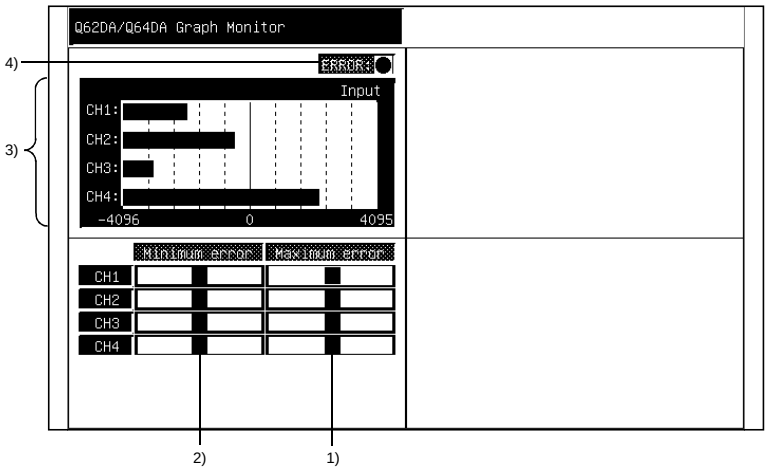
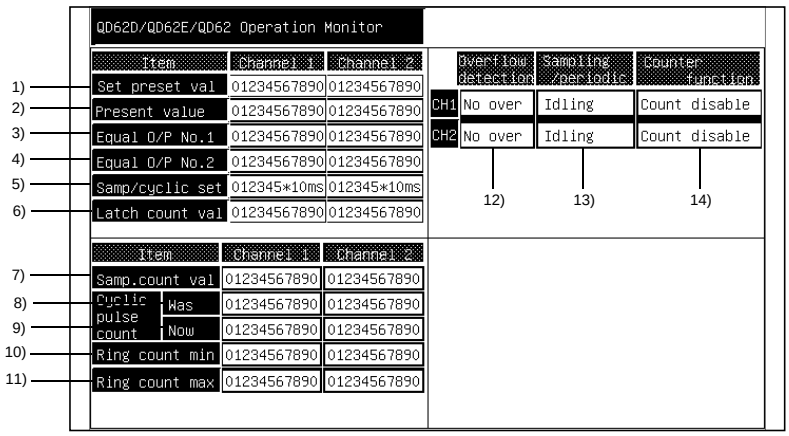
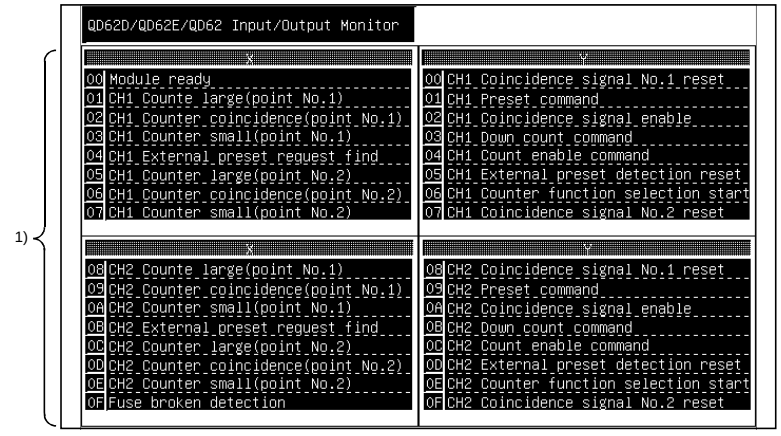
12.28 Q64AD,Q68ADV,Q68ADI Module Monitor

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	0	0000
	2)	10	000A
	3)	9	0009
	4)	9	0009
	5)	20, 21	0014, 0015
	6)	19	0013
	7)	1 to 8	0001 to 0008
	8)	11 to 18	000B to 0012
	9)	30, 32, 34, 36, 38, 40, 42, 44	001E, 0020, 0022, 0024, 0026, 0028, 002A, 002C
	10)	31, 33, 35, 37, 39, 41, 43, 45	001F, 0021, 0023, 0025, 0027, 0029, 002B, 002D
	—	———	———
	1)	———	———
	—	———	———
	1)	11 to 18	000B to 0012
	2)	———	———
	—	———	———

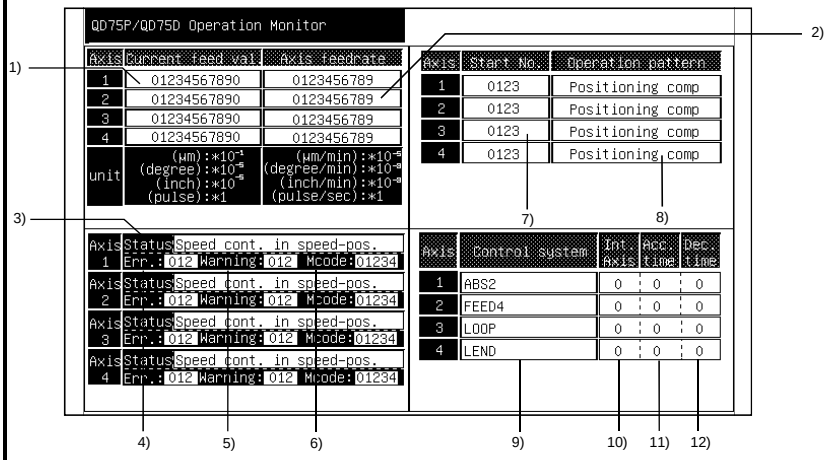
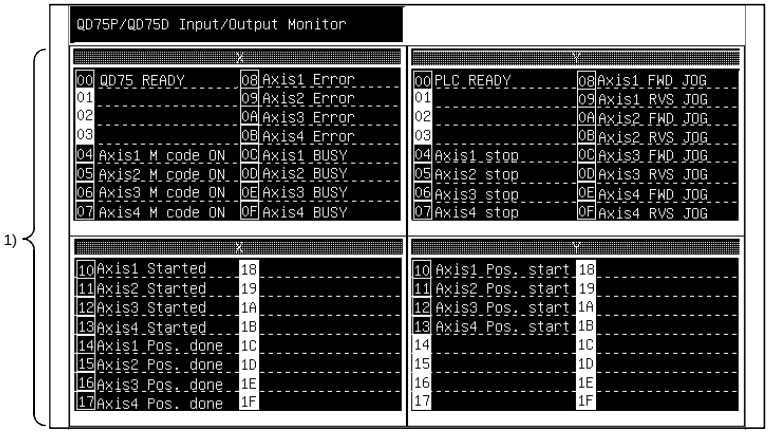
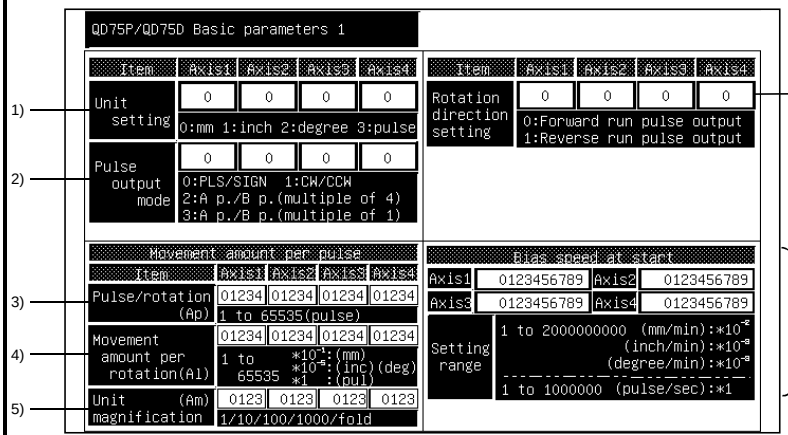
12.29 Q62DA,Q64DA Module Monitor

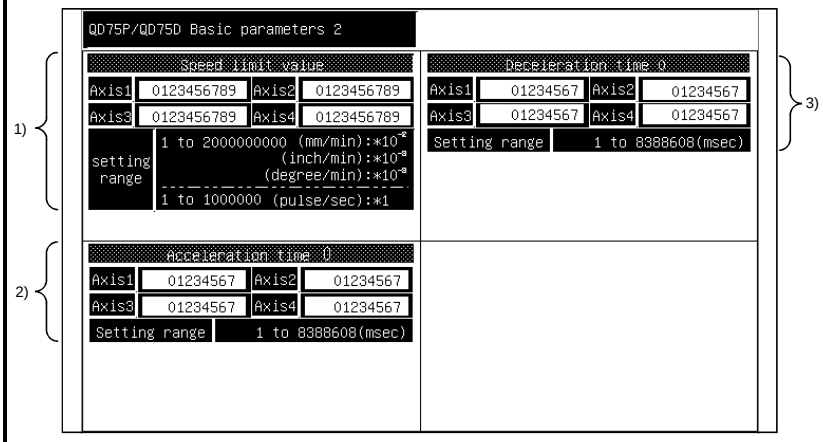
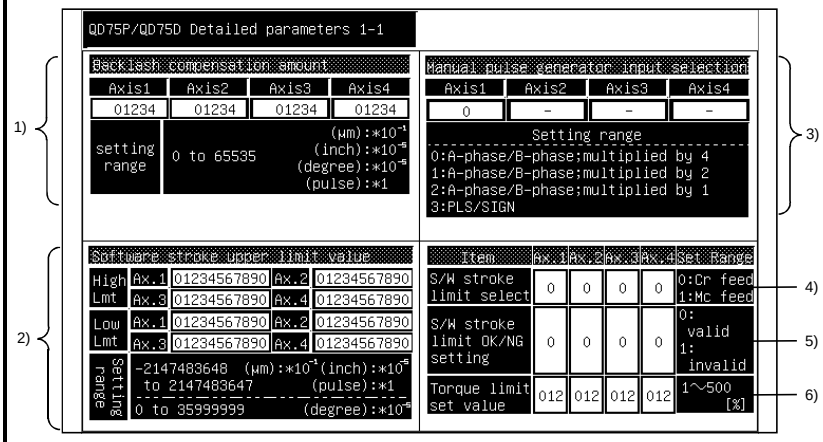
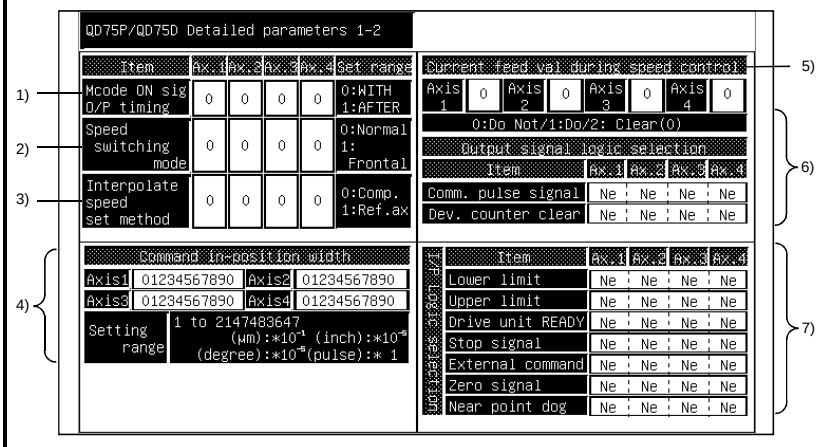
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	0	0000
	2)	20	0014
	3)	1 to 4	0001 to 0004
	4)	11 to 14	000B to 000E
	5)	19	0013
	—	———	———
	1)	———	———
	—	———	———
	1)	11 to 14	000B to 000E
	2)	11 to 14	000B to 000E
	3)	1 to 4	0001 to 0004
	4)	———	———
	—	———	———

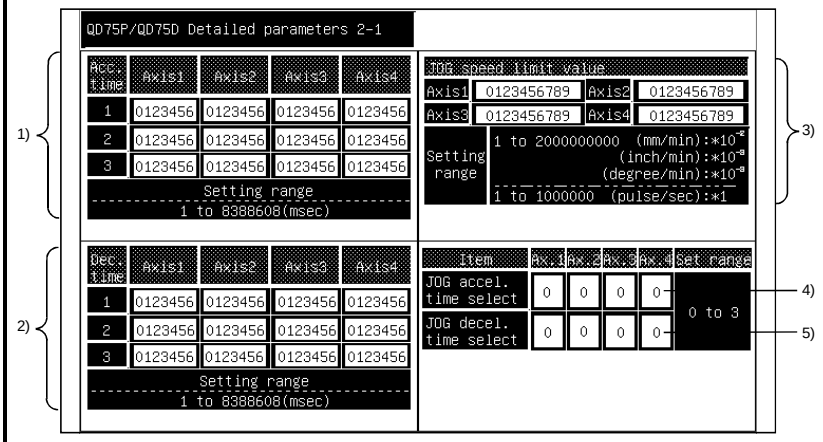
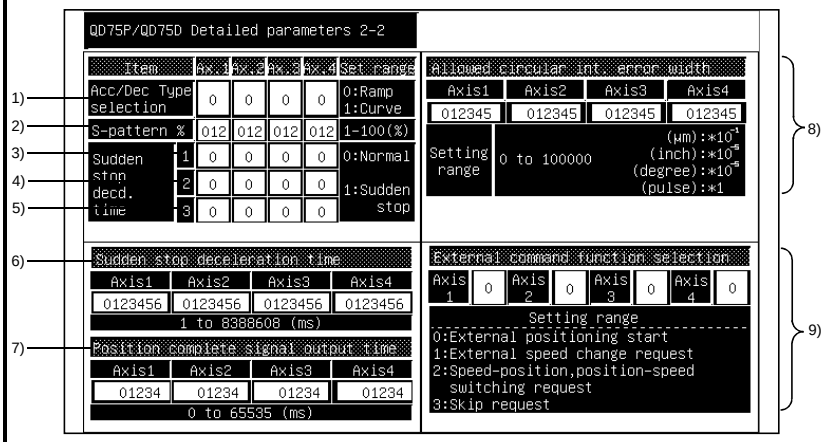
12.30 QD62,QD62D Module Monitor

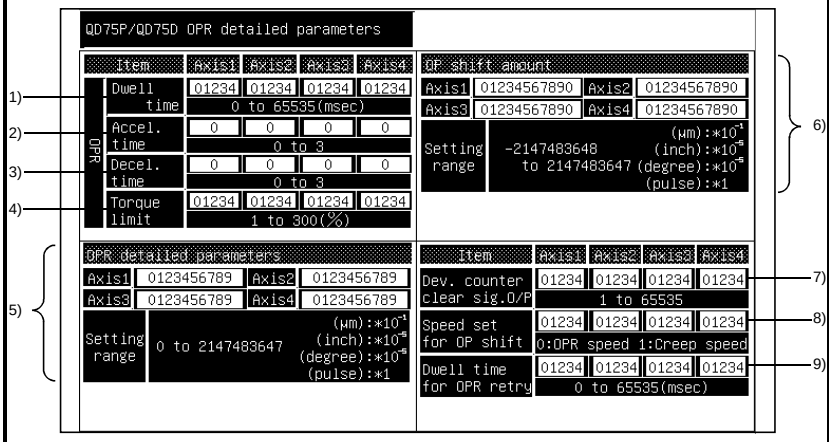
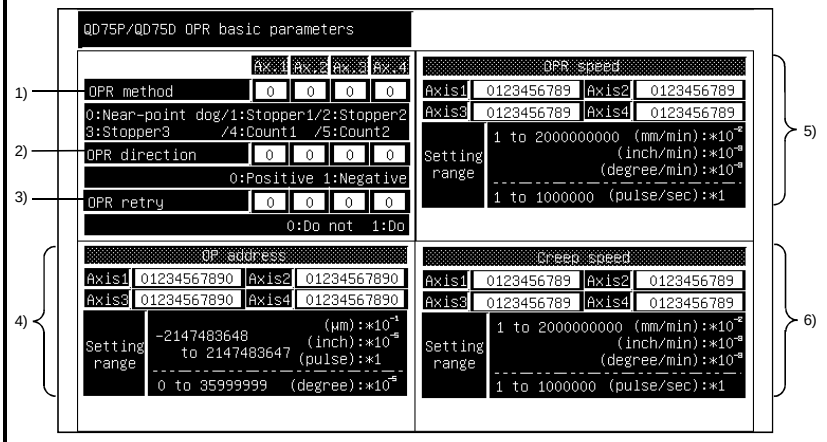
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	00 to 01	0000 to 0001
		32 to 33	0020 to 0021
	2)	02 to 03	0002 to 0003
		34 to 35	0022 to 0023
	3)	04 to 05	0004 to 0005
		36 to 37	0024 to 0025
	4)	06 to 07	0006 to 0007
		38 to 39	0026 to 0027
	5)	10, 42	000A, 002A
	6)	12 to 13	000C to 000D
		44 to 45	002C to 002D
	7)	14 to 15	000E to 000F
		46 to 47	002E to 002F
	8)	16 to 17	0010 to 0011
		48 to 49	0030 to 0031
	9)	18 to 19	0012 to 0013
		50 to 51	0032 to 0033
	10)	20 to 21	0014 to 0015
		52 to 53	0034 to 0035
	11)	22 to 23	0016 to 0017
		54 to 55	0036 to 0037
	12)	08, 40	0008, 0028
	13)	11, 43	000B, 002B
	14)	09, 41	0009, 0029
	1)	———	———
	—	———	———

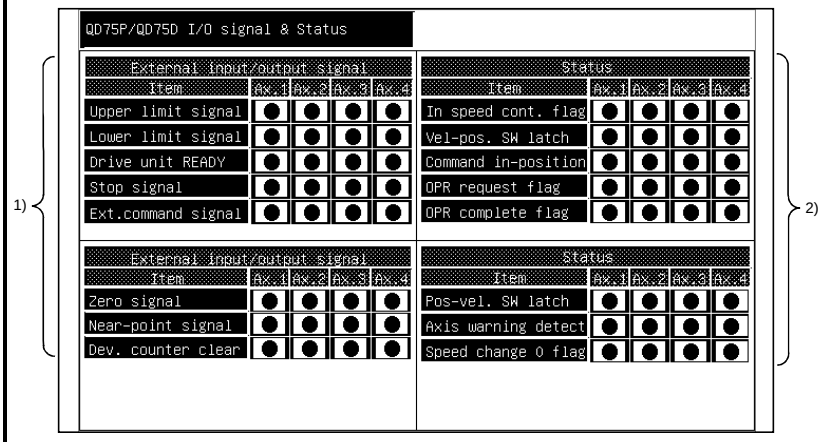
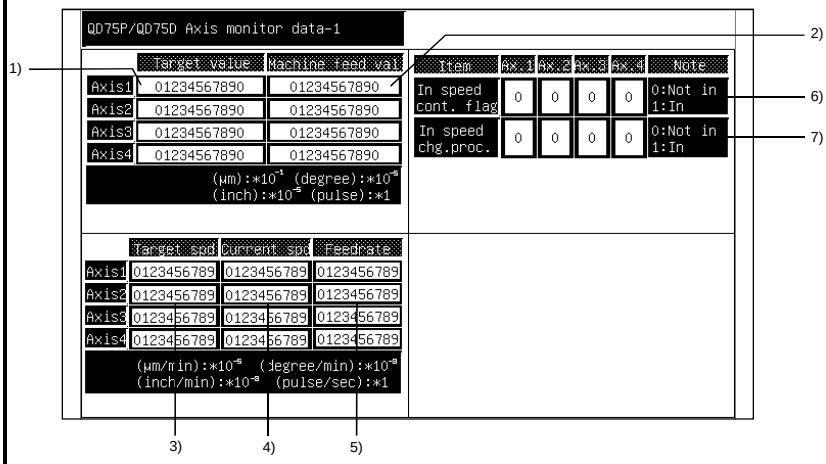
12.31 QD75P ,QD75D Module Monitor

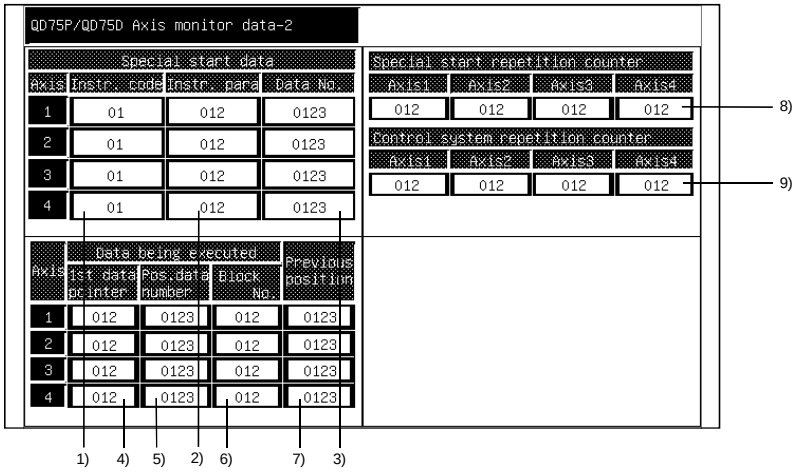
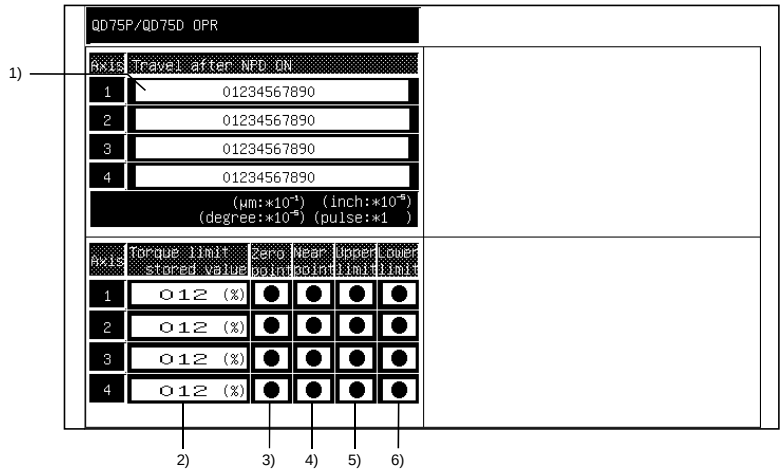
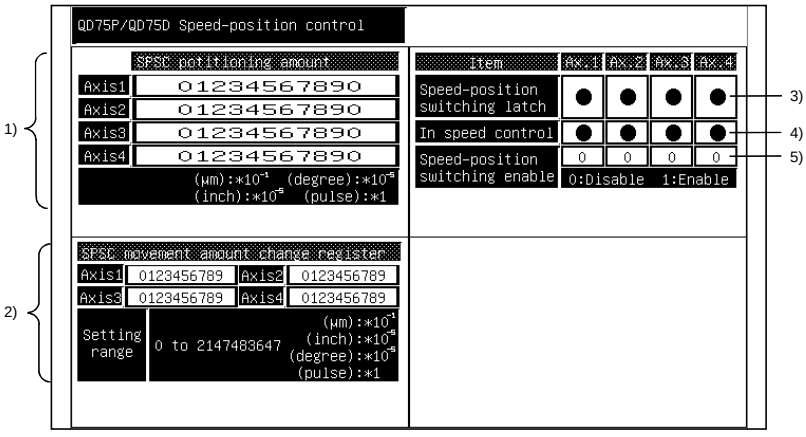
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	800 to 801	0320 to 0321
		900 to 901	0384 to 0385
		1000 to 1001	03E8 to 03E9
		1100 to 1101	044C to 044D
	2)	812 to 813	032C to 032D
		912 to 913	0390 to 0391
		1012 to 1013	03F4 to 03F5
		1112 to 1113	0458 to 0459
	3)	809, 909, 1009, 1109	0329, 038D, 03F1, 0455
	4)	806, 906, 1006, 1106	0326, 038A, 03EE, 0452
	5)	807, 907, 1007, 1107	0327, 038B, 03EF, 0453
	6)	808, 908, 1008, 1108	0328, 038C, 03F0, 0454
	7)	829, 929, 1029, 1129	033D, 03A1, 0405, 0469
	8) to 9)	838, 938, 1038, 1138	0346, 03AA, 040E, 0472
	1)	———	———
	—	———	———
	1)	0, 150, 300, 450	0000, 0096, 012C, 01C2
	2)	4, 154, 304, 454	0004, 009A, 0130, 01C6
	3)	1, 151, 301, 451	0001, 0097, 012D, 01C3
	4)	2, 152, 302, 452	0002, 0098, 012E, 01C4
	5)	3, 153, 303, 453	0003, 0099, 012F, 01C5
	6)	5, 155, 305, 455	0005, 009B, 0131, 01C7
	7)	6, 156, 306, 456	0006, 009C, 0132, 01C8

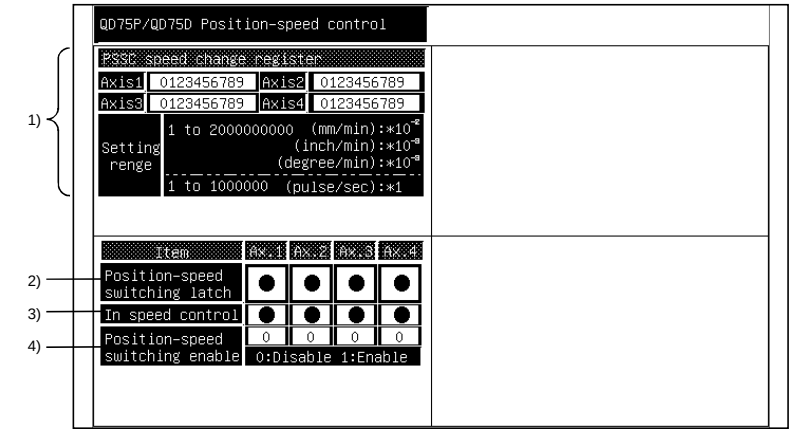
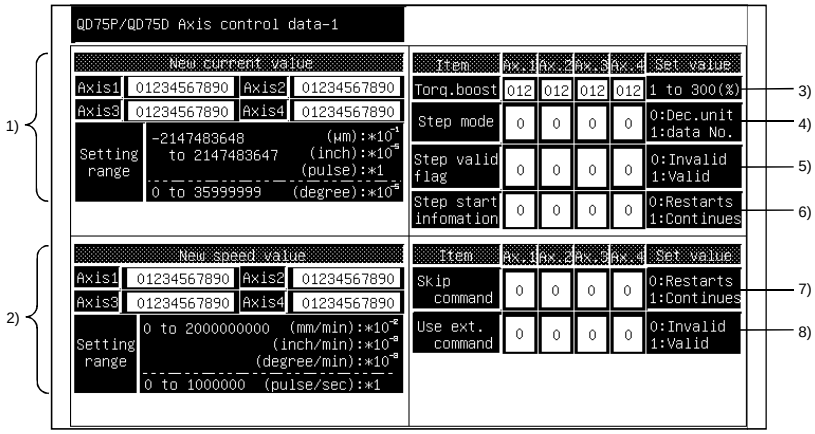
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	10 to 11	000A to 000B
		160 to 161	00A0 to 00A1
		310 to 311	0136 to 0137
		460 to 461	01CC to 01CD
	2)	12 to 13	000C to 000D
		162 to 163	00A2 to 00A3
		312 to 313	0138 to 0139
		462 to 463	01CE to 01CF
	3)	14 to 15	000E to 000F
		164 to 165	00A4 to 00A5
		314 to 315	013A to 013B
		464 to 465	01D0 to 01D1
	—	———	———
	1)	17, 167, 317, 467	0011, 00A7, 013D, 01D3
	2)	18 to 19	0012 to 0013
		168 to 169	00A8 to 00A9
		318 to 319	013E to 013F
		468 to 469	01D4 to 01D5
		20 to 21	0014 to 0015
		170 to 171	00AA to 00AB
		320 to 321	0140 to 0141
		470 to 471	01D6 to 01D7
	3)	33, 183, 333, 483	0021, 00B7, 014D, 01E3
	4)	22, 172, 322, 472	0016, 00AC, 0142, 01D8
	5)	23, 173, 323, 473	0017, 00AD, 0143, 01D9
	6)	26, 176, 326, 476	001A, 00B0, 0146, 01DC
	1)	27, 177, 327, 477	001B, 00B1, 0147, 01DD
	2)	28, 178, 328, 478	001C, 00B2, 0148, 01DE
	3)	29, 179, 329, 479	001D, 00B3, 0149, 01DF
	4)	24 to 25	0018 to 0019
		174 to 175	00AE to 00AF
		324 to 325	0144 to 0145
		474 to 475	01DA to 01DB
	5)	30, 180, 330, 480	001E, 00B4, 014A, 01E0
	6) 7)	32, 182, 332, 482	0020, 00B6, 014C, 01E2

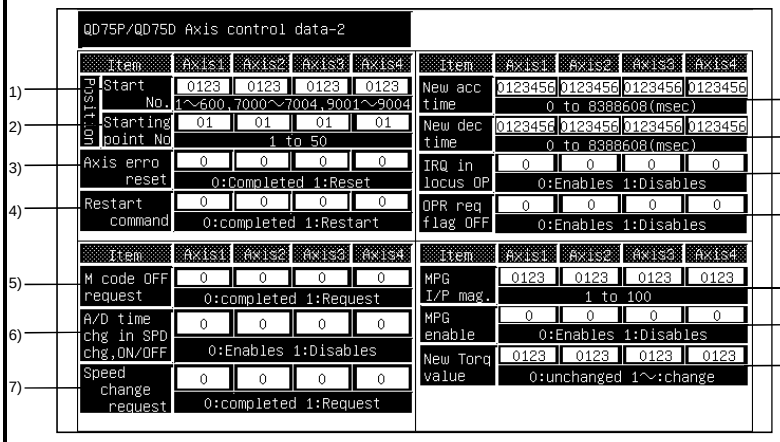
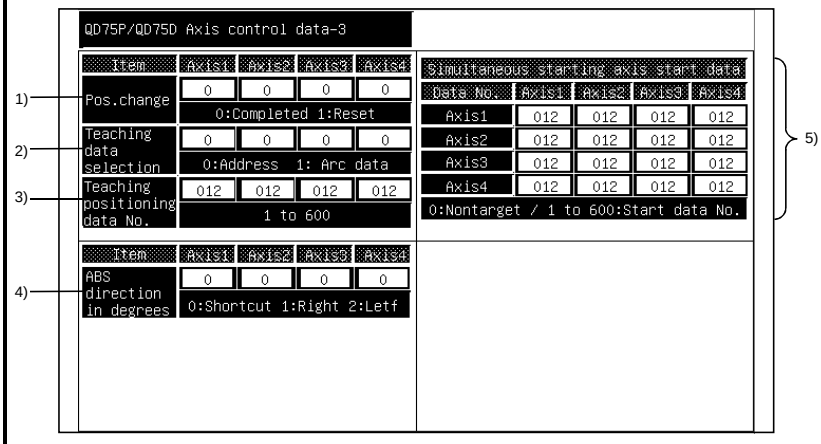
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	36 to 41	0024 to 0029
		186 to 191	00BA to 00BF
		336 to 341	0150 to 0155
		486 to 491	01E6 to 01EB
	2)	42 to 47	002A to 002F
		192 to 197	00C0 to 00C5
		342 to 347	0156 to 015B
		492 to 496	01EC to 01F0
	3)	48 to 49	0030 to 0031
		198 to 199	00C6 to 00C7
		348 to 349	015C to 015D
		498 to 499	01F2 to 01F3
	4)	50, 200, 350, 500	0032, 00C8, 015E, 01F4
	5)	51, 501, 351, 501	0033, 01F5, 015F, 01F5
	1)	52, 202, 352, 502	0034, 00CA, 0160, 01F6
	2)	53, 203, 353, 503	0035, 00CB, 0161, 01F7
	3)	56, 206, 356, 506	0038, 00CE, 0164, 01FA
	4)	57, 207, 357, 507	0039, 00CF, 0165, 01FB
	5)	58, 208, 358, 508	003A, 00D0, 0166, 01FC
	6)	54, 204, 354, 504	0036, 00CC, 0162, 01F8
	7)	59, 209, 359, 509	003B, 00D1, 0167, 01FD
	8)	60 to 61	003C to 003D
		210 to 211	00D2 to 00D3
		360 to 361	0168 to 0169
		510 to 511	01FE to 01FF
	9)	62, 212, 362, 512	003E, 00D4, 016A, 0200

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	79, 229, 379, 529	004F, 00E5, 017B, 0211
	2)	82, 232, 382, 532	0052, 00E8, 017E, 0214
	3)	83, 233, 383, 533	0053, 00E9, 017F, 0215
	4)	86, 236, 386, 536	0056, 00EC, 0182, 0218
	5)	80 to 81	0050 to 0051
		230 to 231	00E6 to 00E7
		380 to 381	017C to 017D
		530 to 531	0212 to 0213
	6)	84 to 85	0054 to 0055
		234 to 235	00EA to 00EB
		384 to 385	0180 to 0181
		534 to 535	0216 to 0217
	7)	87, 237, 387, 537	0057, 00ED, 0183, 0219
	8)	88, 238, 388, 538	0058, 00EE, 0184, 021A
	9)	89, 239, 389, 539	0059, 00EF, 0185, 021B
	1)	70, 220, 370, 520	0046, 00DC, 0172, 0208
	2)	71, 221, 371, 521	0047, 00DD, 0173, 0209
	3)	78, 228, 378, 528	004E, 00E4, 017A, 0210
	4)	72 to 73	0048 to 0049
		222 to 223	00DE to 00DF
		372 to 373	0174 to 0175
		522 to 523	020A to 020B
	5)	74 to 75	004A to 004B
		224 to 225	00E0 to 00E1
		374 to 375	0176 to 0177
		524 to 525	020C to 020D
	6)	76 to 77	004C to 004D
		226 to 227	00E2 to 00E3
		376 to 377	0178 to 0179
		526 to 527	020E to 020F

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	816, 916, 1016, 1116	0330, 0394, 03F8, 045C
	2)	817, 917, 1017, 1117	0331, 0395, 03F9, 045D
	—	———	———
	1)	818 to 819	0332 to 0333
		918 to 919	0396 to 0397
		1018 to 1019	03FA to 03FB
		1118 to 1119	045E to 045F
	2)	802 to 803	0322 to 0323
		902 to 903	0386 to 0387
		1002 to 1003	03EA to 03EB
		1102 to 1103	044E to 044F
	3)	820 to 821	0334 to 0335
		920 to 921	0398 to 0399
		1020 to 1021	03FC to 03FD
		1120 to 1121	0460 to 0461
	4)	810 to 811	032A to 032B
		910 to 911	038E to 038F
		1010 to 1011	03F2 to 03F3
		1110 to 1111	0456 to 0457
	5)	812 to 813	032C to 032D
		912 to 913	0390 to 0391
		1012 to 1013	03F4 to 03F5
		1112 to 1113	0458 to 0459
	6)	830, 930, 1030, 1130	033E, 03A2, 0406, 046A
	7)	831, 931, 1031, 1131	033F, 03A3, 0407, 046B

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	827, 927, 1027, 1127	033B, 039F, 0403, 0467
	2)	828, 928, 1028, 1128	033C, 03A0, 0404, 0468
	3)	829, 929, 1029, 1129	033D, 03A1, 0405, 0469
	4)	834, 934, 1034, 1134	0342, 03A6, 040A, 046E
	5)	835, 936, 1036, 1135	0343, 03A8, 040C, 046F
	6)	836, 936, 1036, 1136	0344, 03A8, 040C, 0470
	7)	837, 937, 1037, 1137	0345, 03A9, 040D, 0471
	8)	832, 932, 1032, 1132	0340, 03A4, 0408, 046C
	9)	833, 933, 1033, 1133	0341, 03A5, 0409, 046D
	—	———	———
	1)	824 to 825	0338 to 0339
		924 to 925	039C to 039D
		1024 to 1025	0400 to 0401
		1124 to 1125	0464 to 0465
	2)	826, 926, 1026, 1126	033A, 039E, 0402, 0466
	3) 4) 5) 6)	816, 916, 1016, 1116	0330, 0394, 03F8, 045C
	—	———	———
	1)	814 to 815	032E to 032F
		914 to 915	0392 to 0393
		1014 to 1015	03F6 to 03F7
		1114 to 1115	045A to 045B
	2)	1526 to 1527	05F6 to 05F7
		1626 to 1627	065A to 065B
		1726 to 1727	06BE to 06BF
		1826 to 1827	0722 to 0723
	3)	817, 917, 1017, 1117	0331, 0395, 03F9, 045D
	4)	817, 917, 1017, 1117	0331, 0395, 03F9, 045D
	5)	1528, 1628, 1728, 1828	05F8, 065C, 06C0, 0724

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	1530 to 1531	05FA to 05FB
		1630 to 1631	065E to 065F
		1730 to 1731	06C2 to 06C3
		1830 to 1831	0726 to 0727
	2)	817, 917, 1017, 1117	0331, 0395, 03F9, 045D
	3)	817, 917, 1017, 1117	0331, 0395, 03F9, 045D
	4)	1532, 1632, 1732, 1832	05FC, 0660, 06C4, 0728
	—	————	————
	1)	1506 to 1507	05E2 to 05E3
		1606 to 1607	0646 to 0647
		1706 to 1707	06AA to 06AB
		1806 to 1807	070E to 070F
	2)	1514 to 1515	05EA to 05EB
		1614 to 1615	064E to 064F
		1714 to 1715	06B2 to 06B3
		1814 to 1815	0716 to 0717
	3)	1513, 1613, 1713, 1813	05E9, 064D, 06B1, 0715
	4)	1544, 1644, 1744, 1844	0608, 066C, 06D0, 0734
	5)	1545, 1645, 1745, 1845	0609, 066D, 06D1, 0735
	6)	1546, 1646, 1746, 1846	060A, 066E, 06D2, 0736
	7)	1547, 1647, 1747, 1847	060B, 066F, 06D3, 0737
	8)	1505, 1605, 1705, 1805	05E1, 0645, 06A9, 070D

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	1500, 1600, 1700, 1800	05DC, 0640, 06A4, 0708
	2)	1501, 1601, 1701, 1801	05DD, 0641, 06A5, 0709
	3)	1502, 1602, 1702, 1802	05DE, 0642, 6A6, 070A
	4)	1503, 1603, 1703, 1803	05DF, 0643, 06A7, 070B
	5)	1504, 1604, 1704, 1804	05E0, 0644, 06A8, 070C
	6)	1512, 1612, 1712, 1812	05E8, 064C, 06B0, 0714
	7)	1516, 1616, 1716, 1816	05EC, 0650, 06B4, 0718
	8)	1508 to 1509	05E4 to 05E5
		1608 to 1609	0648 to 0649
		1708 to 1709	06AC to 06AD
		1808 to 1809	0710 to 0711
	9)	1510 to 1511	05E6 to 05E7
		1610 to 1611	064A to 064B
		1710 to 1711	06AE to 06AF
		1810 to 1811	0712 to 0713
	10)	1520, 1620, 1720, 1820	05F0, 0654, 06B8, 071C
	11)	1521, 1621, 1721, 1821	05F1, 0655, 06B9, 071D
	12)	1522 to 1523	05F2 to 05F3
		1622 to 1623	0656 to 0657
		1722 to 1723	06BA to 06BB
		1822 to 1823	071E to 071F
	13)	1524, 1624, 1724, 1824	05F4, 0658, 06BC, 0720
	14)	1525, 1625, 1725, 1825	05F5, 0659, 06BD, 0721
	1)	1538, 1638, 1738, 1838	0602, 0666, 06CA, 072E
	2)	1548, 1648, 1748, 1848	060C, 0670, 06D4, 0738
	3)	1549, 1649, 1749, 1849	060D, 0671, 06D5, 0739
	4)	1550, 1650, 1750, 1850	060E, 0672, 06D6, 073A
	5)	1540, 1640, 1740, 1840, 1541, 1641, 1741, 1841, 1542, 1642, 1742, 1842, 1543, 1643, 1743, 1843	0604, 0668, 06CC, 0730, 0605, 0669, 06CD, 0731, 0606, 066A, 06CE, 0732, 0607, 066B, 06CF, 0733

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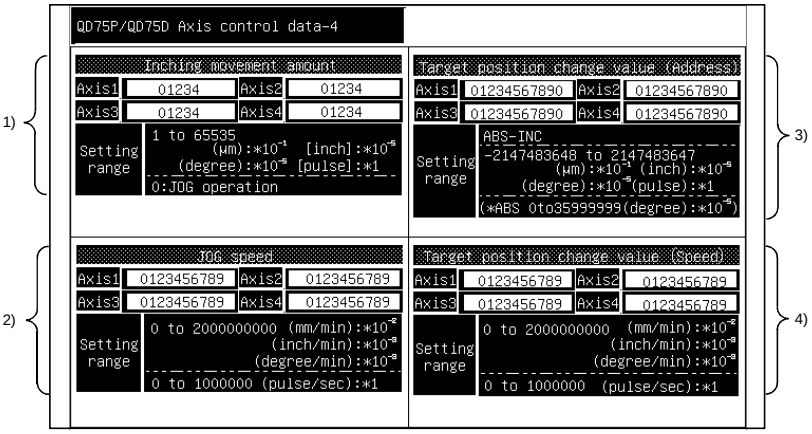
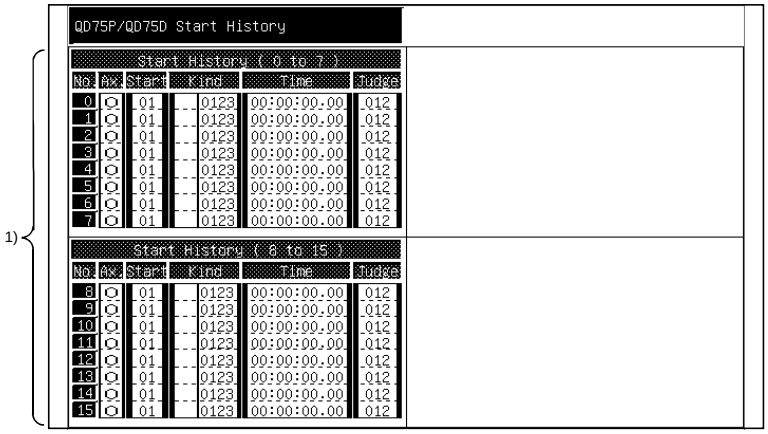
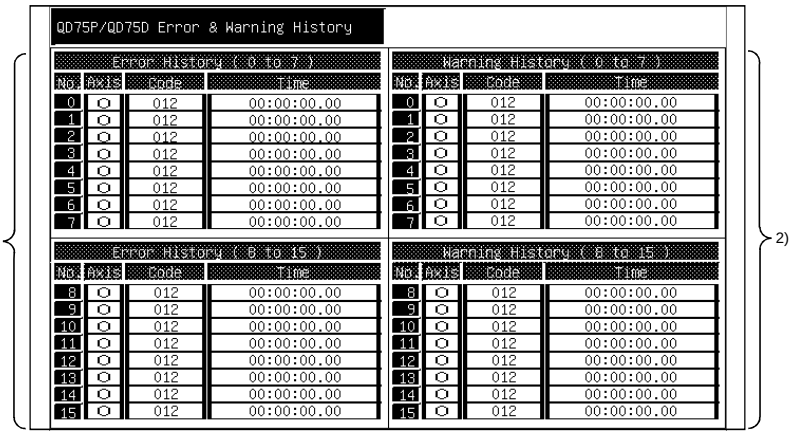
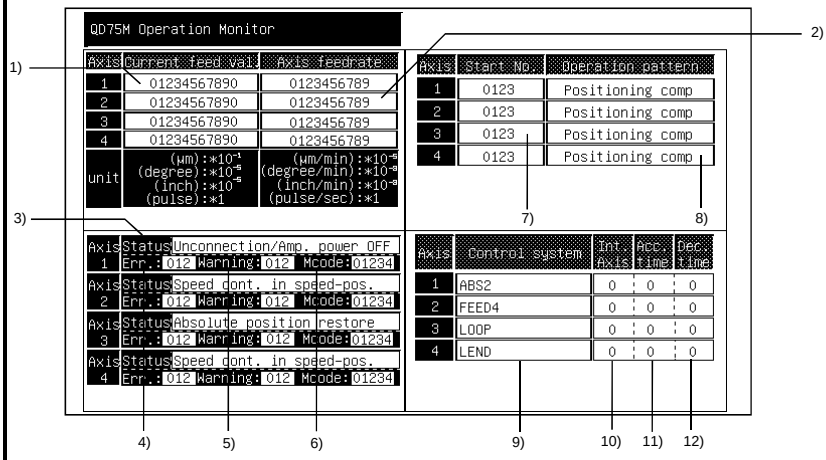
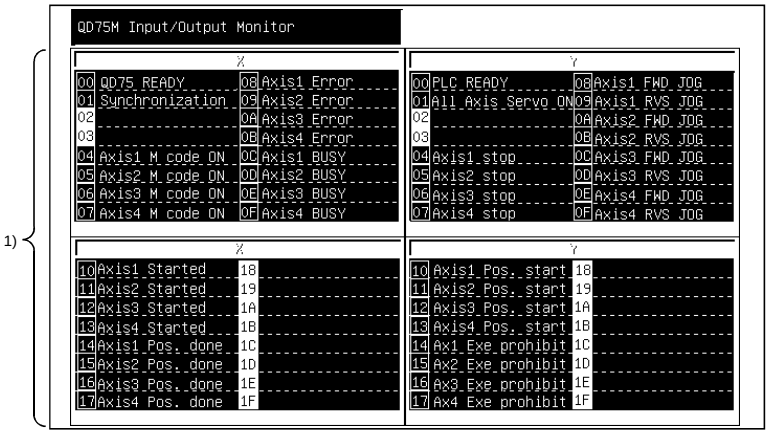
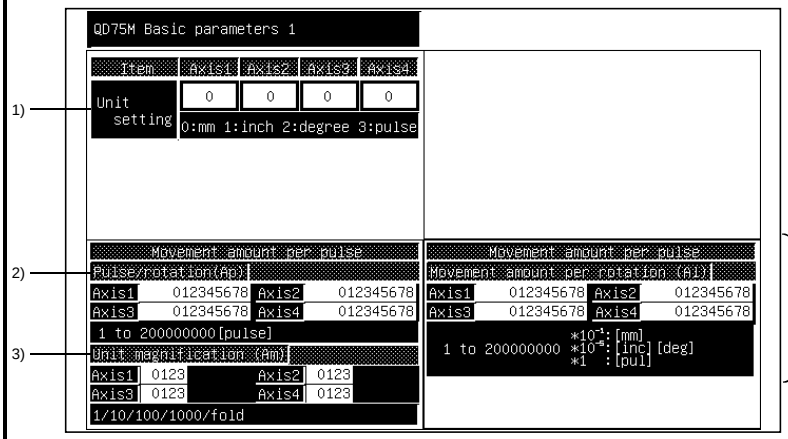
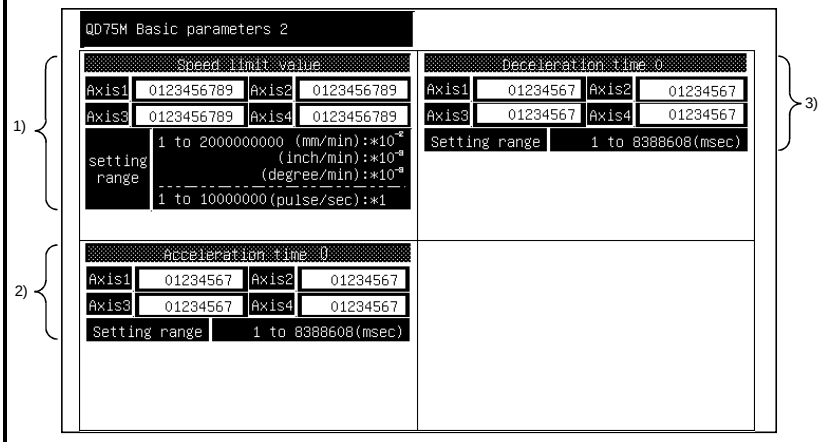
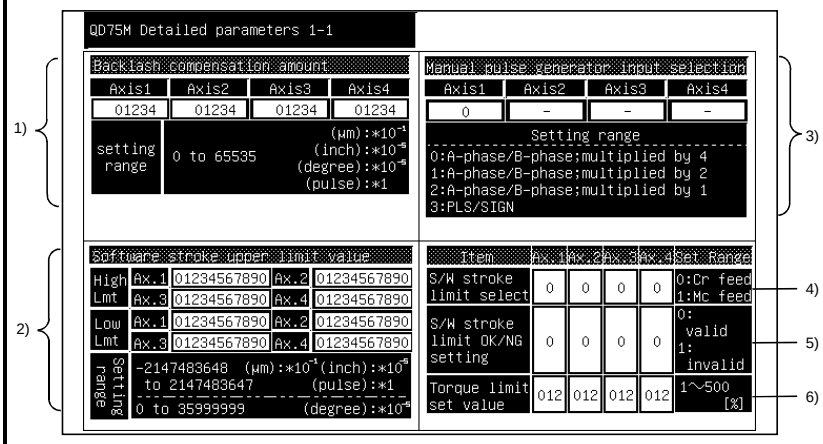
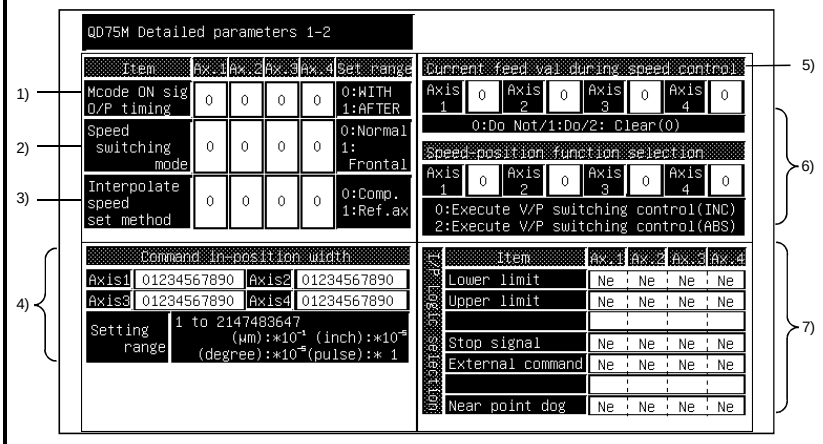
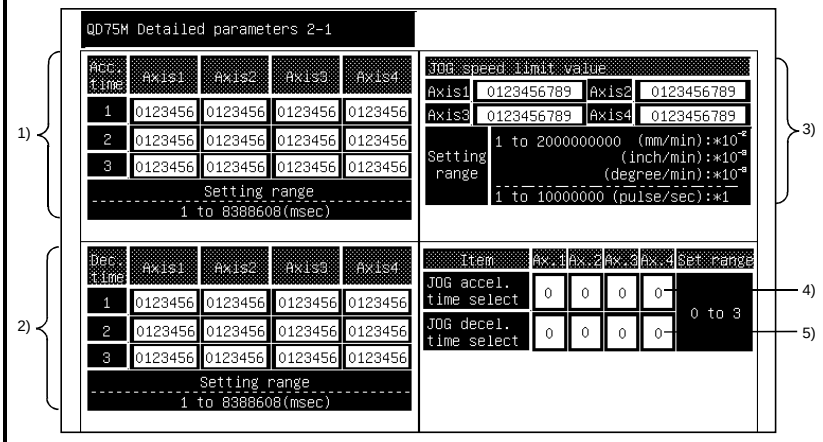
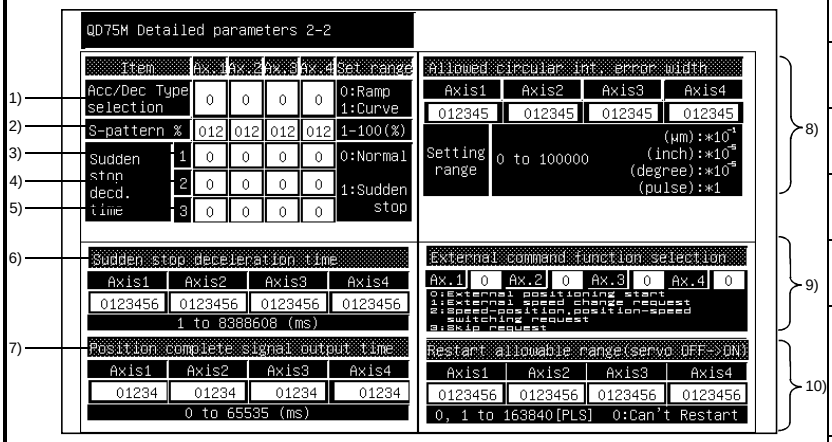
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	1517, 1617, 1717, 1817	05ED, 0651, 06B5, 0719
	2)	1518 to 1519	05EE to 05EF
		1618 to 1619	0652 to 0653
		1718 to 1719	06B6 to 06B7
		1818 to 1819	071A to 071B
	3)	1534 to 1535	05FE to 05FF
		1634 to 1635	0662 to 0663
		1734 to 1735	06C6 to 06C7
		1834 to 1835	072A to 072B
	4)	1536 to 1537	0600 to 0601
		1636 to 1637	0664 to 0665
		1736 to 1737	06C8 to 06C9
		1836 to 1837	072C to 072D
	1)	1212 to 1292	04BC to 050C
	—	———	———
	1)	1293 to 1356	050D to 054C
	2)	1358 to 1421	054E to 058D
	—	———	———

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	2000 to 25999	07D0 to 658F
	—	———	———

12.32 QD75M Module Monitor

Screen Image	No.	Buffer memory address dec.	Buffer memory address hex.
	1)	800 to 801 900 to 901 1000 to 1001 1100 to 1101	0320 to 0321 0384 to 0385 03E8 to 03E9 044C to 044D
	2)	812 to 813 912 to 913 1012 to 1013 1112 to 1113	032C to 032D 0390 to 0391 03F4 to 03F5 0458 to 0459
	3)	809, 909, 1009, 1109	0329, 038D, 03F1, 0455
	4)	806, 906, 1006, 1106	0326, 038A, 03EE, 0452
	5)	807, 907, 1007, 1107	0327, 038B, 03EF, 0453
	6)	808, 908, 1008, 1108	0328, 038C, 03F0, 0454
	7)	829, 929, 1029, 1129	033D, 03A1, 0405, 0469
	8) to 12)	838, 938, 1038, 1138	0346, 03AA, 040E, 0472
	1)	———	———
	—	———	———
	1)	0, 150, 300, 450	0000, 096, 012C, 01C2
	2)	2 to 3, 152 to 153, 302 to 303, 452 to 453	0002 to 0003, 0098 to 0099, 012E to 012F, 01C4 to 01C7
	3)	1, 151, 301, 451	0001, 0097, 0012D, 01C3
	4)	4 to 5, 154 to 155, 304 to 305, 454 to 455	0004 to 0005, 009A to 009B, 0130 to 0131, 01C6 to 01C7

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	10 to 11	000A to 000B
		160 to 161	00A0 to 00A1
		310 to 311	0136 to 0137
		460 to 461	01CC to 01CD
	2)	12 to 13	000C to 000D
		162 to 163	00A2 to 00A3
		312 to 313	0138 to 0139
		462 to 463	01CE to 01CF
	3)	14 to 15	000E to 000F
		164 to 165	00A4 to 00A5
		314 to 315	013A to 013B
		464 to 465	01D0 to 01D1
	—	———	———
	1)	17, 167, 317, 467	0011, 00A7, 013D, 01D3
	2)	18 to 19	0012 to 0013
		168 to 169	00A8 to 00A9
		318 to 319	013E to 013F
		468 to 469	01D4 to 01D5
		20 to 21	0014 to 0015
		170 to 171	00AA to 00AB
		320 to 321	0140 to 0141
		470 to 471	01D6 to 01D7
	3)	33	0021
	4)	22, 172, 322, 472	0016, 00AC, 0142, 01D8
	5)	23, 173, 323, 473	0017, 00AD, 0143, 01D9
	6)	26, 176, 326, 476	001A, 00B0, 0146, 01DC
	1)	27, 177, 327, 477	001B, 00B1, 0147, 01DD
	2)	28, 178, 328, 478	001C, 00B2, 0148, 01DE
	3)	29, 179, 329, 479	001D, 00B3, 0149, 01DF
	4)	24 to 25	0018 to 0019
		174 to 175	00AE to 00AF
		324 to 325	0144 to 0145
		474 to 475	01DA to 01DB
	5)	30, 180, 330, 480	001E, 00B4, 014A, 01E0
	6)	34, 184, 334, 484	0022, 00B8, 014E, 01E4
	7)	31, 181, 331, 481	001F, 00B5, 014B, 01E1

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	36 to 41	0024 to 0029
		186 to 191	00BA to 00BF
		336 to 341	0150 to 0155
		486 to 491	01E6 to 01EB
	2)	42 to 47	002A to 002F
		192 to 197	00C0 to 00C5
		342 to 347	0156 to 015B
		492 to 496	01EC to 01F0
	3)	48 to 49	0030 to 0031
		198 to 199	00C6 to 00C7
		348 to 349	015C to 015D
		498 to 499	01F2 to 01F3
	4)	50, 200, 350, 500	0032, 00C8, 015E, 01F4
	5)	51, 501, 351, 501	0033, 01F5, 015F, 01F5
	1)	52, 202, 352, 502	0034, 00CA, 0160, 01F6
	2)	53, 203, 353, 503	0035, 00CB, 0161, 01F7
	3)	56, 206, 356, 506	0038, 00CE, 0164, 01FA
	4)	57, 207, 357, 507	0039, 00CF, 0165, 01FB
	5)	58, 208, 358, 508	003A, 00D0, 0166, 01FC
	6)	54 to 55, 204 to 205, 354 to 355, 504 to 505	0036 to 0037, 00CC to 00CD, 0162 to 0163, 01F8 to 01F9
	7)	59, 209, 359, 509	003B, 00D1, 0167, 01FD
	8)	60 to 61	003C to 003D
		210 to 211	00D2 to 00D3
		360 to 361	0168 to 0169
		510 to 511	01FE to 01FF
	9)	62, 212, 362, 512	003E, 00D4, 016A, 0200
	10)	64 to 65, 214 to 215, 364 to 365, 514 to 515	0040 to 0041, 00D6 to 00D7, 016C to 016D, 0202 to 0203

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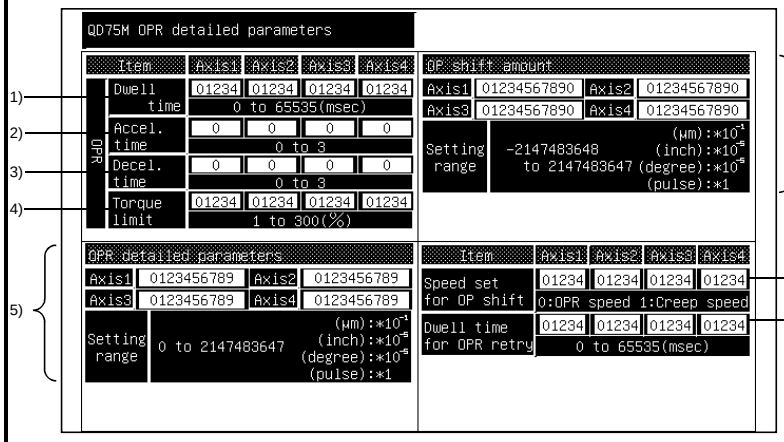
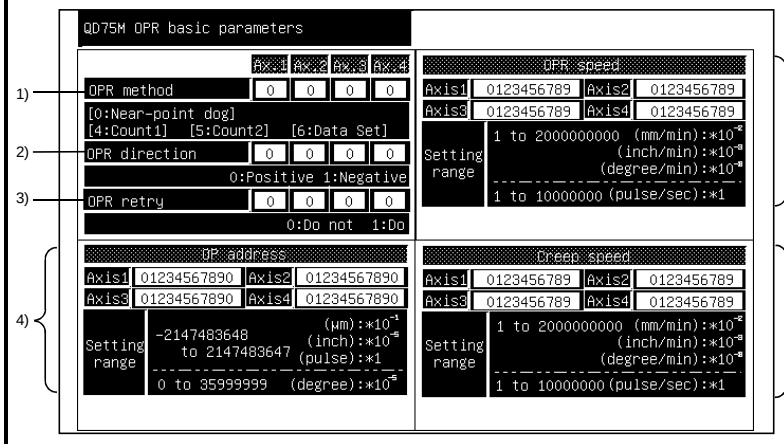
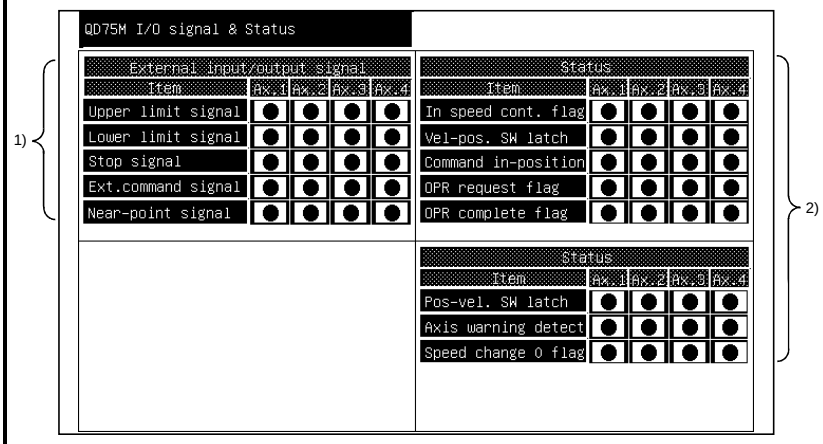
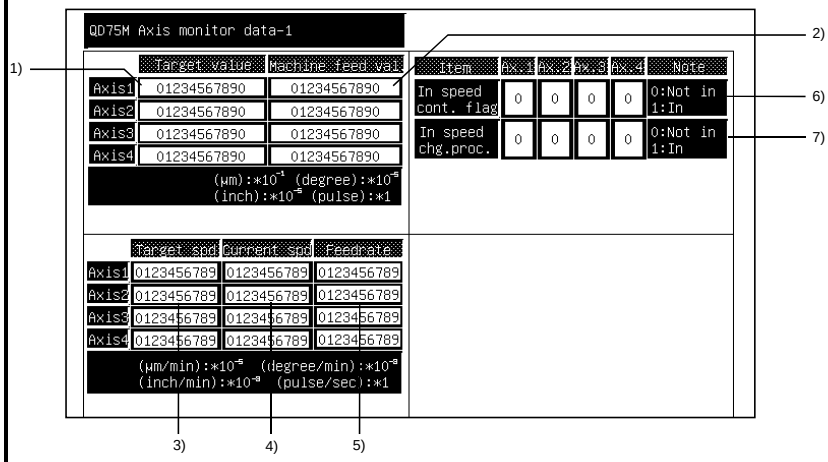
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	79, 229, 379, 529	004F, 00E5, 017B, 0211
	2)	82, 232, 382, 532	0052, 00E8, 017E, 0214
	3)	83, 233, 383, 533	0053, 00E9, 017F, 0215
	4)	86, 236, 386, 536	0056, 00EC, 0182, 0218
	5)	80 to 81	0050 to 0051
		230 to 231	00E6 to 00E7
		380 to 381	017C to 017D
		530 to 531	0212 to 0213
	6)	84 to 85	0054 to 0055
		234 to 235	00EA to 00EB
		384 to 385	0180 to 0181
		534 to 535	0216 to 0217
	7)	88, 238, 388, 538	0058, 00EE, 0184, 021A
	8)	89, 239, 389, 539	0059, 00EF, 0185, 021B
	1)	70, 220, 370, 520	0046, 00DC, 0172, 0208
	2)	71, 221, 371, 521	0047, 00DD, 0173, 0209
	3)	78, 228, 378, 528	004E, 00E4, 017A, 0210
	4)	72 to 73	0048 to 0049
		222 to 223	00DE to 00DF
		372 to 373	0174 to 0175
		522 to 523	020A to 020B
	5)	74 to 75	004A to 004B
		224 to 225	00E0 to 00E1
		374 to 375	0176 to 0177
		524 to 525	020C to 020D
	6)	76 to 77	004C to 004D
		226 to 227	00E2 to 00E3
		376 to 377	0178 to 0179
		526 to 527	020E to 020F

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	816, 916, 1016, 1116	0330, 0394, 03F8, 045C
	2)	817, 917, 1017, 1117	0331, 0395, 03F9, 045D
	—	————	————
	1)	818 to 819	0332 to 0333
		918 to 919	0396 to 0397
		1018 to 1019	03FA to 03FB
		1118 to 1119	045E to 045F
	2)	802 to 803	0322 to 0323
		902 to 903	0386 to 0387
		1002 to 1003	03EA to 03EB
		1102 to 1103	044E to 044F
	3)	820 to 821	0334 to 0335
		920 to 921	0398 to 0399
		1020 to 1021	03FC to 03FD
		1120 to 1121	0460 to 0461
	4)	810 to 811	032A to 032B
		910 to 911	038E to 038F
		1010 to 1011	03F2 to 03F3
		1110 to 1111	0456 to 0457
	5)	812 to 813	032C to 032D
		912 to 913	0390 to 0391
		1012 to 1013	03F4 to 03F5
		1112 to 1113	0458 to 0459
	6)	830, 930, 1030, 1130	033E, 03A2, 0406, 046A
	7)	831, 931, 1031, 1131	033F, 03A3, 0407, 046B

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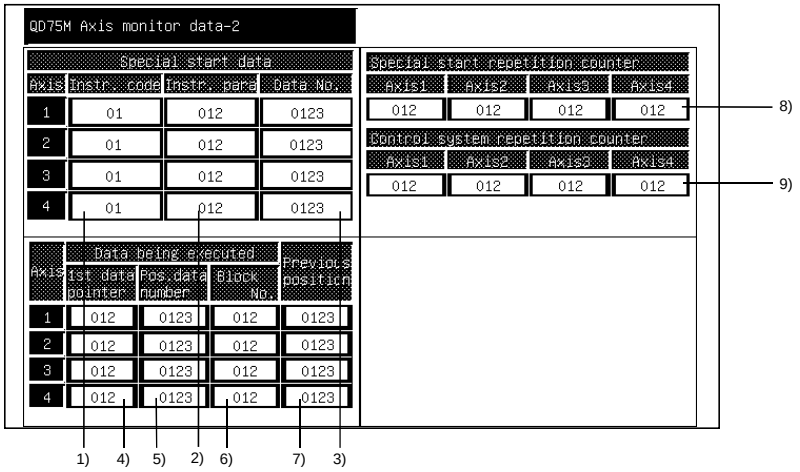
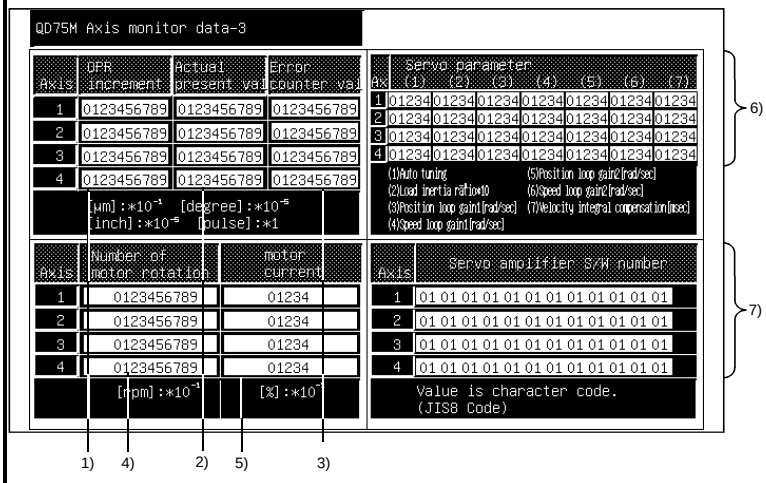
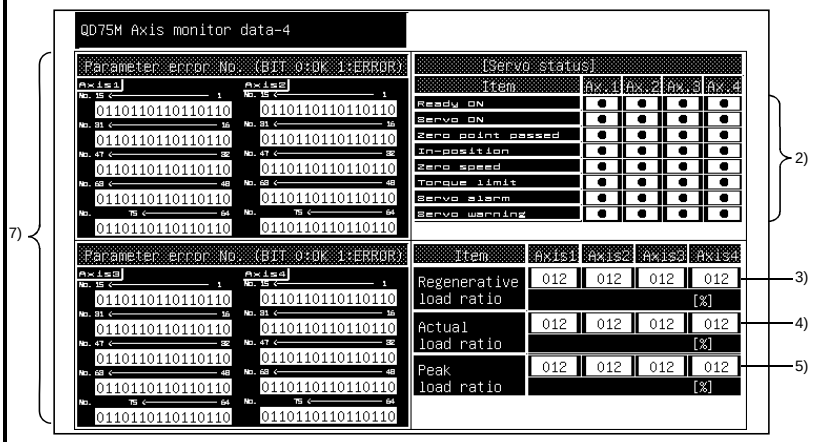
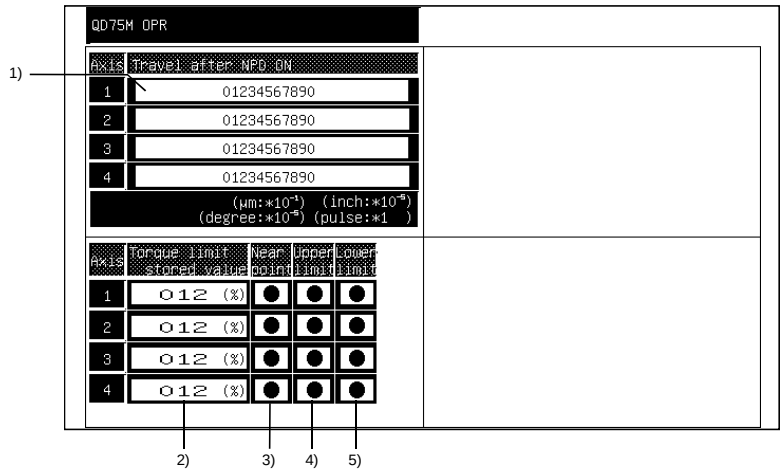
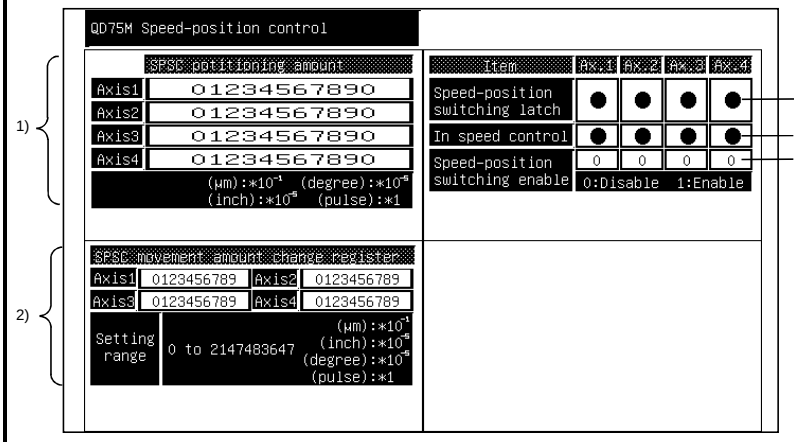
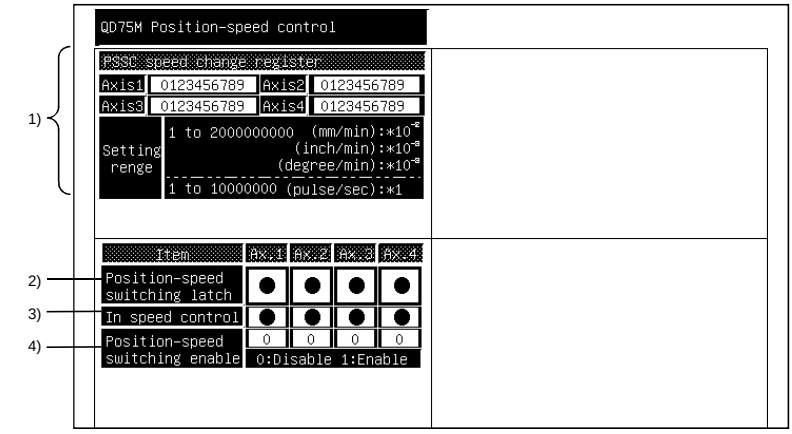
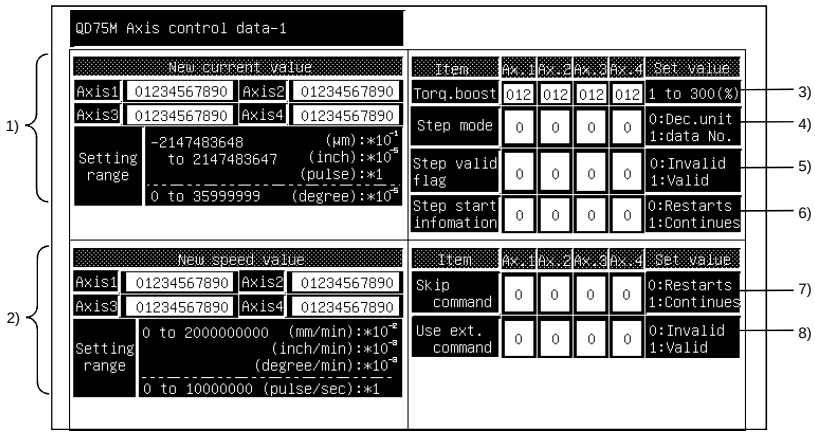
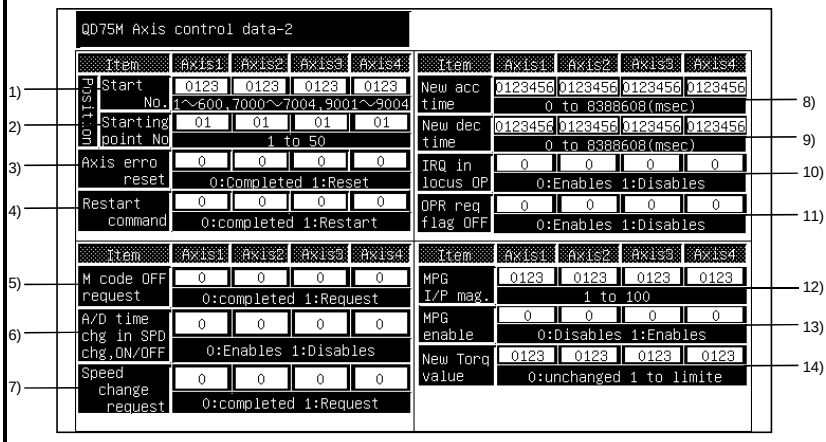
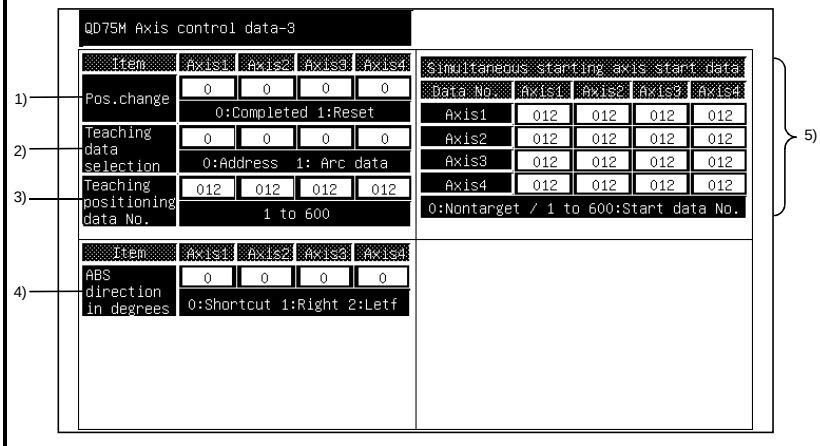
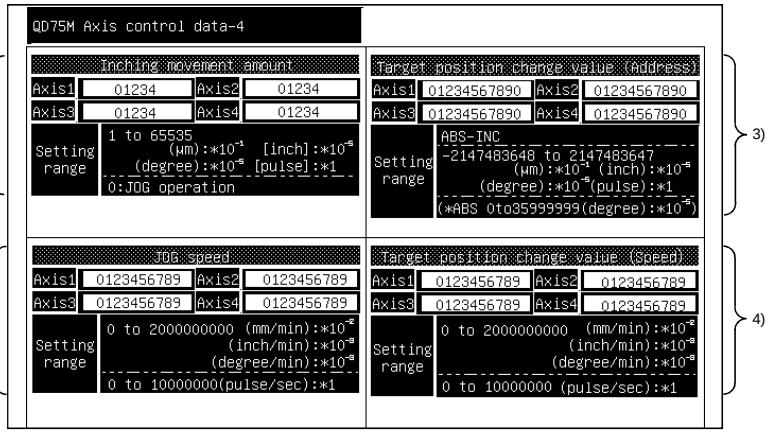
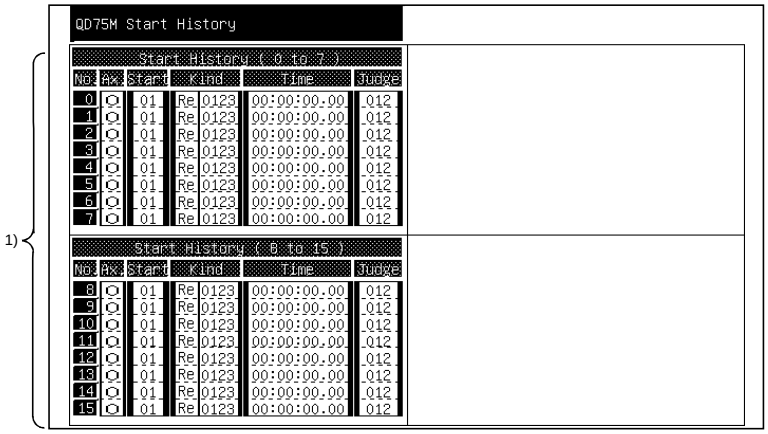
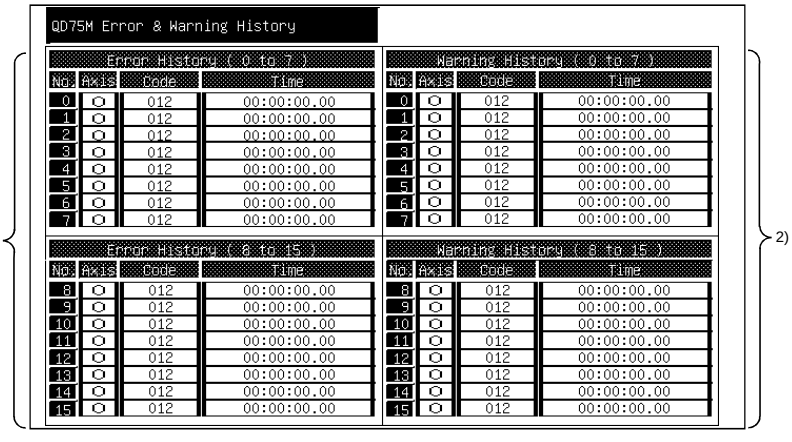
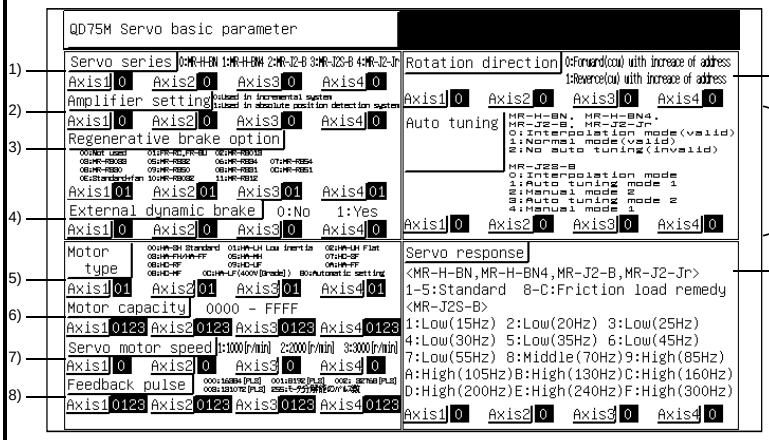
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	827, 927, 1027, 1127	033B, 039F, 0403, 0467
	2)	828, 928, 1028, 1128	033C, 03A0, 0404, 0468
	3)	829, 929, 1029, 1129	033D, 03A1, 0405, 0469
	4)	834, 934, 1034, 1134	0342, 03A6, 040A, 046E
	5)	835, 936, 1036, 1135	0343, 03A8, 040C, 046F
	6)	836, 936, 1036, 1136	0344, 03A8, 040C, 0470
	7)	837, 937, 1037, 1137	0345, 03A9, 040D, 0471
	8)	832, 932, 1032, 1132	0340, 03A4, 0408, 046C
	9)	833, 933, 1033, 1133	0341, 03A5, 0409, 046D
	—	———	———
	1)	848 to 849, 948 to 949, 1048 to 1049, 1148 to 1149	0350 to 0351, 03B4 to 03B5, 0418 to 0419, 047C to 047D
	2)	850 to 851, 950 to 951, 1050 to 1051, 1150 to 1151	0352 to 0353, 03B6 to 03B7, 041A to 041B, 047E to 047F
	3)	852 to 853, 952 to 953, 1052 to 1053, 1152 to 1153	0354 to 0355, 03B8 to 03B9, 041C to 041D, 0480 to 0481
	4)	854 to 855, 954 to 955, 1054 to 1055, 1154 to 1155	0356 to 0357, 03BA to 03BB, 041E to 041F, 0482 to 0483
	5)	856, 956, 1056, 1156	0358, 03BC, 0420, 0484
	6)	857, 957, 1057, 1157	0359, 03BD, 0421, 0485
		858, 958, 1058, 1158	035A, 03BE, 0422, 0486
		859, 959, 1059, 1159	035B, 03BF, 0423, 0487
		860, 960, 1060, 1160	035C, 03C0, 0424, 0488
		861, 961, 1061, 1161	035D, 03C1, 0425, 0489
		862, 962, 1062, 1162	035E, 03C2, 0426, 048A
		863, 963, 1063, 1163	035F, 03C2, 0427, 048B
	7)	864 to 869, 964 to 969, 1064 to 1069, 1164 to 1169	0360 to 0365, 03C4 to 03C9, 0428 to 042D, 048C to 0491

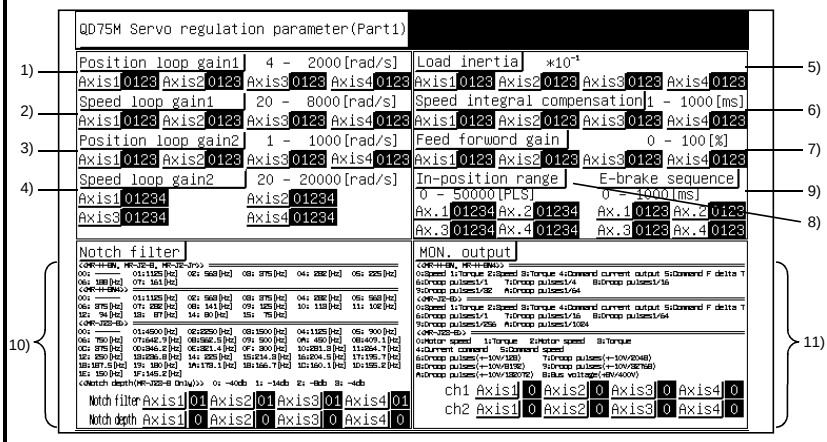
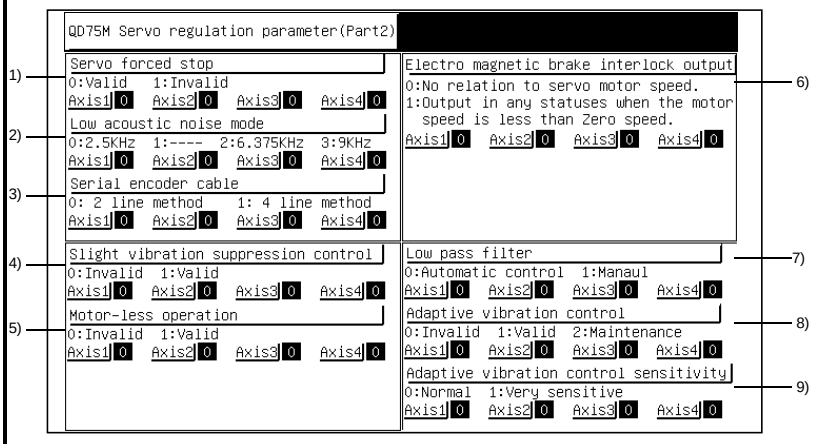
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	870, 970, 1070, 1170	0366, 03CA, 042E, 0492
		871, 971, 1071, 1171	0367, 03CB, 042F, 0493
		872, 972, 1072, 1172	0368, 03CC, 0430, 0494
		873, 973, 1073, 1173	0369, 03CD, 0431, 0495
		874, 974, 1074, 1174	036A, 03CE, 0432, 0496
	2)	877, 977, 1077, 1177	036D, 03D1, 0435, 0499
	3)	878, 978, 1078, 1178	036E, 03D2, 0436, 049A
	4)	879, 979, 1079, 1179	036F, 03D3, 0437, 049B
	5)	880, 980, 1080, 1180	0370, 03D4, 0438, 049C
	1)	824 to 825	0338 to 0339
		924 to 925	039C to 039D
		1024 to 1025	0400 to 0401
		1124 to 1125	0464 to 0465
	2)	826, 926, 1026, 1126	033A, 039E, 0402, 0466
	3) 4) 5)	816, 916, 1016, 1116	0330, 0394, 03F8, 045C
	—	———	———
	1)	814 to 815	032E to 032F
		914 to 915	0392 to 0393
		1014 to 1015	03F6 to 03F7
		1114 to 1115	045A to 045B
	2)	1526 to 1527	05F6 to 05F7
		1626 to 1627	065A to 065B
		1726 to 1727	06BE to 06BF
		1826 to 1827	0722 to 0723
	3)	817, 917, 1017, 1117	0331, 0395, 03F9, 045D
	4)	817, 917, 1017, 1117	0331, 0395, 03F9, 045D
	5)	1528, 1628, 1728, 1828	05F8, 065C, 06C0, 0724

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	1530 to 1531	05FA to 05FB
		1630 to 1631	065E to 065F
		1730 to 1731	06C2 to 06C3
		1830 to 1831	0726 to 0727
	2)	817, 917, 1017, 1117	0331, 0395, 03F9, 045D
	3)	817, 917, 1017, 1117	0331, 0395, 03F9, 045D
	4)	1532, 1632, 1732, 1832	05FC, 0660, 06C4, 0728
	—	———	———
	1)	1506 to 1507	05E2 to 05E3
		1606 to 1607	0646 to 0647
		1706 to 1707	06AA to 06AB
		1806 to 1807	070E to 070F
	2)	1514 to 1515	05EA to 05EB
		1614 to 1615	064E to 064F
		1714 to 1715	06B2 to 06B3
		1814 to 1815	0716 to 0717
	3)	1513, 1613, 1713, 1813	05E9, 064D, 06B1, 0715
	4)	1544, 1644, 1744, 1844	0608, 066C, 06D0, 0734
	5)	1545, 1645, 1745, 1845	0609, 066D, 06D1, 0735
	6)	1546, 1646, 1746, 1846	060A, 066E, 06D2, 0736
	7)	1547, 1647, 1747, 1847	060B, 066F, 06D3, 0737
	8)	1505, 1605, 1705, 1805	05E1, 0645, 06A9, 070D

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	1500, 1600, 1700, 1800	05DC, 0640, 06A4, 0708
	2)	1501, 1601, 1701, 1801	05DD, 0641, 06A5, 0709
	3)	1502, 1602, 1702, 1802	05DE, 0642, 6A6, 070A
	4)	1503, 1603, 1703, 1803	05DF, 0643, 06A7, 070B
	5)	1504, 1604, 1704, 1804	05E0, 0644, 06A8, 070C
	6)	1512, 1612, 1712, 1812	05E8, 064C, 06B0, 0714
	7)	1516, 1616, 1716, 1816	05EC, 0650, 06B4, 0718
	8)	1508 to 1509	05E4 to 05E5
		1608 to 1609	0648 to 0649
		1708 to 1709	06AC to 06AD
		1808 to 1809	0710 to 0711
	9)	1510 to 1511	05E6 to 05E7
		1610 to 1611	064A to 064B
		1710 to 1711	06AE to 06AF
		1810 to 1811	0712 to 0713
	10)	1520, 1620, 1720, 1820	05F0, 0654, 06B8, 071C
	11)	1521, 1621, 1721, 1821	05F1, 0655, 06B9, 071D
	12)	1522 to 1523	05F2 to 05F3
		1622 to 1623	0656 to 0657
		1722 to 1723	06BA to 06BB
		1822 to 1823	071E to 071F
	13)	1524, 1624, 1724, 1824	05F4, 0658, 06BC, 0720
	14)	1525, 1625, 1725, 1825	05F5, 0659, 06BD, 0721
	1)	1538, 1638, 1738, 1838	0602, 0666, 06CA, 072E
	2)	1548, 1648, 1748, 1848	060C, 0670, 06D4, 0738
	3)	1549, 1649, 1749, 1849	060D, 0671, 06D5, 0739
	4)	1550, 1650, 1750, 1850	060E, 0672, 06D6, 073A
	5)	1540, 1640, 1740, 1840, 1541, 1641, 1741, 1841, 1542, 1642, 1742, 1842, 1543, 1643, 1743, 1843	0604, 0668, 06CC, 0730, 0605, 0669, 06CD, 0731, 0606, 066A, 06CE, 0732, 0607, 066B, 06CF, 0733

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	1517, 1617, 1717, 1817	05ED, 0651, 06B5, 0719
	2)	1518 to 1519	05EE to 05EF
		1618 to 1619	0652 to 0653
		1718 to 1719	06B6 to 06B7
		1818 to 1819	071A to 071B
	3)	1534 to 1535	05FE to 05FF
		1634 to 1635	0662 to 0663
		1734 to 1735	06C6 to 06C7
		1834 to 1835	072A to 072B
	4)	1536 to 1537	0600 to 0601
		1636 to 1637	0664 to 0665
		1736 to 1737	06C8 to 06C9
		1836 to 1837	072C to 072D
	1)	1212 to 1292	04BC to 050C
	—	———	———
	1)	1293 to 1356	050D to 054C
	2)	1358 to 1421	054E to 058D
	—	———	———

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	2000 to 25999	07D0 to 658F
	—	———	———
	1)	30100, 30200, 30300, 30400	07594, 075F8 0765C,076C0
	2)	30101, 30201, 30301, 30401	07595, 075F9 0765D, 076C1
	3) 4)	30102, 30202, 30302, 30402	07596, 075FA 0765E, 076C2
	5)	30103, 30203, 30303, 30403	07597, 075FB 0765F, 076C3
	6)	30104, 30204, 30304, 30404	07598, 075FC 07660, 076C4
	7)	30105, 30205, 30305, 30405	07599, 075FD 07661, 076C5
	8)	30106, 30206, 30306, 30406	0759A, 075FE 07662, 076C6
	9)	30107, 30207, 30307, 30407	0759B, 075FF 07663, 076C7
	10)	30108, 30208, 30308, 30408	0759C, 07600 07664, 076C8
	11)	30109, 30209, 30309, 30409	0759D, 07601 07665, 076C9

Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	30113, 30213, 30313, 30413	075A1, 07605 07669, 076CD
	2)	30114, 30214, 30314, 30414	075A2, 07606 0766A, 076CE
	3)	30115, 30215, 30315, 30415	075A3, 07607 0766B, 076CF
	4)	30116, 30216, 30316, 30416	075A4, 07608 0766C, 076D0
	5)	30112, 30212, 30312, 30412	075A0, 07604 07668, 076CC
	6)	30117, 30217, 30317, 30417	075A5, 07609 0766D, 076D1
	7)	30119, 30219, 30319, 30419	075A7, 0760B 0766F, 076D3
	8)	30120, 30220, 30320, 30420	075A8, 0760C 07670, 076D4
	9)	30121, 30221, 30321, 30421	075A9, 0760D 07671, 076D5
	10)	30118, 30218, 30318, 30418	075A6, 0760A 0766E, 076D2
	11)	30122, 30222, 30322, 30422	075AA, 0760E 07672, 076D6
	1) 2) 3)	30123, 30223, 30323, 30423	075AB, 0760F 07673, 076D7
	4) 5) 6)	30124, 30224, 30324, 30424	075AC, 07610 07674, 076D8
	7) 8) 9)	30125, 30225, 30325, 30425	075AD, 07611 07675, 076D9
	—	———	———

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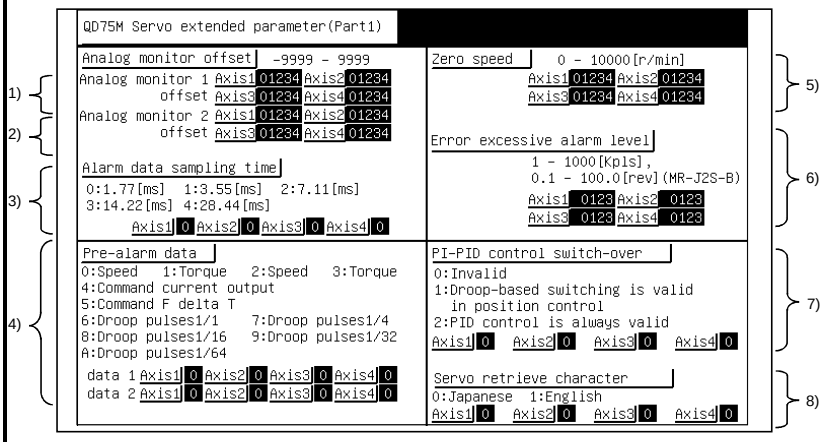
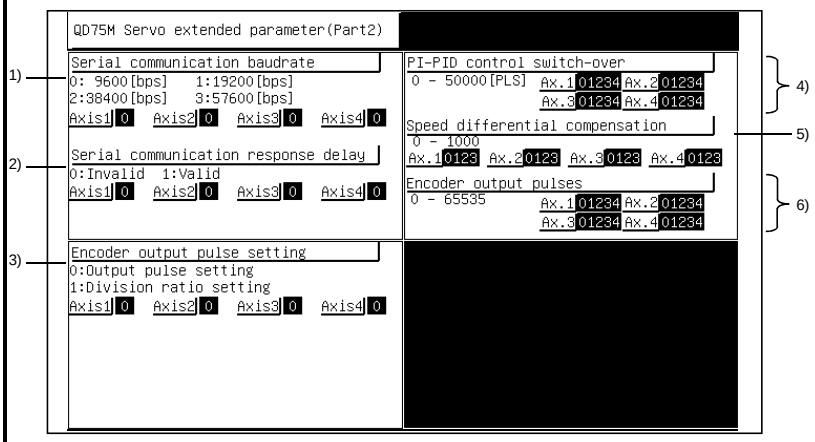
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	30127, 30227, 30327, 30427	075AF, 07613 07677, 076DB
	2)	30128, 30228, 30328, 30428	075B0, 07614 07678, 076DC
	3) 4)	30129, 30229, 30329, 30429	075B1, 07615 07679, 076DD
	5)	30130, 30230, 30330, 30430	075B2, 07616 0767A, 076DE
	6)	30131, 30231, 30331, 30431	075B3, 07617 0767B, 076DF
	7) 8)	30132, 30232, 30332, 30432	075B4, 07618 0767C, 076E0
	1) 2) 3)	30133, 30233, 30333, 30433	075B5, 07619 0767D, 076E1
	4)	30134, 30234, 30334, 30434	075B6, 0761A 0767E, 076E2
	5)	30136, 30236, 30336, 30436	075B8, 0761C 07680, 076E4
	6)	30138, 30238, 30338, 30438	075BA, 0761E 07682, 076E6
	—	———	———

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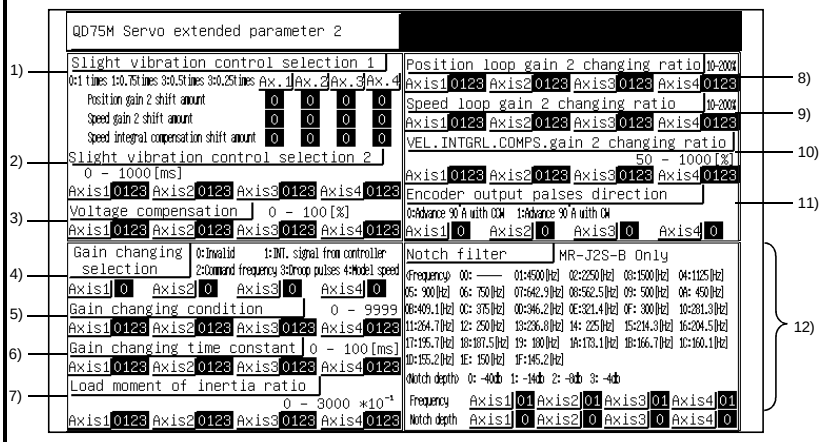
Screen Image	No.	Buffer memory address	
		dec.	hex.
	1)	30143, 30243, 30343, 30443	075BF, 07623 07687, 076EB
	2)	30144, 30244, 30344, 30444	075C0, 07624 07688, 076EC
	3)	30145, 30245, 30345, 30445	075C1, 07605 07689, 076ED
	4)	30149, 30249, 30349, 30449	075C5, 07629 0768D, 076F1
	5)	30150, 30250, 30350, 30450	075C6, 0762A 0768E, 076F2
	6)	30151, 30251, 30351, 30451	075C7, 0762B 0768F, 076F3
	7)	30152, 30252, 30352, 30452	075C8, 0762C 07690, 076F4
	8)	30153, 30253, 30353, 30453	075C9, 0762D 07691, 076F5
	9)	30154, 30254, 30354, 30454	075CA, 0762E 07692, 076F5
	10)	30155, 30255, 30355, 30455	075CB, 0762F 07693, 076F6
	11)	30160, 30260, 30360, 30460	075D0, 07634 07698, 076FC
	12)	30161, 30261, 30361, 30461	075D1, 07635 07699, 076FD

CHAPTER13 OPERATING I/O MODULE MONITOR SCREENS

This section explains how the various screens are operated in the special module monitor function, when monitoring input or output modules.

13.1 Specifying the module to be monitored

This describes how to start monitoring an optional special input or output module.

[Operation procedure]

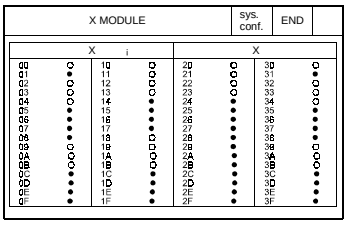
Display the System Configuration screen. ····· See Sec. 12.1.1.

↓

Specify the module to be monitored (Touch the position at which the module is displayed.)

↓

Display the monitor screen for the specified module.



↓

To Sec. 13.2

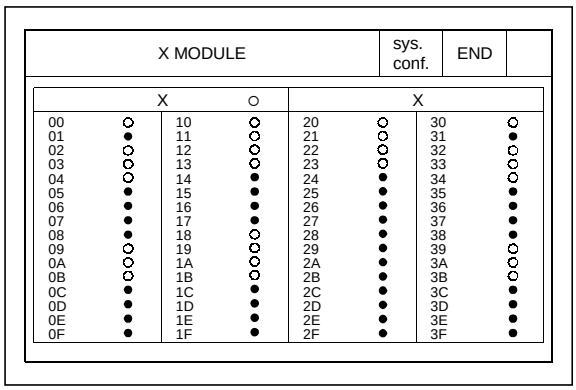
(1) From among the modules installed in the corresponding base unit, specify the module whose "Input" or "Output" is displayed.
Refer to Section 12.1.3 for the way to specify the special function module.

(2) For information on confirming the displayed contents and subsequent operation, please see Sec. 13.2.
* Tests cannot be conducted on input or output modules.

13.2 Monitor screen configuration and key functions

This section describes the configuration of monitor screens displayed by specifying the input module on the system configuration screen, and explains the functions of the keys displayed on the screen.

(1) Display (for an input module)



1)	Displays the type of the object module (input or output module).
2)	Displays the name of the signal being monitored (X or Y).
3)	Displays the number and status of the input or output signal.
4)	Displays keys that are used with the operation of the monitor screen shown in (2) (Touch input).

(2) Key functions

The chart below shows the functions of the keys that are used with the Monitor Screen operation.

Key	Function
END	Monitoring ends; and display returns to the screen where the special module monitor function was begun.
sys. conf.	The current monitoring ends; and returns to the system configuration screen.

CHAPTER14 ERROR DISPLAY AND HANDLING WITH SPECIAL MODULE MONITORING

The following chart shows the error messages that may be displayed when operating the special module monitor and the method of handling them.

Error message	Description	Method of Handling
Can not Communication	Communication could not be established with the PLC CPU.	(1) To try the operation again, touch "Retry". When the operation is retried, the error message disappears and monitoring resumes automatically, so no action is required. If monitoring is not resumed for a long period of time, however, check the following: 1) Connections between the PLC CPU and the GOT (disconnected or cut cables). 2) Has an error occurred in the PLC CPU? Etc.

14 - 1

MEMO

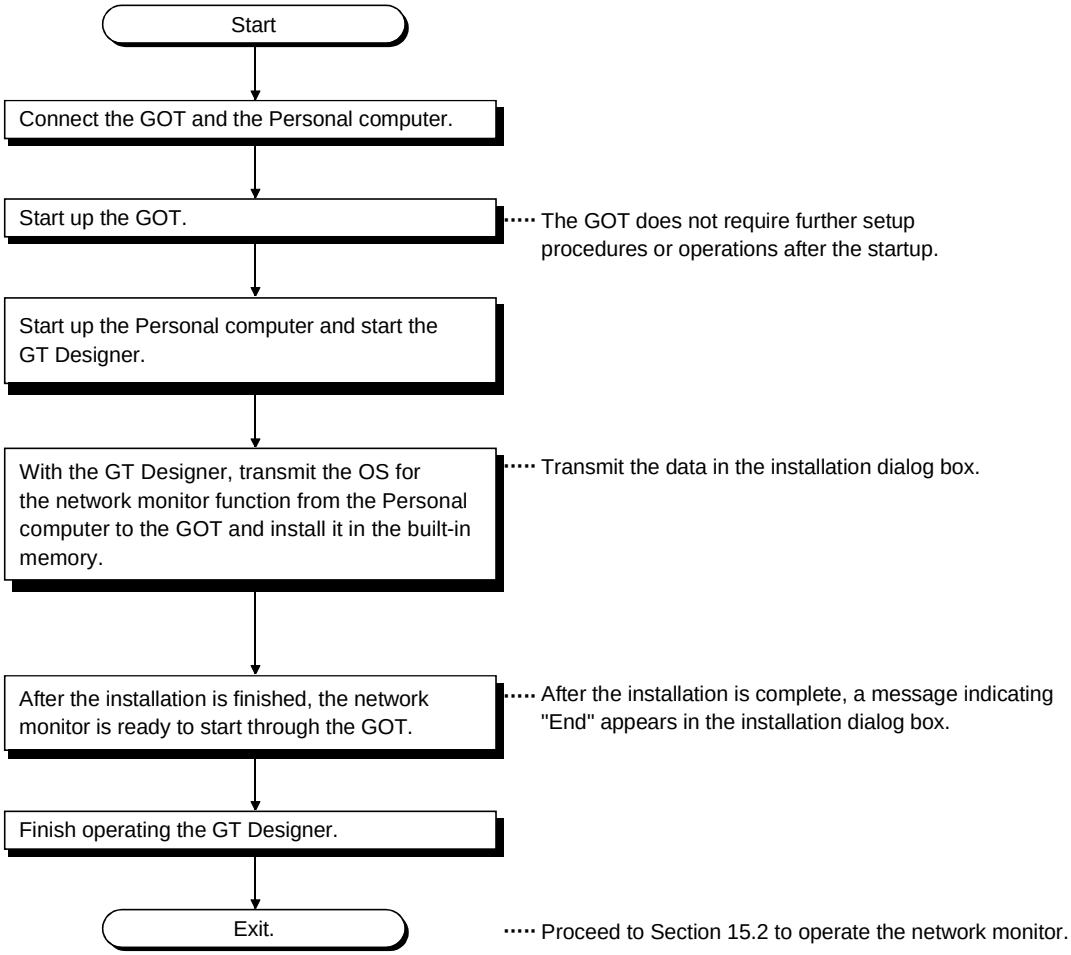
14 - 2

CHAPTER15 OPERATING THE NETWORK MONITOR FUNCTION

This chapter describes how to operate the network monitor function.

15.1 Steps in getting started with the network monitor function

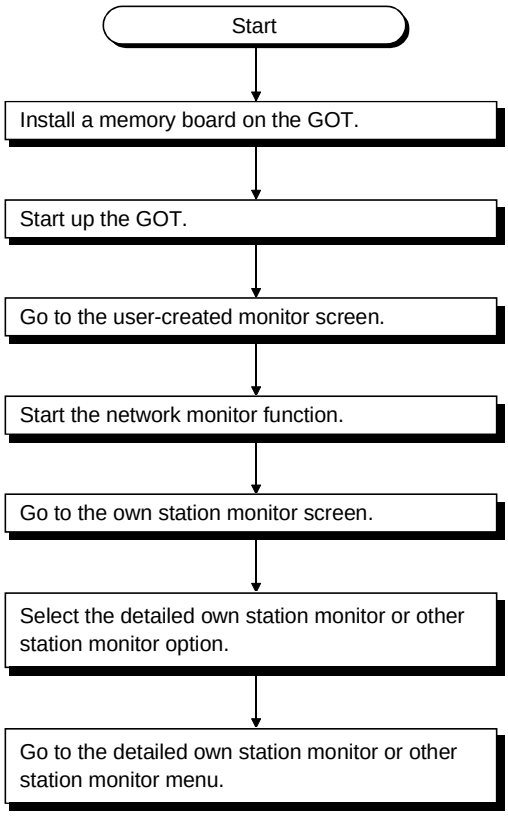
The following flowchart outlines how to transmit and install an operating system (OS) for the network monitor function in the GOT internal memory using the Personal computer.
For further information on screen displays and key operations, see the online help of the GT Designer.



15 - 1

15.2 Steps in starting the network monitor function from the user-created monitor screen

The following flowchart outlines how to start the network monitor function after the operating system (OS) for the network monitor has been installed in the GOT built-in internal memory.

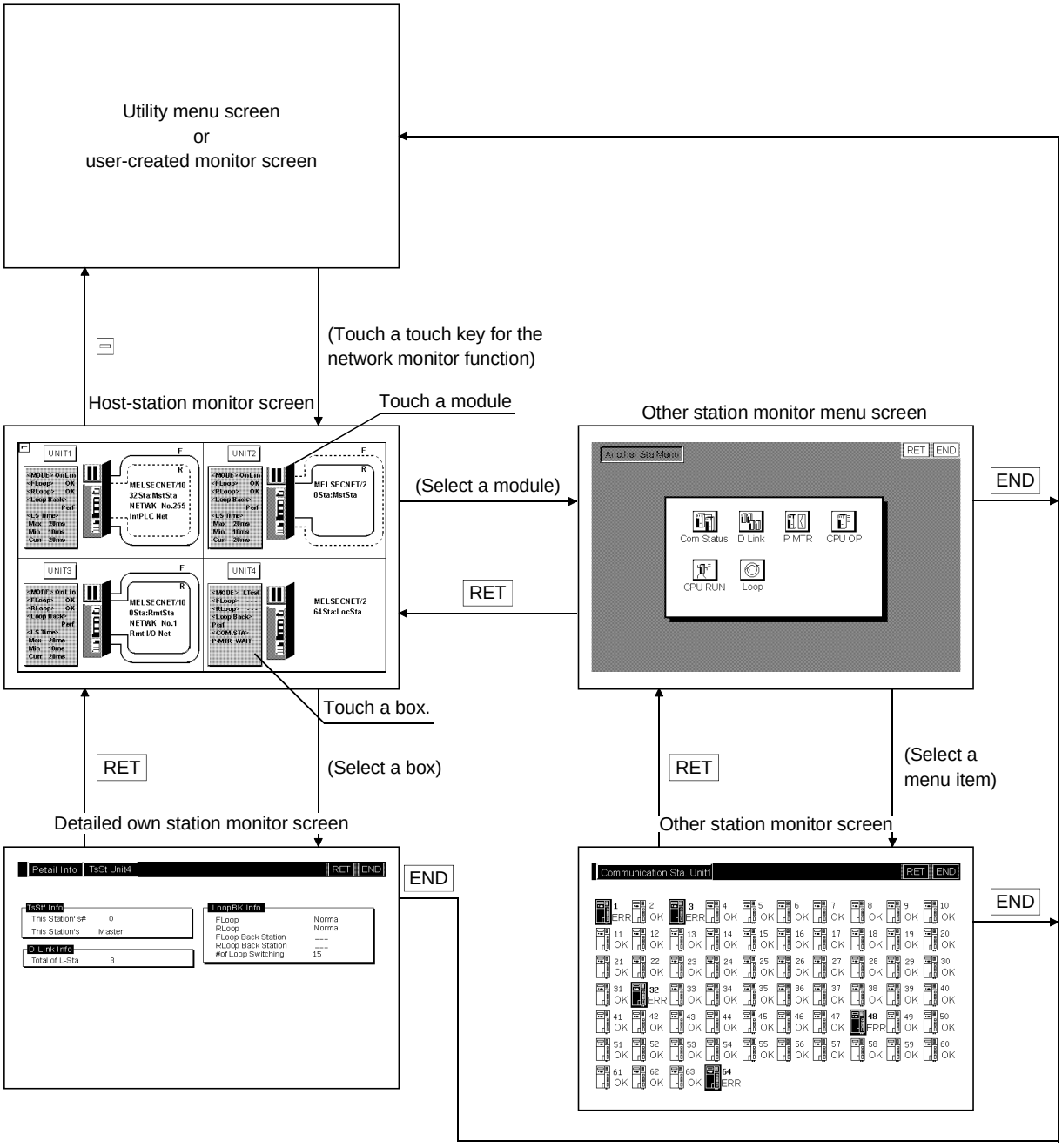


*1 Touch the key assigned to the network monitor function (set in the touch switch expanded function of the GT Designer). In the Utility Menu screen, touch NET.MON. to start the network monitor function.

15 - 2

CHAPTER16 SWITCHING THE NETWORK MONITOR SCREENS

The following flowchart outlines the steps involved in switching the network monitor screens.



MEMO

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CHAPTER17 USING THE NETWORK MONITOR SCREENS

This chapter describes how to use various monitor screens when you execute the network monitor function.

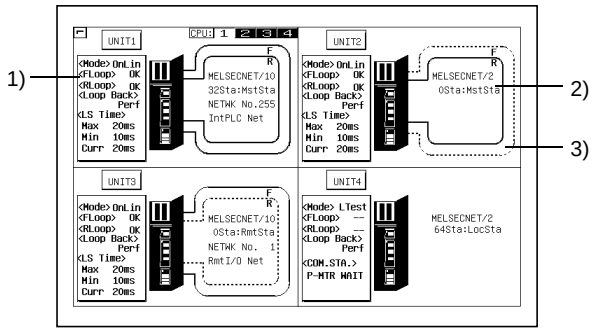
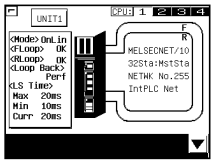
17.1 Own station monitor

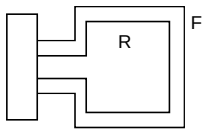
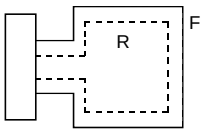
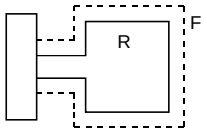
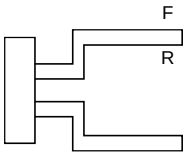
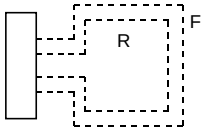
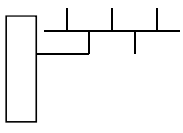
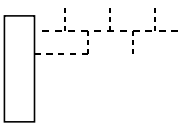
This section describes the structure of the monitor screen and the common operations used when executing the own station monitor.

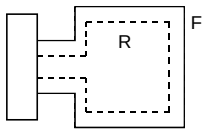
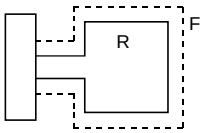
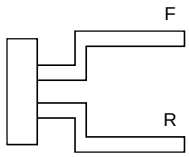
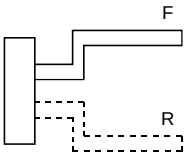
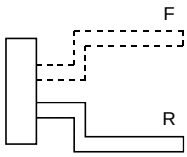
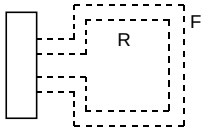
17.1.1 Display contents and keys functions: own station monitor

This section describes the own station monitor screen and the function of on-screen keys, all of which are displayed and used when executing the network monitor function.

(1) Display contents

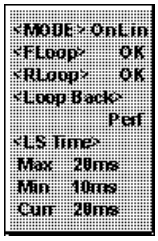
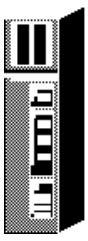
When the A985/97*/960GOT is used	When the A95*/956WGOT is used
	The display details are the same as the ones on the A985/97* /960GOT. Touch ▼ button to change the display. (Display example) 

No.	Contents of Display
1)	(1) This shows the action mode of the own station: On-line, Off-line, loop test. (2) This shows the status of the F-loop (primary loop): OK, NG. (3) This shows the status of the R-loop (secondary loop): OK, NG. (4) This shows whether the loopback was executed or not: Executed, Not executed. (5) This shows link scan time required for the control station and the ordinary station, for the remote master station and the remote I/O station, and for the mater station and all the sub-stations. (a) Maximum (the maximum value of link scan time) (b) Minimum (the minimum value of link scan time) (c) Current (the current value of link scan time)
2)	This shows the network category, network number, and station number.
3)	This shows the loop status of a network system as follows: (Primary loop: F, Secondary loop: R) (a) Primary loop : OK Secondary loop : OK  (b) Primary loop : OK Secondary loop : NG  (c) Primary loop : NG Secondary loop : OK  (d) Executing loopback  (e) Primary loop : NG Secondary loop : NG  (f) MELSECNET/10 coaxial bus (OK)  (g) MELSECNET/10 coaxial bus (NG) 

No.	Contents of Display
3)	The following loop status in the data link system is displayed. (Primary loop: F, Sub-loop: R) (a) Data is linked in the Primary loop.  (b) Data is linked in the sub-loop.  (c) Loop-back is performed in the Primary/sub loop direction.  (d) Loop-back is performed in the Primary loop direction only.  (e) Loop-back is performed in the sub-loop direction only.  (f) Data link is not available. 

(2) Key functions

This section describes the function of keys to be used on the own station monitor screen.

Key	Function
	Exits the own station monitor screen and returns to the previous monitor screen where the network monitor function was executed.
	Switches to the detailed monitor screen that corresponds to the module displayed on the current monitor screen. This key is effective for each screen.
	Switches to the other station monitor menu that corresponds to the network displayed on the current monitor screen. This key is effective for each screen.
	Changes the details on the window. (only for A95*GOT)
	Changes the monitoring destination CPU using the CPU No. (For multi-PLC system connection only) The CPU No. is displayed according to the number of CPUs loaded.

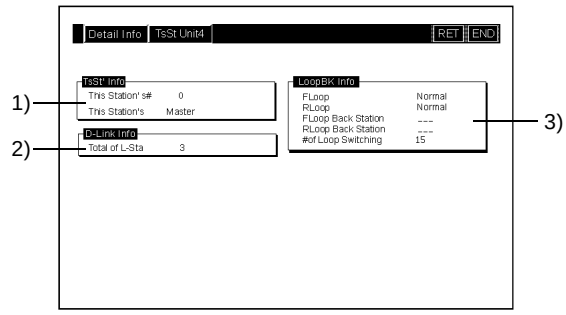
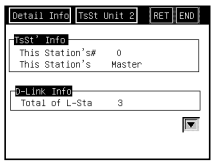
17.2 Detailed own station monitor

This section describes the structure of the monitor screen and the common operations used when executing the detailed own station monitor.

17.2.1 Display contents and keys functions: acting as a MELSECNET/B or MELSECNET (II) master station

This section describes the detailed own station monitor screen and the function of on-screen keys, all of which are displayed and used when the own station acts as the master station on the MELSECNET/B or MELSECNET (II).

(1) Display contents

When the A985/97*/960GOT is used	When the A95*/956WGOT is used
	The display details are the same as the ones on the A985/97* /960GOT. Touch button to change the display. (Display example) 

No.	Section	Contents of Display
1)	TsSt's Info	• This Station's # Indicates the station number of the own station. • This Station's: Indicates the category of the own station.
2)	D-Link Info	• Total of L-Sta: Indicates the maximum number of the stations to be linked. The maximum number is defined by common parameters.
3)	LoopBK Info	• FLoop: Shows the status of the primary loop lines of the own station. (Normal/NG) • RLoop: Shows the status of the secondary loop lines of the own station. (Normal/NG) • Floop Back Station: Indicates the station number of a station that executes the loopback along the primary loop. • Rloop Back Station: Indicates the station number of a station that executes the loopback along the secondary loop. • # of Loop Switching: Indicates the cumulative number of times for which loops have been switched.

(2) Key functions

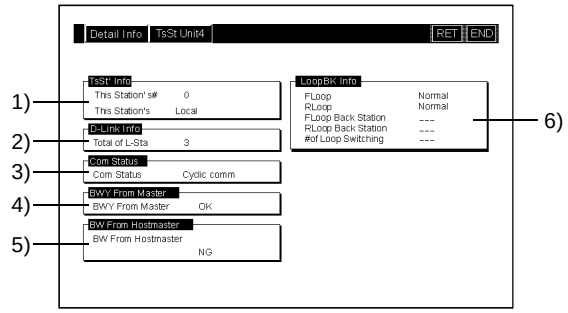
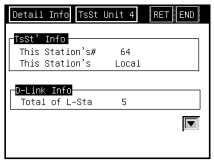
The table below shows the function of keys that are used on the detailed own station monitor screen.

Key	Function
RET	Returns to the own station monitor screen.
END	Exits the detailed own station monitor screen and returns to the previous monitor screen where the network monitor function was executed.
	Changes the details on the window. (only for A95*GOT)

17.2.2 Display contents and keys functions: acting as a MELSECNET/B or MELSECNET (II) local station

This section describes the detailed own station monitor screen and the function of on-screen keys, all of which are displayed and used when the own station acts as the local station on the MELSECNET/B or MELSECNET (II).

(1) Display contents

When the A985/97*/960GOT is used	When the A95*/956WGOT is used
	The display details are the same as the ones on the A985/97* /960GOT. Touch ▼ button to change the display. (Display example) 

No.	Section	Contents of Display
1)	TsSt' Info	• This Station's # Indicates the station number of the own station. • This Station's: Indicates the category of the own station.
2)	D-Link Info	• Total of L-Sta: Indicates the maximum number of the stations to be linked. The maximum number is defined by common parameters.
3)	Com Status	• Com Status: Displays the communications status of the own station. (Parameter wait, Cyclic comm, NG)
4)	BWY From Master	• This shows the status of receiving Device BWY from the master station. OK: Data is being received by cyclic receiving. NG: The own station cannot receive data because of column reading.
5)	BW From Hostmaster	• This shows the status of receiving Device BW from the master station of a dual-layer system. OK: Data is being received by cyclic receiving. NG: The own station cannot receive data due to column reading.
6)	LoopBK Info	• FLoop: Shows the status of the primary loop lines of the own station. (Normal/NG) • RLoop: Shows the status of the secondary loop lines of the own station. (Normal/NG)

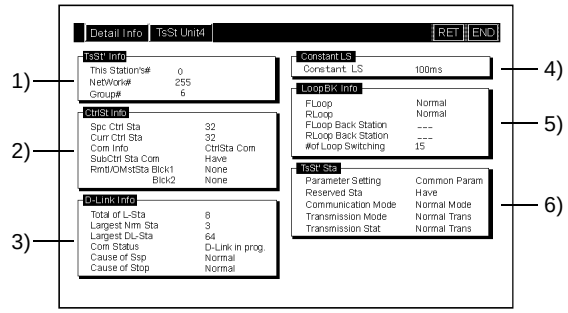
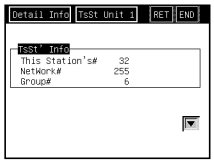
(2) Key functions
The table below shows the functions of keys that are used on the detailed own station monitor screen.

Key	Function
RET	Returns to the own station monitor screen.
END	Exits the detailed own station monitor screen and returns to the previous monitor screen where the network monitor function was executed.
▼	Changes the details on the window. (only for A95*GOT)

17.2.3 Display contents and keys functions: acting as a MELSECNET/10 Control station/ordinary Station

This section describes the contents of the detailed own station monitor screen and the function of on-screen keys. All these are displayed and used when the own station acts as the control station/ordinary station on the MELSECNET/10.

(1) Display contents

When the A985/97*/960GOT is used	When the A95*/956WGOT is used
	The display details are the same as the ones on the A985/97* /960GOT. Touch ▼ button to change the display. (Display example) 

No.	Section	Contents of Display
1)	TsSt' Info	• This Station's # : Indicates the station number of the own station. • Network # : Indicates the network number. • Group # : Indicates the group number.
2)	Ctrl St Info	• Spc Ctrl Sta: Indicates the station number of a station that is specified as a control station. • Curr Ctrl Sta: Indicates the station number of a station that is currently acting as the control station. • Com Info: Indicates whether the own station is communicating with the control station or the sub control station. • SubCtrl Sta Com: Indicates the availability of a sub control station. (Available/None) • Rmt I/O Mst Sta: *1 Indicates the station number of a remote I/O master station in Block 1 or Block 2. If the master station is not available, this indicates "None" instead.

*1 Not displayed when the CPU type of the GOT connection target is the AnNCPU or AnACPU.

No.	Section	Contents of Display
3)	D-Link Info	• Total of L-Sta: Indicates the maximum number of the stations to be linked. The maximum number is defined by common parameters. • Largest Nrm Sta: Indicates the station number of the largest station that is connected in a normal condition. • Largest DL-Sta: Indicates the station number of the largest station that is data-linked. • Com Status: Show the current communications status of the own station. (D– Link in prog, D– Link Stop (A), D– Link Stop (H), B– Pass excut, Disconnection, Testing, Reset. in prgr.) • Causes of Ssp: Indicates the causes why the communications were interrupted. This indicates "OK" if communications is in a normal condition. (Normal, Offline, Offline Test, Others (error codes)) • Causes of Stop: Indicates the causes why the data link was stopped. This indicate "OK" if the data link is in a normal condition. (No common para, Host Para error, Instructed by Other Station (n station), Essential Parameter Not Matched, Instructed by Host Station, Improper I/O Allocation, Instructed by All Stations (n stations), Others (error codes))
4)	Constant LS	• Constant LS: Indicates the predetermined time of constant link scans.
5)	LoopBK Info	• FLoop: Shows the status of the primary loop lines of the own station. (Normal/LoopBK Trans/D-Link Impo) • RLoop: Shows the status of the secondary loop lines of the own station. (Normal/LoopBK Trans/D-Link Impo) • FLoop Back Station: Indicates the station number of a station that executes the loopback along the primary loop. • RLoop Back Station: Indicates the station number of a station that executes the loopback along the secondary loop. • # of Loop Switching: Indicates the cumulative number of times for which loops have been switched. * "---" is displayed when coaxial bus connections are established.

No.	Section	Contents of Display
6)	TsSt' Sta	• Parameter Setting: Common Param, Common + Spec if, Default Param, Default + Specif • Reserved Sta: Indicates the availability of a reserved station. (Have/None) • Communication Mode: Indicates either of "Normal mode" or "Constant LS." • Transmission Mode: Indicates either of "Normal Trans" or "Multipl Trans." * • Transmission Stat: Indicates either of "Normal Trans" or Multipl Trans." *

* "---" is displayed when coaxial bus connections are established.

(2) Key functions

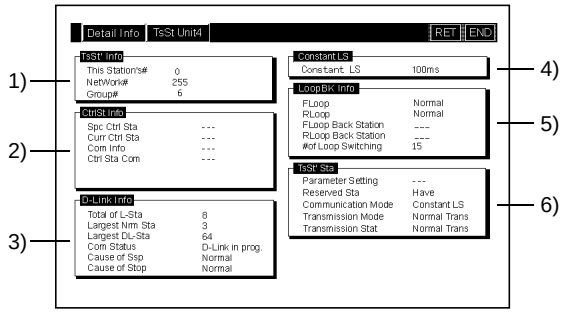
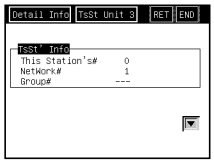
The table below shows the function of keys that are used on the detailed own station monitor screen.

Key	Function
RET	Returns to the own station monitor screen.
END	Exits the detailed own station monitor screen and returns to the previous monitor screen where the network monitor function was executed.
	Changes the details on the window. (only for A95*GOT)

17.2.4 Display contents and keys functions: acting as a MELSECNET/10 remote master station

This section describes the detailed own station monitor screen and the function of on-screen keys, all of which are displayed and used when the own station acts as the remote master station on the MELSECNET/10.

(1) Display contents

When the A985/97*/960GOT is used	When the A95*/956WGOT is used
	The display details are the same as the ones on the A985/97* /960GOT. Touch ▼ button to change the display. (Display example) 

No.	Section	Contents of Display
1)	TsSt' Info	•This Stations # : Indicates the station number of the own station. • Network # : Indicates the network number. • Group # : Not displayed.
2)	Ctrl St Info	• Spc Ctrl Sta: Not displayed • Curr Ctrl Sta: Not displayed • Com Info: Not displayed • SubCtrl-Sta Com: Not displayed

No.	Section	Contents of Display
3)	D-Link Info	• Total of L-Sta: Indicates the maximum number of the stations to be linked. The maximum number is defined by common parameters. • Largest Nrm Sta: Indicates the station number of the largest station that is connected in a normal condition. • Largest DL-Sta: Indicates the station number of the largest station that is data-linked. • Com Status: Show the current communications status of the own station. (D– Link in prog, D– Link Stop (A), D– Link Stop (H), B– Pass excut, Disconnection, Testing, Reset. in prgr.) • Causes of Ssp: Indicates the reason why the communications were interrupted. This indicates "OK" if communications is in a normal condition. (Normal, Offline, Offline Test, Others (error codes)) • Causes of Stop: Indicates the causes why the data link was stopped. This indicates "OK" if the data link is in a normal condition. (No common para, Host Para error, Instructed by Other Station (n station), Essential Parameter Not Matched, Instructed by Host Station, Improper I/O Allocation, Instructed by All Stations (n stations), Others (error codes))
4)	Constant LS	• Constant LS: Indicates the predetermined time of constant link scans.
5)	LoopBK Info	• FLoop: Shows the status of the primary loop lines of the own station. (Normal/LoopBK Trans/D-Link Impo) • RLoop: Shows the status of the secondary loop lines of the own station. (Normal/LoopBK Trans/D-Link Impo) • FLoop Back Station: Indicates the station number of a station that executes the loopback along the primary loop. • RLoop Back Station: Indicates the station number of a station that executes the loopback along the secondary loop. • # of Loop Switching: Indicates the cumulative number of times for which loops have been switched. * "---" is displayed when coaxial bus connections are established.

No.	Section	Contents of Display
6)	TsSt' Sta	• Parameter Setting: Not displayed. • Reserved Sta: Indicates the availability of a reserved station. (Have/None) • Communication Mode: Indicates either of "Normal mode" or "Constant LS." • Transmission Mode: Indicates either of " Normal Trans " or " Multipl trans." * • Transmission Stat: Indicates either of " Normal Trans " or Multipl trans." *

* "---" is displayed when coaxial bus connections are established.

(2) Key functions

The table below shows the function of keys that are used on the detailed own station monitor screen.

Key	Function
RET	Returns to the own station monitor screen.
END	Exits the detailed own station monitor screen and returns to the previous monitor screen where the network monitor function was executed.
	Changes the details on the window. (only for A95*GOT)

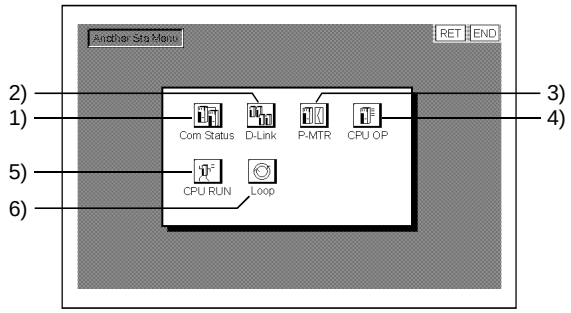
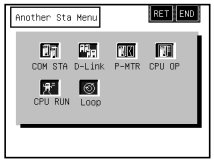
17.3 Other station monitor

This section describes the structure of the monitor screen and the common operations used when executing the other station monitor.

17.3.1 Display contents and keys functions: other station monitor menu

This section describes the other station monitor menu screen and the function of on-screen keys. The menu screen for the other station monitor is displayed by touching a module number displayed on the own station monitor screen. The menu screen provides many options for the other station monitor.

(1) Display contents

When the A985/97*/960GOT is used	When the A95*/956WGOT is used
	The display details are the same as the ones on the A985/97* /960GOT. (Display example) 

No.	Touch Key	Contents of Display
1)	Communications Status	Switches to a monitor screen that shows the communications status of other stations. *
2)	Data Link	Switches to a monitor screen that shows the data link status of other stations. *
3)	Parameters	Switches to a monitor screen that shows the parameter status of other stations. *
4)	CPU Action	Switches to a monitor screen that shows the CPU action status of other stations.
5)	CPU RUN	Switches to a monitor screen that shows the CPU RUN status of other stations.
6)	Loop	Switches to a monitor screen that shows the loop status of other stations.

* This is not selectable when connected to a MELSECNET/B or MELSECNET (II) local station.

(2) Key Functions

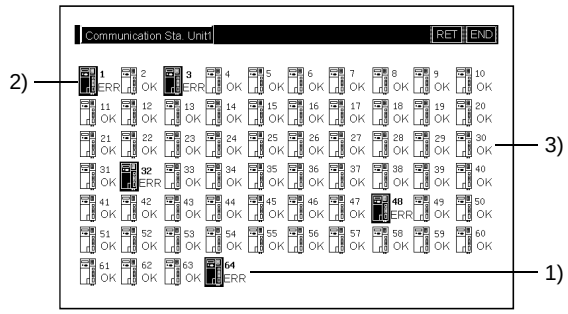
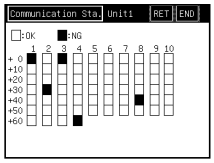
The table below shows the function of keys that are used on the other station monitor screen.

Key	Function
	Switches to the other station monitor screen.
RET	Returns to the own station monitor screen.
END	Exits the other station monitor screen and returns to the previous monitor screen where the network monitor function was executed.

17.3.2 Display contents and keys functions: other station communication status monitor

This section describes the other station communications status monitor screen and the function of on-screen keys.

(1) Display contents

When the A985/97*/960GOT is used	When the A95*/956WGOT is used
	The display details are the same as the ones on the A985/97* /960GOT. (Display example) 

No.	Contents of Display
1)	Station numbers are shown up to the maximum number of linked stations.
2)	Any station in an abnormal condition is highlighted on-screen.
3)	Any station specified as a reserved station is treated as a station that stays in a normal condition.

(2) Key Functions

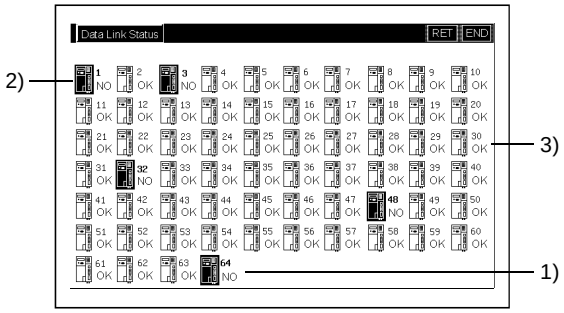
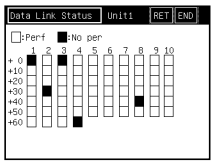
The table below shows the function of keys that are used on the other station communications status monitor screen.

Key	Function
RET	Returns to the own station monitor screen.
END	Exits the other station communications status monitor screen and returns to the previous monitor screen where the network monitor function was executed.

17.3.3 Display contents and keys functions: other station data link status monitor

This section describes the other station data link status monitor screen and the function of on-screen keys.

(1) Display contents

When the A985/97*/960GOT is used	When the A95*/956WGOT is used
	The display details are the same as the ones on the A985/97* /960GOT. (Display example) 

No.	Contents of Display
1)	Station numbers are shown up to the maximum number of linked stations.
2)	Any station that is not data-linked is highlighted on-screen.
3)	Any station specified as a reserved station is treated as a station that stays in a normal condition.

(2) Key Functions

The table below shows the function of keys that are used on the other station data link status monitor screen.

Key	Function
RET	Returns to the own station monitor screen.
END	Exits the other station data link status monitor screen and returns to the previous monitor screen where the network monitor function was executed.

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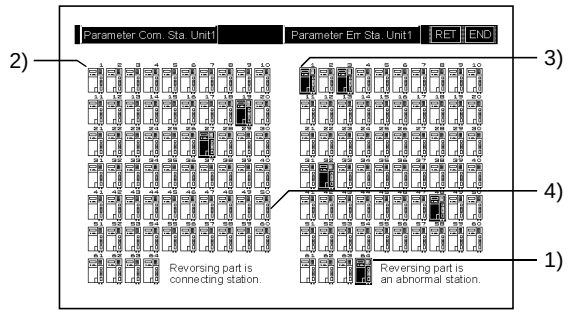
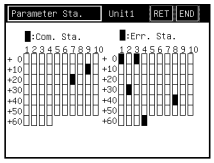
17.3.4 Display contents and keys functions: other station parameter status monitor

This section describes the other station parameter status monitor screen and the function of on-screen keys.

(1) Display contents

<table>
<tr><th>When the A985/97*/960GOT is used</th><th>When the A95*/956WGOT is used</th></tr>
<tr><td> 
</td><td>The display details are the same as the ones on the A985/97* /960GOT.
(Display example)
 
</td></tr>
</table>

No.	Contents of Display
1)	Station numbers are shown up to the maximum number of linked stations.
2)	Any station whose parameters are monitored is highlighted on-screen. *
3)	Any station that stays in an abnormal condition is highlighted on-screen.
4)	A station specified as a reserved station is treated as a station that stays in a normal condition.

* Not highlighted when connected to a MELSECNET/B or MELSECNET (II) master station.

(2) Key Functions

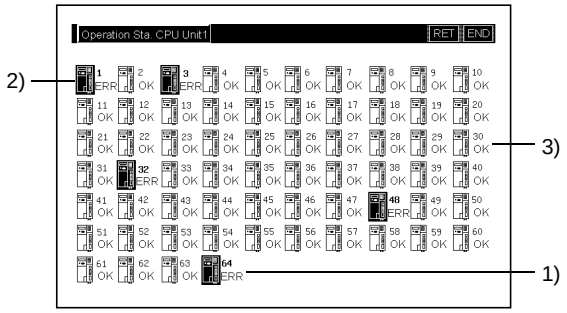
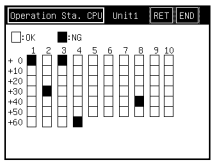
The table below shows the function of keys that are used on the other station parameter status monitor screen.

Key	Function
RET	Returns to the own station monitor screen.
END	Exits the other station parameter status monitor screen and returns to the previous monitor screen where the network monitor function was executed.

17.3.5 Display contents and keys functions: other station CPU action status monitor

This section describes the other station CPU action status monitor screen and the function of on-screen keys.
This option is not selectable when connecting to a remote I/O network system.

(1) Display contents

When the A985/97*/960GOT is used	When the A95*/956WGOT is used
	The display details are the same as the ones on the A985/97* /960GOT. (Display example) 

No.	Contents of Display
1)	Station numbers are shown up to the maximum number of linked stations.
2)	Any station that stays in an abnormal condition or out of action is highlighted on-screen.
3)	A station specified as a reserved station is treated as a station that stays in a normal condition.

(2) Key Functions

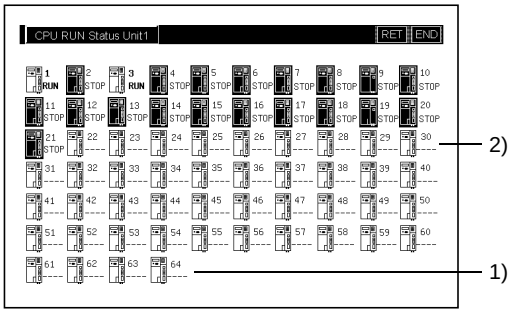
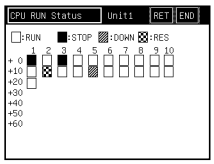
The table below shows the function of keys that are used on the other station CPU action status monitor screen.

Key	Function
RET	Returns to the own station monitor screen.
END	Exits the other station CPU action status monitor screen and returns to the previous monitor screen where the network monitor function was executed.

17.3.6 Display contents and keys functions: other station CPU RUN status monitor

This section describes the other station CPU RUN status monitor screen and the function of on-screen keys.
This option is not selectable when connecting to a remote I/O network system.

(1) Display contents

When the A985/97*/960GOT is used	When the A95*/956WGOT is used
	The display details are the same as the ones on the A985/97* /960GOT. (Display example) 

No.	Contents of Display
1)	Up to 64 station numbers are shown.
2)	"---" is displayed below station numbers of reserved stations or any stations that come after the maximum number of linked stations.

(2) Key Functions

The table below shows the function of keys that are used on the other station CPU RUN status monitor screen.

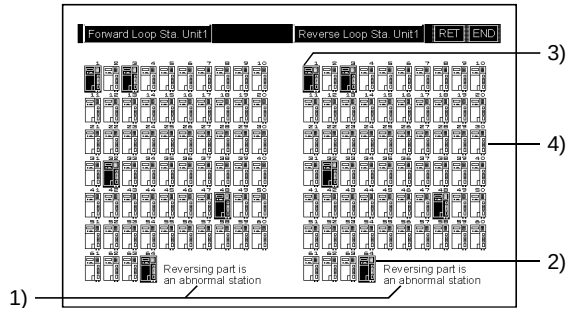
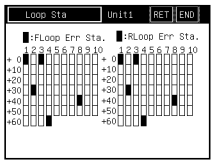
Key	Function
RET	Returns to the own station monitor screen.
END	Exits the other station CPU RUN status monitor screen and returns to the previous monitor screen where the network monitor function was executed.

17.3.7 Display contents and keys functions: other station loop status monitor

This section describes the other station loop status monitor screen and the function of on-screen keys.

* This option is not selectable when connecting to a MELSECNET/B or MELSECNET (II) local station or establishing MELSECNET/10 coaxial bus connections.

(1) Display contents

<table>
<tr><th>When the A985/97*/960GOT is used</th><th>When the A95*/956WGOT is used</th></tr>
<tr><td> 
</td><td>The display details are the same as the ones on the A985/97* /960GOT.
(Display example)
 
</td></tr>
</table>

No.	Contents of Display
1)	The F-loop (primary loop) status and the R-loop (secondary loop status are displayed.
2)	Station numbers are shown up to the maximum number of linked stations.
3)	Any station that stays in an abnormal condition is highlighted on-screen.
4)	A station specified as a reserved station is treated as a station that stays in a normal condition.

(2) Key Functions

The table below shows the function of keys that are used on the other station loop status monitor screen.

Key	Function
RET	Returns to the own station monitor screen.
END	Exits the other station loop status monitor screen and returns to the previous monitor screen where the network monitor function was executed.

CHAPTER18 ERROR DISPLAYS AND COUNTERMEASURES WHEN MONITORING NETWORKS

The following chart shows the error messages that are displayed during the network monitor operation and how to handle them.

Error message	Contents of error	Action to take
Can not Communication	Communication could not established with the PLC CPU.	• Check the connections between the PLC CPU and the GOT for disconnected connectors and cables. • Check if an error has occurred in the PLC CPU.
Key Word error	The PLC CPU to be connected is keyword-protected by the QnA.	• Release the keyword.

18 - 1

MEMO

18 - 2

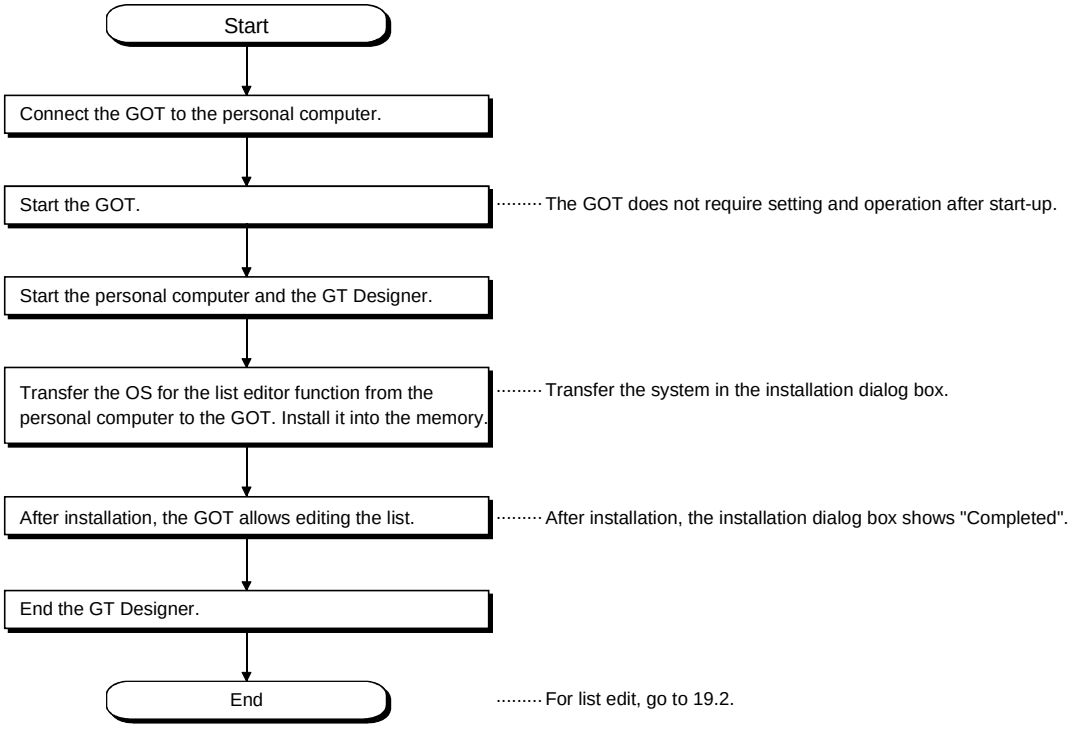
CHAPTER19 OPERATION PROCEDURES FOR THE LIST EDITOR FUNCTION

This section describes the operation procedures for use of list editor function.

19.1 Operation procedures before starting the list edit

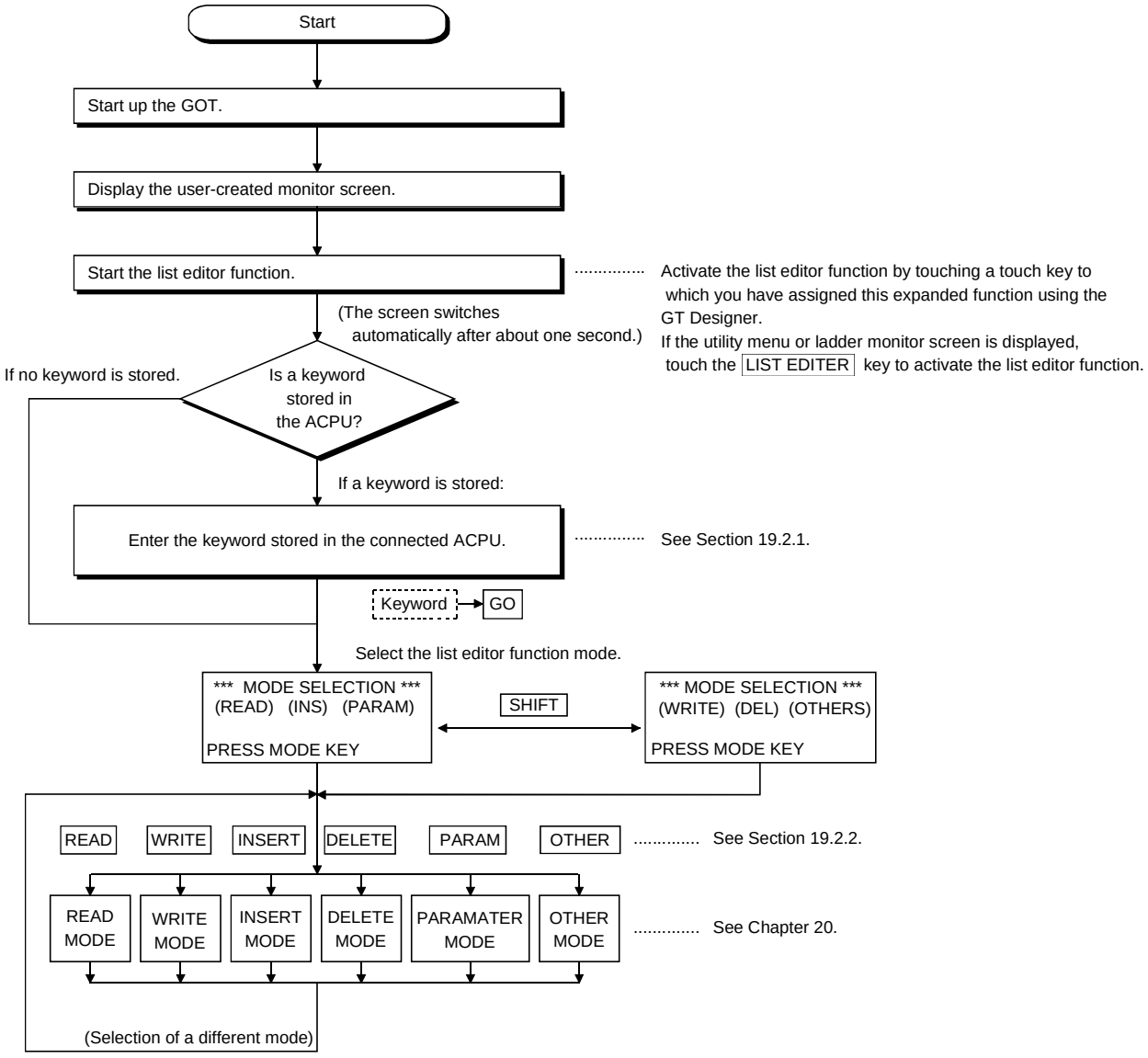
Procedures for transferring the operating system (OS) for the list editor function from the personal computer to the GOT and for installing the system into the memory.

For details, refer to the Help of the drawing software. Detailed information including displays and key operations is provided.



19.2 Operation procedures from user-created monitor screen display to starting list editing

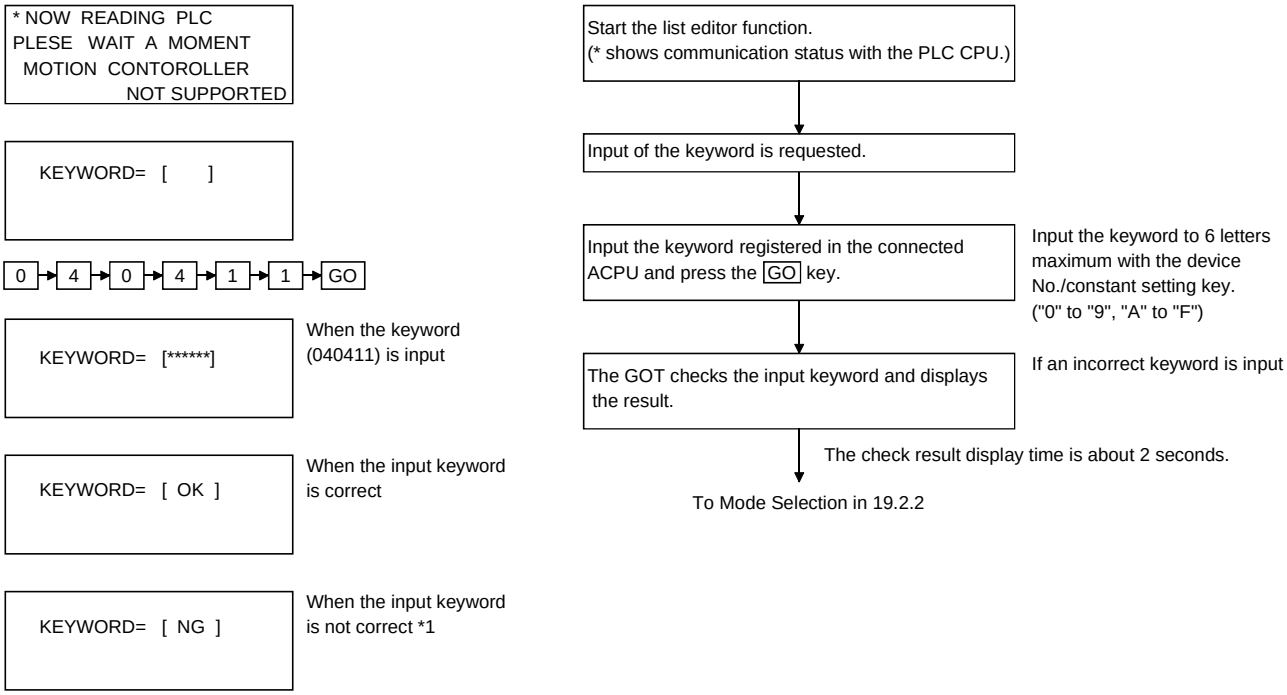
This section explains how you should operate the GOT to access the list editor function after having installed the list editor function operating system (OS) to the GOT internal memory.



19 - 2

19.2.1 Operation of keyword input

If a keyword is registered in the ACPU when the connected ACPU or the ACPU PLC No. corresponding to the operation is changed, the GOT requests for input of the registered keyword. Input the keyword registered in the ACPU and press the GO key.
If a keyword is not registered in the ACPU, this operation is not required.
(The operation automatically changes to Selection of Function and Mode in 19.2.2.)



*1 When the input keyword does not match with the registered keyword, only the following operations in Chapter 20 can be allowed.

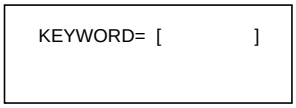
Other modes
- Error step reading
- Buffer memory overall monitor
- Time monitor
- PLC No. setting
- Main/sub switching

POINTS

- For operations not shown in other modes, clear (delete) the registered keyword with the "PLC memory all clear" in the following page if you do not remember the keyword registered in the ACPU. When "PLC memory all clear" is performed, the user data including sequence program is also cleared.
- The keyword registered in the ACPU can be changed or a new keyword can be registered as shown in Chapter 20.

When input of a keyword is requested, all parameters and sequence programs can be cleared together with the keyword registered in the ACPU using the operation below.

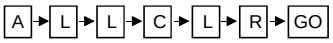
(Step 1) Display the keyword input request.



(Step 2) Stop operation of ACPU

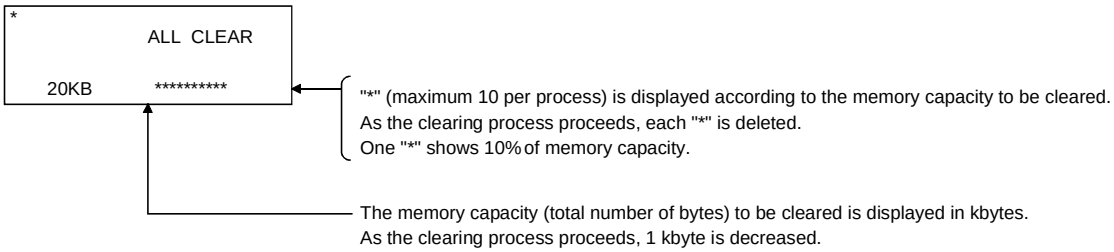
(Step 3) Operation of PC memory all clear

Input "ALLCLR" and press the GO key.



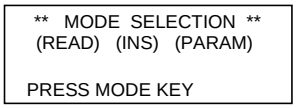
(Step 4) Display of PC memory all clear process

When the GOT starts clearing the process, the display in the left appears. "*" column and the total number of bytes change sequentially.



(Step 5) Completion of PC memory all clear process

When the GOT completes the clearing process, the screen in the left appears. (status before the mode selection)



(Step 6) Select the mode as in 19.2.2 and start the following operation.

19.2.2 Selection and operation of mode

After the keyword input, select the mode in the list editor function for operations in Chapter 20.

(1) Selection and change of mode with mode key

Select the mode with the mode key (Refer to 3.5.5.) so that operation corresponding to the mode in Chapter 20 may be performed.
The mode can be freely changed when operations in Chapter 20 are performed.
Various operations can be continued while changing modes. *1

READ	Read mode
WRITE	Write mode
INSERT	Insert mode
DELETE	Delete mode
PARAM	Parameter mode
OTHER	Other mode

*1 Mode key input is always valid.
Input of the mode key clears the input data except for the step numbers. The display returns to the initial status of the mode selection.

(2) Operation in each mode

The mode selected in (1) allows for operation corresponding to the mode in Chapter 20. Operation procedures of each mode are described in Chapter 20.
Operate the GOT according to the description.

If an error message appears during operation, take action according to Chapter 21.

CHAPTER20 OPERATION OF EDITING SCREEN FOR EACH LIST

This section describes the operation procedures of the list edit screen.

20.1 Basic operation of key input

After starting the list editor function, basic operations of key input are described.

20.1.1 Switching of valid key (function indicated at the upper/lower part of the key)

When the list edit has started, whether the upper or the lower key available for two purposes is valid is displayed on the second line at the left end of the display.

The GOT controls and displays the valid key. A user may switch the valid key with the following keys.

SHIFT *	:Upper character key is valid.
SET	:Lower character key is valid.

* The following keys can be input if the valid key is at the lower character.
  (Input of SHIFT key is not required.)
  - Comparison symbol key at the command input of comparison operation instruction.
    <, <, =
  - Minus key at the source data of command.
    −

The valid key after setting each mode switches as follows:

Read mode, Write mode, Insert mode	: Upper character key (When the cursor position is at the setting value and the device step is in the Write mode, the "lower character" key is valid.)
Parameter mode and other modes	: Always lower character key
Help of each mode	: Always lower character key (When "Command Read" is selected from the Help in the Read mode, the upper character key is valid.)

When SHIFT key is input and the valid key is switched, the switched side is valid until the mode key and the control key are input.
For details of each key, refer to 3.5.4.

20.1.2 Command input procedures

Command input procedures can be classified as follows:

1) Input the command key to use the command on the key.
2) Input the alphanumeric keys corresponding to each character of command sequentially.
3) Select and input the command to be used from the Help function.

Command input procedures for 1) and 2) above are as follows.
For command input procedure 3) from the Help function, refer to 20.2.5.

POINT
When the command is input, the input details are displayed at the 4th line (the bottom line) on the display. In the following description, the input of SP key may be omitted when a blank space between the input command and the cursor position is automatically inserted. Refer to the example in each description.

(1) For command code only

1) When the command available on the keyboard is input

Command → GO

(Ex) When END is input

```
W    1 1 2     0 U T          T 0
▲    1 1 2       K 1 2 3
     1 1 3 ▶   N 0 P
     1 1 4     N 0 P
```

END → GO

```
W    1 1 2       K 1 2 3
▲    1 1 3     E N D
     1 1 4 ▶   N 0 P
     1 1 5     N 0 P
```

2) When the command not available on the keyboard is input

(Ex) When FOR K5 is input

```
W      5 0     0 U T          Y 0 0 2 2
▲      5 1 ▶   N 0 P
       5 2     N 0 P
       5 3     N 0 P
```

SET → F → 0 → R → SP → K → 5 → GO

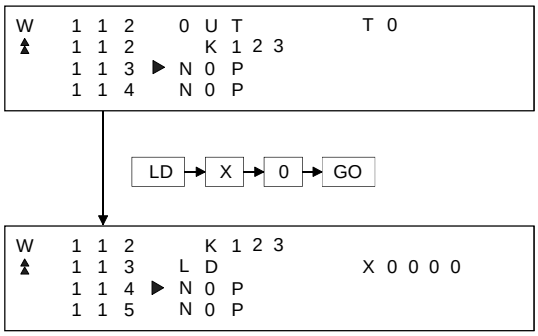
```
W      5 1     F 0 R
▲      5 1       K 5
       5 4 ▶   N 0 P
       5 5     N 0 P
```


20 - 2

(2) For command code and device (1)

Command → SP → DEVICE → DEVICE No. → GO

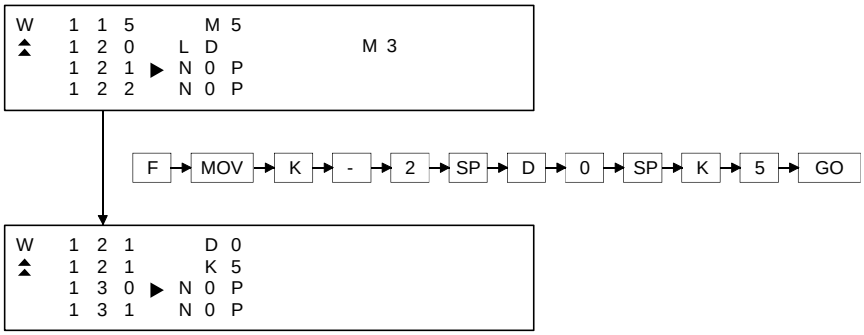
(Ex) When LD X0 is input



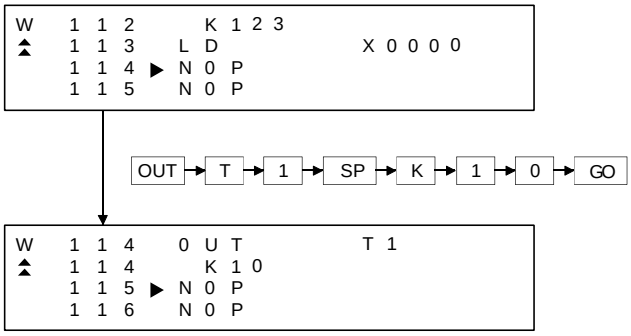
(3) For commands other than above

Input the SP key between the command and the device, the source data, and the destination data.

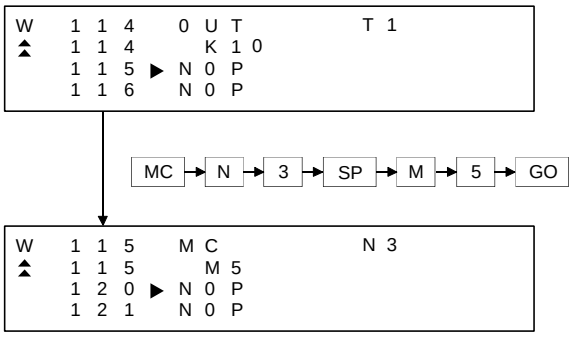
(Ex 1) When FMOV K-2 DO K5 is input



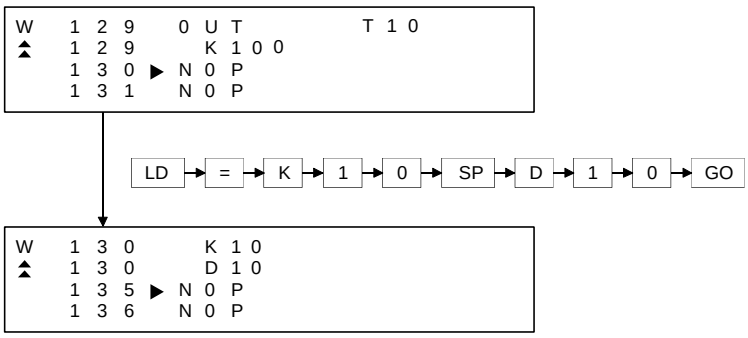
(Ex 2) When OUT T1 K10 is input



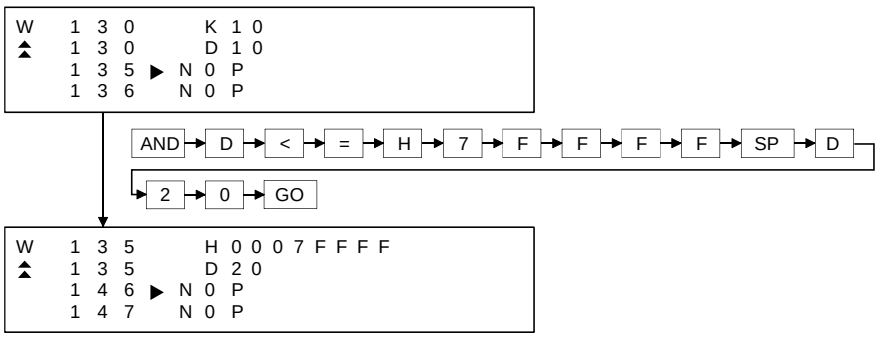
(Ex 3) When MC N3 M5 is input



(Ex 4) When LD = K10 D10 is input



(Ex 5) When ANDD<=H7FFFF D20 is input



(4) Handling of devices M, L and S

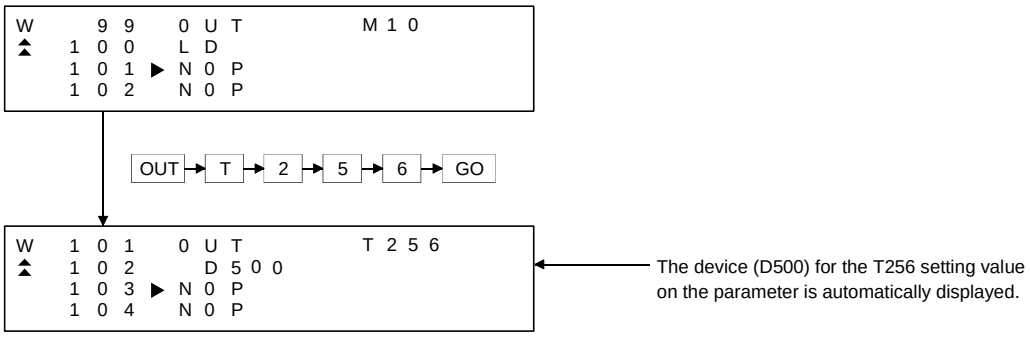
Devices M, L and S in the Test, Monitor, Write and Insert modes change the display depending on the set parameters.

If LD L0 is input for the parameter setting of M0 to 999 and L1000 to L2047, the result is LD M0.

(5) For extension timer/extension counter of AnA and AnUCPU

When the extension timer (T256 to T2047) and the extension counter (C256 to C1023) are input as the first device of the command, input the first device and the device number.

(Ex) When OUT T256 D500 is input



POINT

When the extension timer and the extension counter are used, be sure to set the 257 points or more and the setting value device (D, W, R) on the parameter for both the timer and the counter.

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20.1.3 Action if an incorrect key is input

(1) Input the CLEAR key before the GO key. Then input the correct key.
Input of the CLEAR key clears the command and the device number that have been input immediately. The display returns to the status (status before change in the Write mode) when the mode is selected.

(2) When the GO key is input, repeat the intended operation.
Command input procedures can be classified as follows:

REMARK

When the CLEAR key is input in the parameter mode, the GOT stops the process. To continue the operation, carry on the key input.

20 - 6

20.2 Basic operation of list edit

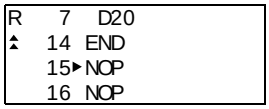
This section describes basic operations of list edit with simple operation examples.

20.2.1 Reading sequence program

The sequence program is read to check its content.

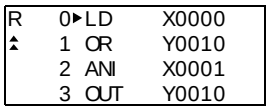
[Operation example]

1) READ



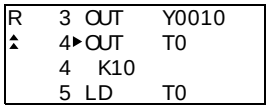
Select the "Read" mode.

2) SET → 0 → GO



Read the 0th step.

3) GO



⇩

Scroll the screen with the GO key.

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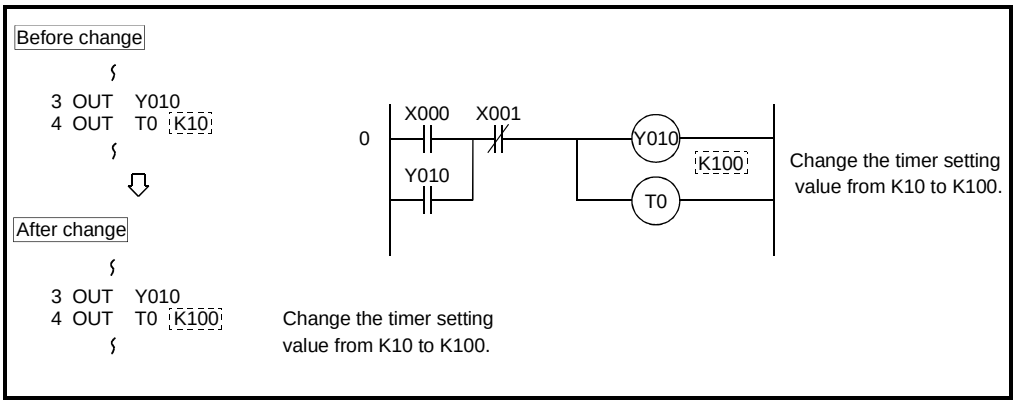
20.2.2 Changing (overwriting) command

The following example shows the changing procedure of the sequence program.



[Operation example]

1) SHIFT → WRITE

```
W   7   K80
    7   K5
    7   D20
   14   END
```

Select the "Write" mode.

2) SET → 4 → GO

```
W   3   OUT   Y0010
    4   OUT   T0
    4   K10
    5   LD    T0
```

Read the 4th step that changes the setting value.

3) ↓ → GO

```
W   3   OUT   Y0010
    4   OUT   T0
    4   K10
K10
```

Move the cursor to setting value "K10" of T0.

4) K → 1 → 0 → 0 → GO

```
W   4   OUT   T0
    4   K100
    5   LD    T0
    6   ANI   M0
```

⇩

The setting value of timer T0 was changed from "K10" to "K100".

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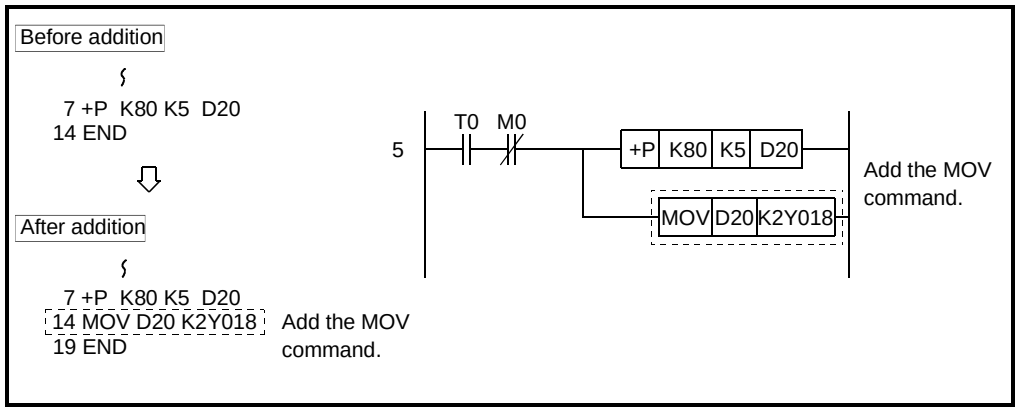
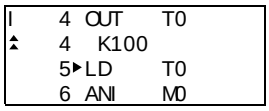
20.2.3 Adding (inserting) command

The following example shows the procedure of adding the command to the sequence program.



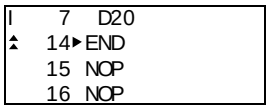
[Operation example]

1) INSERT



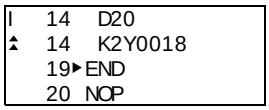
Select the "Insert" mode.

2) SET → 1 → 4 → GO



Read the 14th step to insert the command.

3) MOV → D → 2 → 0 → SP → K → 2 → Y → 1 → 8 → GO



The command of "MOV D20 K2Y0018" was added to Step 14.

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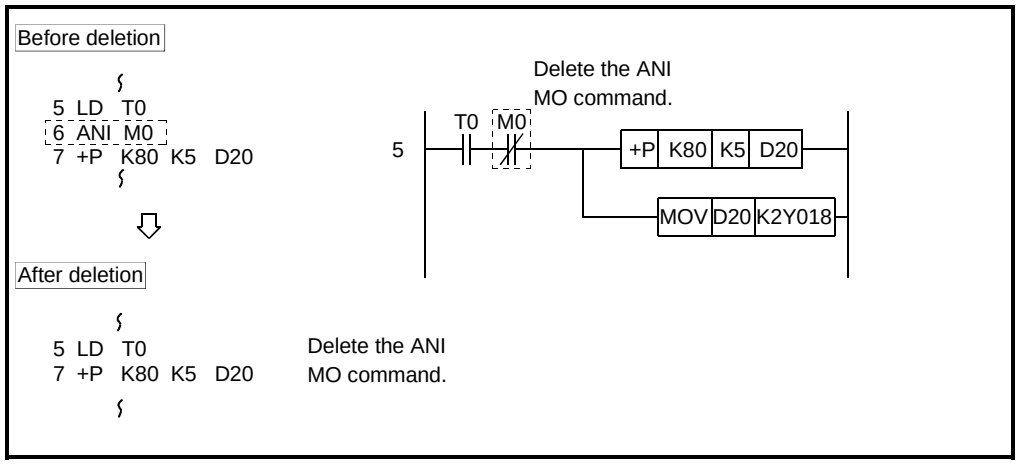
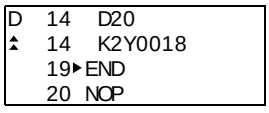
20.2.4 Deleting command

The following example shows the procedure of deleting the command from the sequence program.



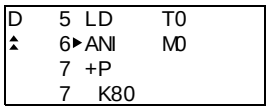
[Operation example]

1) SHIFT → DELETE



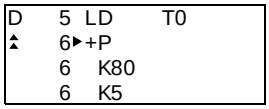
Select the "Delete" mode.

2) SET → 6 → GO



Read the 6th step

3) GO



The GO key deletes the command at the cursor position.
The step number is brought forward.

The "ANI MO" command was deleted.

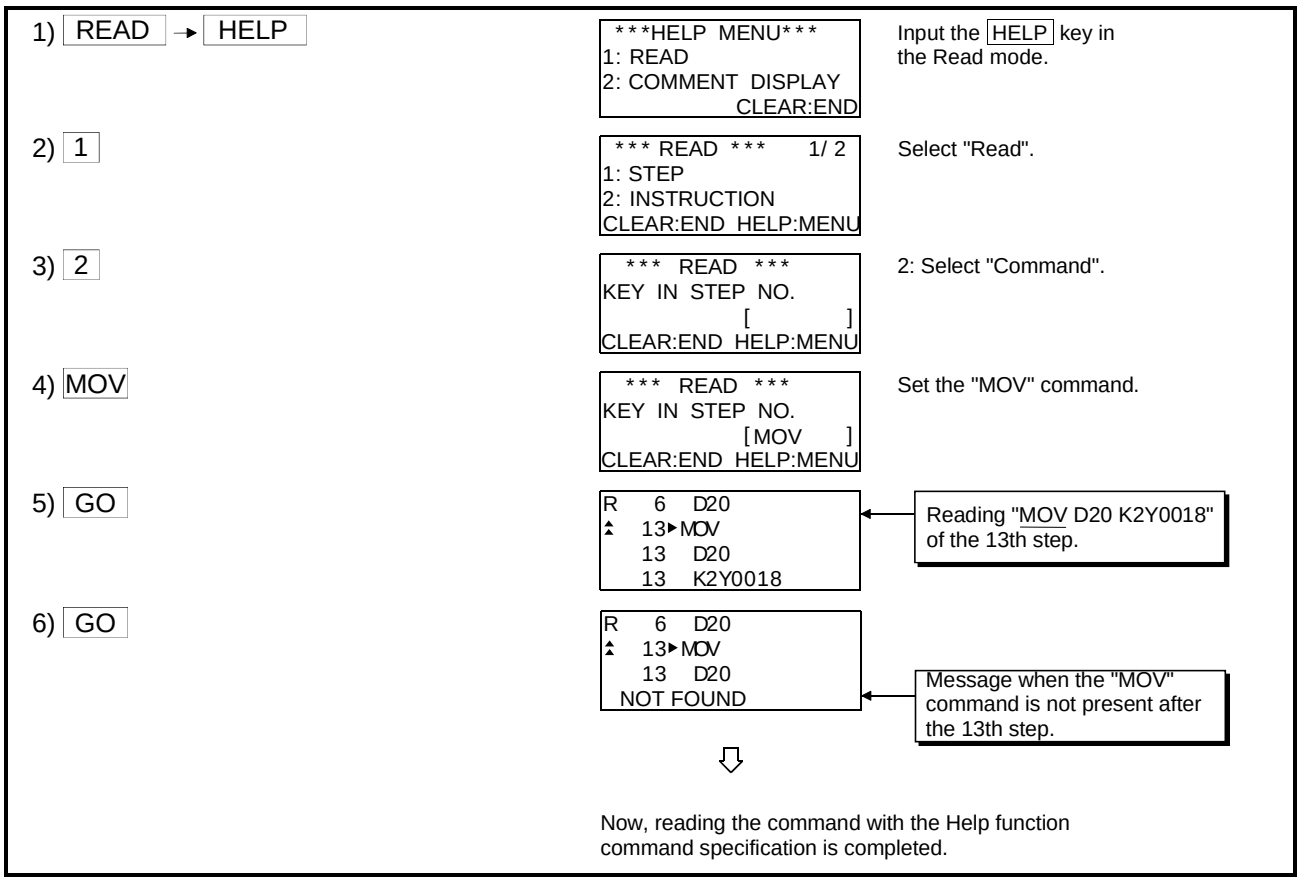
20 - 10

20.2.5 Using Help function

HELP is input to use the Help function.
Input of HELP displays the Help function menus in each mode. Select the corresponding item for execution.

(1) Reading the command in the sequence program
Example of reading the area using the "MOV" command in the sequence program.

[Operation example]

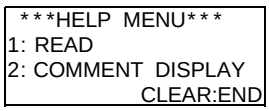


(2) Displaying Kana comment

The following example shows the procedure of displaying the Kana comment in the Read mode.

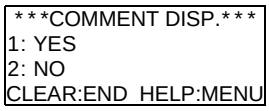
[Operation example]

1) HELP



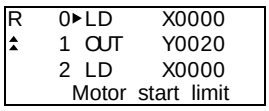
Input the HELP key in the Read mode.

2) 2



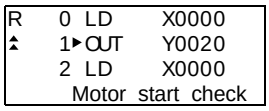
2: Select the Kana comment display.

3) 1



Select "1: Kana comment display". Display the Kana comment of the device at the cursor position.

4) ↓



20.3 Operation procedure list of list edit

20.3.1 Common operation

Details		Purpose	Procedures (key input sequence)
Basic operation	Input of keyword at start-up	Input when the keyword is registered in the ACPU.	Keyword → GO
	Mode selection	Select the mode.	Mode key (READ, INSERT, PARAM) SHIFT → Mode key (WRITE, DELETE, OTHERS)
	Switching of valid key	Switch the valid key (function indicated at the upper/lower part of the key) by a user.	SHIFT or SET
	Action for incorrect input	Perform the operation for incorrect key input.	CLEAR, Mode key or SHIFT → Mode key
	Operation of command help function	Perform operation with the Help function command specification.	Perform program display operation in the Write/Insert mode. → HELP → 1 → 1 → 1 → Input the capital letter of the command. → GO → 1 / 1 → Input the capital letter of the command. → Input the corresponding command number. → GO
	Display of Comment	Display the comment stored in the ACPU.	Perform program display operation in the Write/Read/Insert/Delete mode. → HELP → 2 → 1 / 2
Command input operation	Command code only	Input the command code only.	Command → GO
	Command code and 1 device	Input the command code and 1 device.	Command → SP → Device → Device No. → GO
	Other than above command key input)	Input the command other than above with the command key.	Input the SP between the device, the source data and the destination.
	Other than above (device key input)	Input the command other than above without the command key.	Input the SP between the command, the device, the source data and the destination.

20.3.2 Operation in Write mode (W)

Details	Purpose	Procedures (key input sequence)
Continuous write in NOP	Set the specified range in the program to NOP.	Program display in the Write mode → HELP → 1 → 2 → 1 → Start step specification → GO → Final step specification → GO → 2 → Start step specification → GO
Write/modify (change) of program	Write the new program/modify (change)	SHIFT → WRITE → SET → Step number → GO → Command → GO ↑ / ↓

20.3.3 Operation in Read mode (R)

Details	Purpose	Procedures (key input sequence)
Command reading with the specified step number	Read the command of the specified step number in the program.	READ → SET → Step number → GO → GO
Read the command with the specified command.	Read the specified command in the program.	READ → Command → Device → Device number → GO → GO
Read the command with the specified device.	Read the command with the specified device used in the program.	READ → SET → Device → Device number → GO → GO
Automatic scroll	Display the program with automatic scroll.	Read operation above → SET → ↑ / ↓ SET → Step number → ↑ / ↓ SET → SP → ↑ / ↓

20.3.4 Operation in Insert mode (I)

Details	Purpose	Procedures (key input sequence)
Insert a command in the program.	Insert a command in the program.	INSERT → SET → Step number → GO → Command → GO ↑ / ↓
Move the program.	Move the whole program.	Display the program in the Insert mode. → HELP → 1 → 2 → Specify the movement start step. → GO → Specify the movement end step. → GO → Specify the movement destination step. → GO
Copy the program.	Copy the program.	Display the program in the Insert mode. → HELP → 1 → 3 → Specify the copy start step. → GO → Specify the copy end step. → GO → Specify the copy destination step. → GO

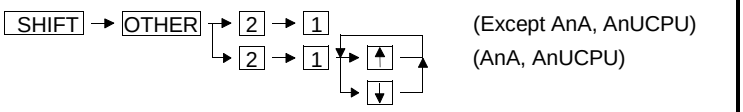
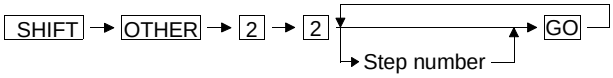
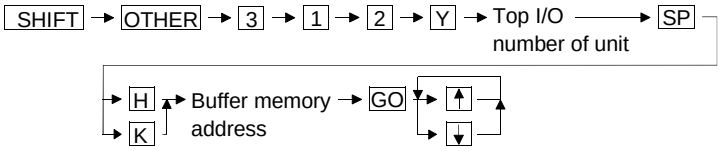
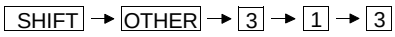
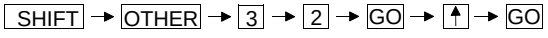
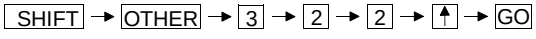
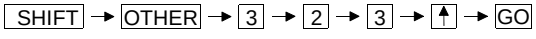
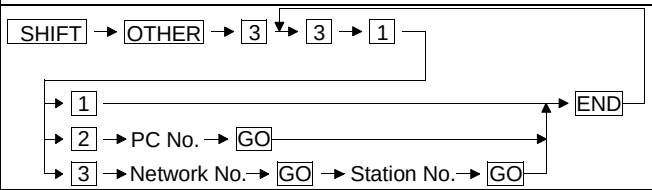
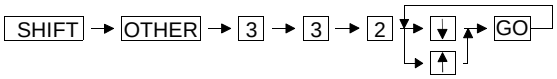
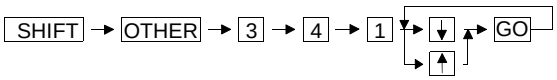
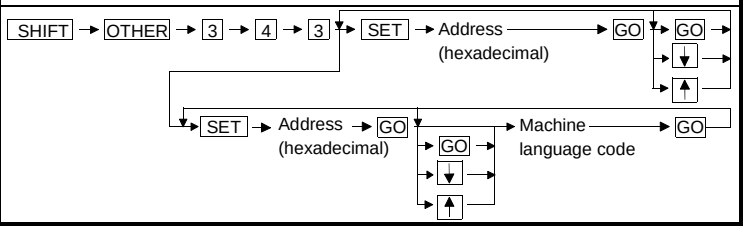
20.3.5 Operation in Delete (D) mode

Details	Purpose	Procedures (key input sequence)
Delete a command from the program.	Delete a command from the program.	SHIFT → DELETE → SET → Step number → GO → GO ↑ / ↓
Delete the specified range of the program.	Specify the range of the program for deletion.	Display the program in the Delete mode. → HELP → 1 → 1 → Specify the deletion start step. → GO → Specify the deletion end step. → GO
Delete the whole NOP.	Delete the whole NOP in the program.	Display the program in the Delete mode. → HELP → 1 → 2

20.3.6 Operation in Parameter mode (P)

Details	Purpose	Procedures (key input sequence)
Clearing all parameters	Return the parameters to the initial setting status.	PARAM → 1 → ↑ → GO → END → ↑ → GO
Parameter setting (for A0J2HCPU)	Set the parameters for the A0J2HCPU.	PARAM → 2 → 1)
Setting of latch range	Select the latch range from "No latch", "1/2 latch" and "All latch".	1) → 1 → ↑/↓ → GO → 2)
Setting of step relay	Set the availability (S1536 to 2047) of the step relay.	1) → 2 → ↑/↓ → GO → 2)
Completion of setting (write)	When the parameter setting is complete, write the PLC CPU.	2) → CLEAR → END → ↑ → GO (End of writing is displayed.) Setting for multiple items is also available.
Parameter setting (other than A0J2HCPU)	Set the parameters other than A0J2HCPU.	PARAM → 2 → 1)
Setting of memory capacity	Set the main sequence program capacity and the file register capacity.	1) → 1 → Capacity → GO → END → 2) (For main, input unit: 1K step) 1) → 1 → ↓ → Capacity → GO → END → 2) (For sub, input unit: 1K step) 1) → 1 → ↓ → points → GO → END → 2) (For file register, input unit: 1K point)
M, L, S setting (other than AnA, AnUCPU)	Set the top device number used in the latch relay/step relay.	1) → 2 → Top number of L → GO → Top number of S → GO → 2)
M, L, S setting (AnA, AnUCPU only)	Set the top device number used in the latch relay/step relay/internal relay.	1) → 2 → Top number of L → GO → Top number of S → GO → Top number of M → GO → 2)
Timer setting (other than AnACPU)	Set the top device used in the low speed/high speed/retentive timers.	1) → 3 → Top number of timer → GO → 2)
Timer setting (AnACPU)	Set the number of timers used, the top device number that stores the setting value after T256, and the top device used in the low speed/high speed/retentive timers.	1) → 3 → No. of timers → GO → Top device for storage of setting values → GO → Top number of timer → GO → 2)
Counter setting (AnACPU only)	Set the number of counters used, and the top device number that stores the setting value after C255.	1) → 4 → No. of counters → GO → Top device for storage of setting values → GO → 2)
Setting of latch range	Set the range of the device for latch setting.	1) → 5 → ↑/↓ → Top number of latch → GO → ↑/↓ → GO → 2) End number of latch → GO → END
WDT setting	Set the value of the watchdog timer in the unit of 10 ms.	1) → 6 → WDT value → GO → 2) (input unit: 10 ms)
Setting of I/O control system (only for A3HCPU and A3MCPU)	Set the I/O control system.	1) → 7 → ↑/↓ → GO → 2)
Completion of setting (write)	When parameter setting is complete, write the PLC CPU.	2) → CLEAR → END → ↑ → GO (End of writing is displayed.) Setting for multiple items is also available.

20.3.7 Operation in Other modes (O)

Details	Purpose	Procedures (key input sequence)
Error check	Operation that checks the error step number/error code for the current error in the ACPU. (other than AnA and AnUCPU)	
Program check	Check the program (double coil, command code, END command).	
Buffer memory batch monitoring	Monitor the buffer memory details of the special function unit.	
Clock monitor	Monitor the clock data of the ACPU.	
Clearing of all PC memories	Clear all memories in the ACPU.	
Clearing of all programs	Clear all sequence program, microcomputer program and T/C setting value areas.	
Clearing of all device memories	Clear all details of the bit device and the word device in the ACPU.	
PLC No. setting	Set the PLC No. of other stations for access on the MELSECNET II (/B) or MELSECNET/10.	
Main/sub-program switching	Select the main/sub-program displayed on the list edit screen.	
Remote run/stop	Operate the run/stop status of the ACPU from the GOT.	
Read/write of machine language	Specify the memory address (absolute address) of the ACPU. Read the memory details and write the machine language to the memory.	

CHAPTER21 ERROR DISPLAY AND CORRECTIVE ACTIONS FOR LIST EDIT

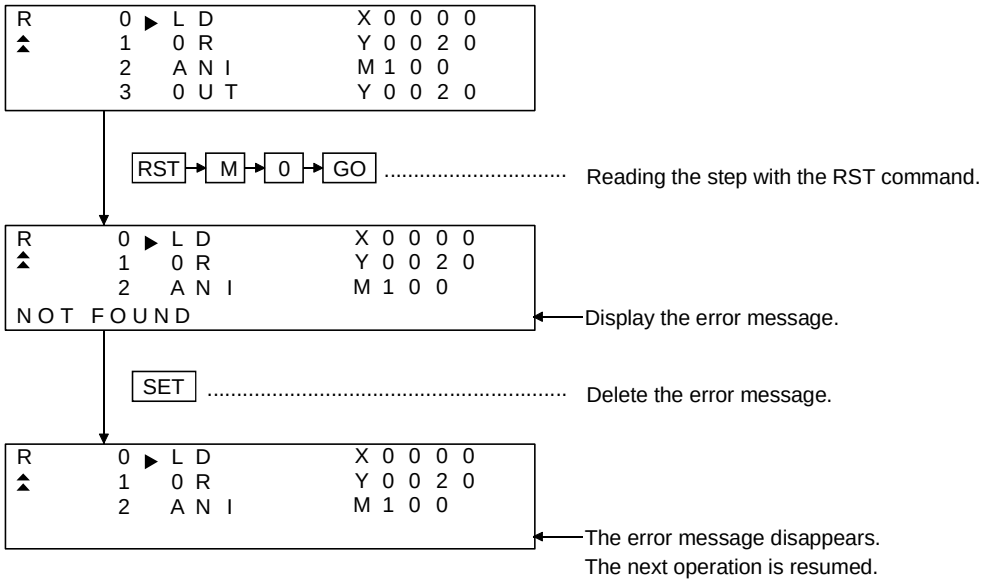
21.1 Error detected with the list editor function

If an error is detected with the list editor function during operation of each mode, an error message appears at the 4th line of the display.

Error messages, display conditions and corrective actions are displayed below. If an error message appears, take the following actions to resume operation.

1) Check the error message.
2) Remove the cause of the error.
3) Input the corresponding key.
   (The error message disappears. The screen returns to the status before error.)

(Example)



21 - 1

Error message	Display condition	Action
Address error	• In machine language writing, the address which was tried to be written was at the write-protect area.	• Set the correct address.
No corresponding program	• The specified command was not found.	• Check the program.
Memory cassette check	• In communication with the CPU for clearing the keyword or writing the parameter, the memory cassette is insufficient or not mounted.	• Mount the memory cassette properly. • Replace the memory cassette with a new one.
Step over error	• The set step number is larger than the maximum step number.	• Set the correct step number.
Setting error	• Setting value is not correct.	• Set the correct value.
Not selectable	• The function which cannot be executed was selected.	• Select other function.
Operation error	• The set device symbol is incorrect.	• Perform the correct key operation.
Device error	• The specified command was not found. • The device number exceeds the range.	• Set the correct device symbol. • Set the number within the range of CPU device.
Identical coil	• The identical coil is found in the sequence program.	• Proceed to the next operation if it does not affect the control. • Correct the program if it affects the control.
Command error	• When the program is read, it cannot be converted to the proper command.	• When the CPU has detected the error, stop running of the operation. After resetting the CPU, check the command around the error. Write the correct command. (For check of the error step, refer to 20.3.7.)
Command setting error	• The command set at the time of read, write or insert is not correct.	• Set the correct command.
Memory protect	• When writing in the Write or the Insert/Delete mode, the memory protect switch in the memory cassette is ON.	• Turn OFF the memory protect switch in the memory cassette.
Capacity over	• Memory assignment set in the parameter exceeded the capacity of the memory cassette.	• Set the parameter within the capacity of the memory cassette.
No END command	• There is no END command.	• Write the END command at the last step of the program.
PLC communication error	• When the list editor function is started, proper communication with the PLC is not made.	• Restart the list editor function. If communication is not made properly, check the following: GOT main unit Connection of the cable CPU main unit (if any error has occurred)
PC write error	• Correct writing was not made in the Write or Insert mode.	• Check the setting of RAM/ROM. • Check the RAM mounting. • Check the setting of the memory protect switch in the CPU.
PLC is running	• Writing, insertion or deletion was attempted during running of the CPU.	• Stop the CPU.
PC No. error	• The PLC number is set to other station.	• Change the PLC number and set the station for access to the host.

21 - 2

Error message	Display condition	Action
**KS over	• The value exceeding the range of the program capacity by **K steps was attempted to be set.	• Reduce the program capacity by **K steps for setting.
**KP over	• The value exceeding the range of the file register capacity by **K points was attempted to be set.	• The value exceeding the range of the file register capacity by **K points was attempted to be set.
Not available for QnACPU. Set the PLC No.	• The CPU at the list edit destination is QnACPU.	• Set the PLC number and change the station for access.
The keyword is not input. Set the PLC No.	• The GO key was pressed without input of the keyword on the keyword input screen.	• Set the PLC number and change the station for list edit. Or select the same station and input the keyword.
The PLC parameter was changed. Restart the GOT system.	• The PLC parameter exceeding the file (R) register capacity was set.	• Restart the GOT system if required.
The PLC parameter was changed. Read the ladder monitor again.	• The capacity of the file (R) register was set.	• Read the ladder monitor on the PLC again if required.
The PLC program was edited. Read the ladder monitor again.	• Edit the PLC program.	• Set the PLC number and change the station for access.

21 - 3

21.2 Error of PLC CPU

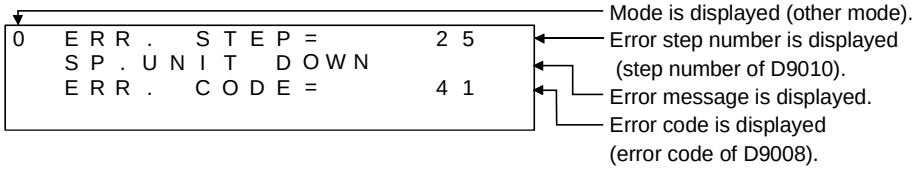
When the error step read in other mode is performed, the error message and the error step of the current error in the ACPU are displayed.

Error messages, error details and corrective actions are displayed below. If an error message appears, take the following actions to resume operation.

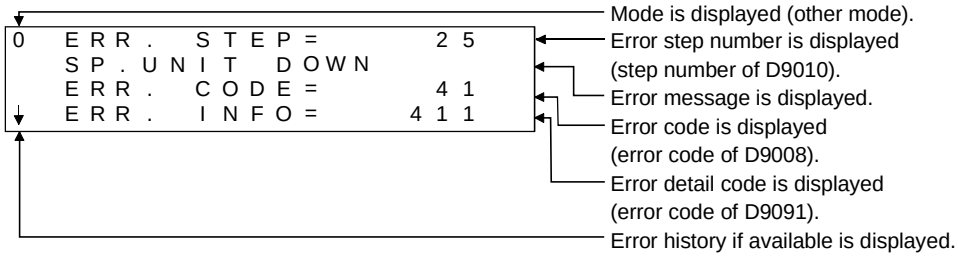
1) Check the error message.
2) If the error code is not displayed, check the error code of special register D9008 with the system monitor function (Refer to Chapter 8.).
3) Remove the cause of the error.

(Display)

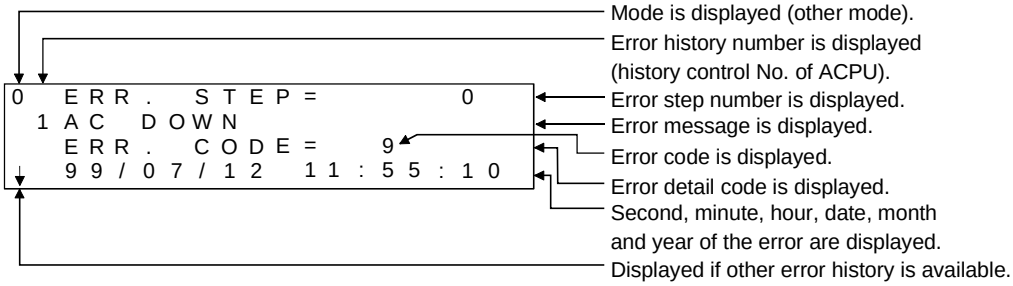
Example of display for an error in the CPU other than AnA and AnU



Example of display for an error in the AnA or AnUCPU



Example of next display for the display of "↓" above (error history is available)



POINT

When an error message of the PLC CPU appears, refer to the ACPU programming manual (Common Command) and the user's manual for each CPU for corrective actions.

21.3 Error using list editor function on the link system

When the list editor function is used on the link system, the "PLC communication error (**)" may appear. In this case, check the error details and the corrective actions.

Error No.	Error message	Action
2	Time-out error: No response to the request	Check the cable wiring.
4	Process cancel: New process request was given to the list editor function while the CPU is processing.	Perform correct key operations on the GOT.
5	Sum check error: A sum check error from the link communication has occurred.	There may be noise interference. Check the system again.
16	PLC No. error: There is no station corresponding to the PLC number.	Check the PLC number setting. Set the correct number.
19	This error may occur when the ACPU is reset during monitoring.	Perform the monitor setting again.
24	Remote error: Although remote stop/pause is performed from the computer link unit, remote run/stop is additionally performed.	Perform the remote run/stop/pause from either unit.
32	Link error: While the slave station is monitoring the master station, the master station is reset.	Perform the monitor setting again.
34	EEPROM failure: The EEPROM, cannot be written due to EEPROM failure.	Replace the EEPROM with a new one.

If error number "25" appears, the following causes are possible. Check the details and the corrective actions.

(1) When connected to the master station

Device number	Description	Details	
M9210	Link card error (for master station)	OFF: Normal ON : Error	The control depends on whether there is an error at the hardware of the link card. The link card in the CPU link unit is judged at the CPU. Replace the link unit.
M9224	Link status	OFF: Online ON : Offline, station-to-station test, or self-loopback test	The control depends on whether the master station itself is online or offline, or in the station-to-station mode or the self-loopback mode. Check the mode switch.
M9227	Loop test status	OFF: Not executed ON : Normal loop test and sub-loop test are being executed.	The control depends on whether the master station itself is executing the normal loop test or the sub-loop test.

(2) When connected to the local station

Device number	Description	Details	
M9211	Link card error (for local station)	OFF: Normal ON : Error	The control depends on whether there is an error at the hardware of the link card. The link card in the CPU link unit is judged at the CPU. Replace the link unit.
M9240	Link status	OFF: Online ON : Offline, station-to-station test, or self-loopback test	The control depends on whether the local station itself is online or offline, or in the station-to-station mode or the self-loopback mode. Check the mode switch.
M9257	Loop test status	OFF: Not executed ON : Normal loop test and sub-loop test are being executed.	The control depends on whether the local station itself is executing the normal loop test or the sub-loop test.

(3) When connected to the CPU in MELSECNET/10

An error in the MELSECNET/10 is reported using a four digit (hexadecimal) error number.

For details of the errors and corrective actions, see the MELSECNET/10 Network System Reference Manual.

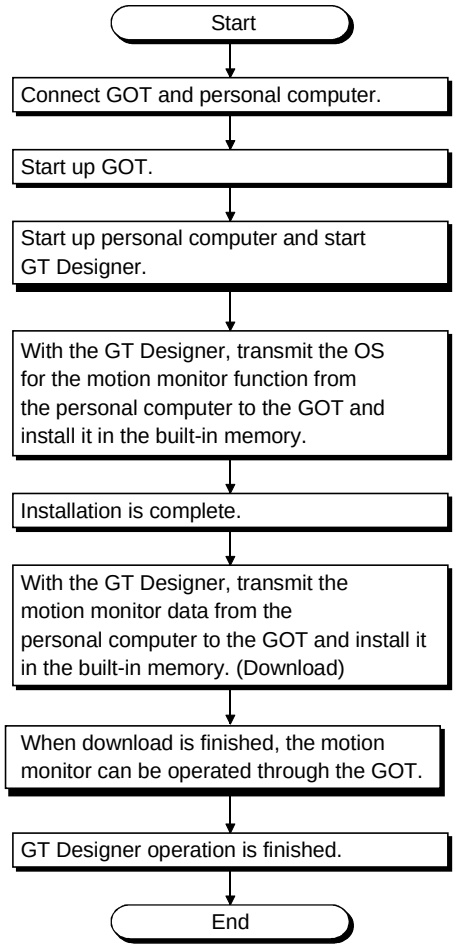
POINT
If an error code not listed in the previous page is displayed, contact the nearest of our system service centers, agents, and branch offices.

CHAPTER22 OPERATION PROCEDURES FOR MOTION MONITOR FUNCTION

The operation procedure when using the motion monitor function is explained in this chapter.

22.1 Operation procedures before starting motion monitoring

This section contains a summary of the procedure for transmitting the system program (OS) for the motion monitor function and the motion monitor data from the personal computer to the GOT until it is installed in built-in memory.
For details, please refer to the Help in GT Designer. Details of the screen display and key operation are shown in the Help.



It is not necessary to set up and operate the GOT after startup.

Transmit the data using the installation dialog box.

When installation is finished, "Completed" is displayed on the installation dialog box.

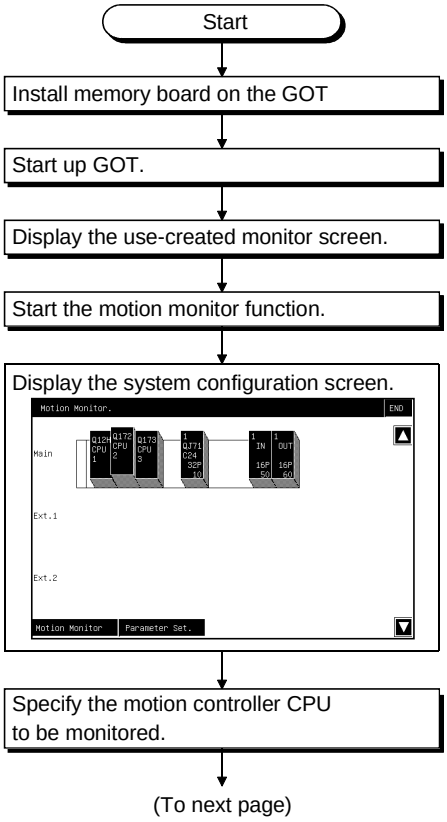
Transmit the data using the download dialog box.

When download is finished, "Completed" is displayed on the download dialog box.

Proceed to Section 22.2 to operate the motion monitor.

22.2 Operation procedures from user-created monitor screen display to start of motion monitor

This section describes the operation procedure for the GOT when starting each operation of the motion monitor function after the system program (OS) of the motion monitor function has been installed in the GOT built-in memory, and downloading the motion monitor data.



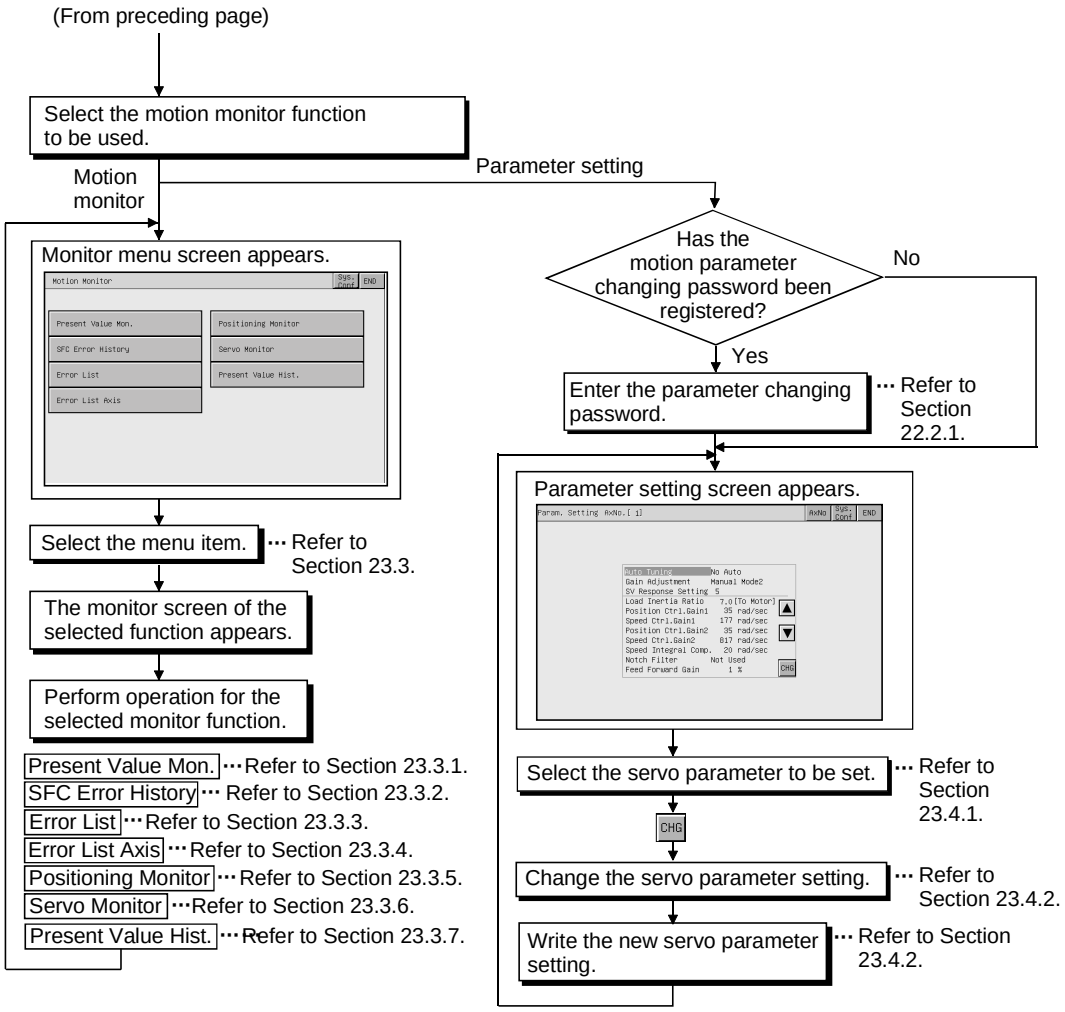
··· (∗1)

··· When starting, the module format and related data are not displayed.
When reading of module data from the PLC CPU is complete, the module format and related data is displayed.
When END is selected, the motion monitoring ends and the display moves to the original screen where the motion monitor function was begun.

··· See Secs. 23.1

∗1 Touch the key where the touch switch (expanded) function was set with the drawing software, and start the system monitor function.
When the Utility screen is displayed, touch MOTION MON. to start the motion monitor function.

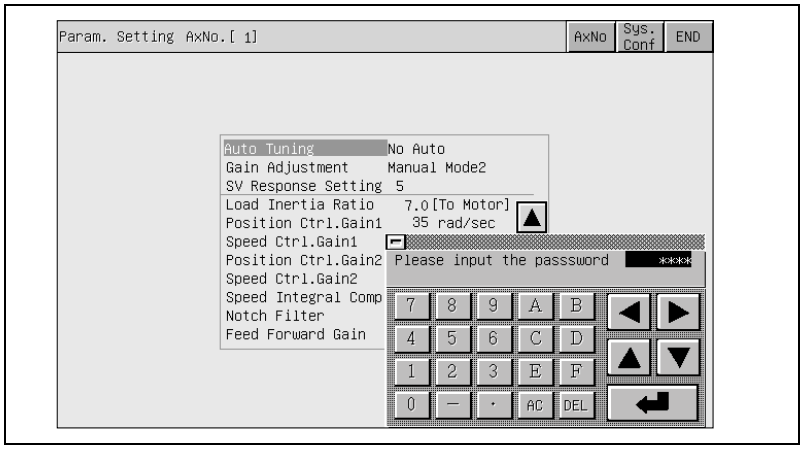
22 - 2


(From preceding page)
Select the motion monitor function to be used.
Motion monitor
Parameter setting
Monitor menu screen appears.
Motion Monitor
SVS. Conf
END
Present Value Mon.
Positioning Monitor
SFC Error History
Servo Monitor
Error List
Present Value Hist.
Error List Axis
Select the menu item.
··· Refer to Section 23.3.
The monitor screen of the selected function appears.
Perform operation for the selected monitor function.
Present Value Mon. ··· Refer to Section 23.3.1.
SFC Error History ··· Refer to Section 23.3.2.
Error List ··· Refer to Section 23.3.3.
Error List Axis ··· Refer to Section 23.3.4.
Positioning Monitor ··· Refer to Section 23.3.5.
Servo Monitor ··· Refer to Section 23.3.6.
Present Value Hist. ··· Refer to Section 23.3.7.
Has the motion parameter changing password been registered?
No
Yes
Enter the parameter changing password.
··· Refer to Section 22.2.1.
Parameter setting screen appears.
Param. Setting AxNo.[1]
AxNo
SVS. Conf
END
Gain Adjustment Manual Mode2
SV Response Setting 5
Load Inertia Ratio 7.0 [To Motor]
Position Ctrl.Gain1 35 rad/sec
Speed Ctrl.Gain1 177 rad/sec
Position Ctrl.Gain2 35 rad/sec
Speed Ctrl.Gain2 817 rad/sec
Speed Integral Comp. 20 rad/sec
Notch Filter Not Used
Feed Forward Gain 1 %
CHG
Select the servo parameter to be set.
··· Refer to Section 23.4.1.
CHG
Change the servo parameter setting.
··· Refer to Section 23.4.2.
Write the new servo parameter setting.
··· Refer to Section 23.4.2.

22 - 3

22.2.1 Password entry operation procedure

With the motion parameter changing password written to the GOT using GT Designer, the password entry screen appears if you attempt to access the parameter setting screen of the motion monitor function.



(1) Features

- If the characters entered match a password, the Parameter Setting screen appears.
- If the characters entered do not match a password, an error message appears on-screen. Touching ▭ will return to the previous monitor screen.
- Numerical numbers and alphabets A to F can be used for a password.
- Use GT Designer to set the motion parameter changing password.
  Refer to the help function of GT Designer for details of password setting.

(2) Procedure

(a) To enter a password, follow these steps:

- Touch 0 to 9 and A to F to enter a password.
- Touch ↵ to confirm the password entered.
- To correct the password entered, touch DEL to delete wrong characters and then enter correct characters again.

(b) To quit entering a password:

- Touch ▭ to return to the previous monitor screen.

CHAPTER23 OPERATIONS OF VARIOUS MOTION MONITOR SCREENS

This chapter explains screen operations to be performed when using the motion monitor function.
The display screen of the motion monitor function varies slightly with the GOT used.
This chapter mainly uses the screen of the A975GOT for explanation.

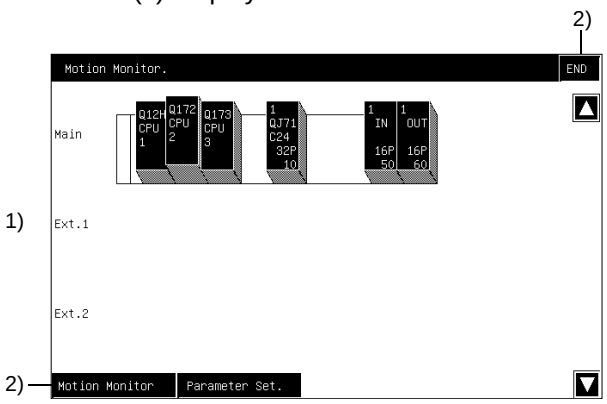
23.1 Screen layout, common operations and screen changes for monitoring

This section describes the screen layout and common operations for execution of motion monitoring.

23.1.1 System configuration screen layout and key functions

This section explains the layout of the system configuration screen that is displayed after starting the motion monitor function and the key functions that appears on-screen.

(1) Displayed data



Module types and like are displayed on completion of reading module information from PLC CPU. (Automatically displayed by OS)

1)	The CPU No. is displayed as the CPU and the control CPU No. as the loaded module. (Only the CPU is displayed when the A95*GOT/A956WGOT is used.) To choose the motion controller CPU for servo monitor/servo parameter setting, touch its display position.
2)	The keys used for performing operation on the system configuration screen, shown in (2), are displayed. (Touch input)

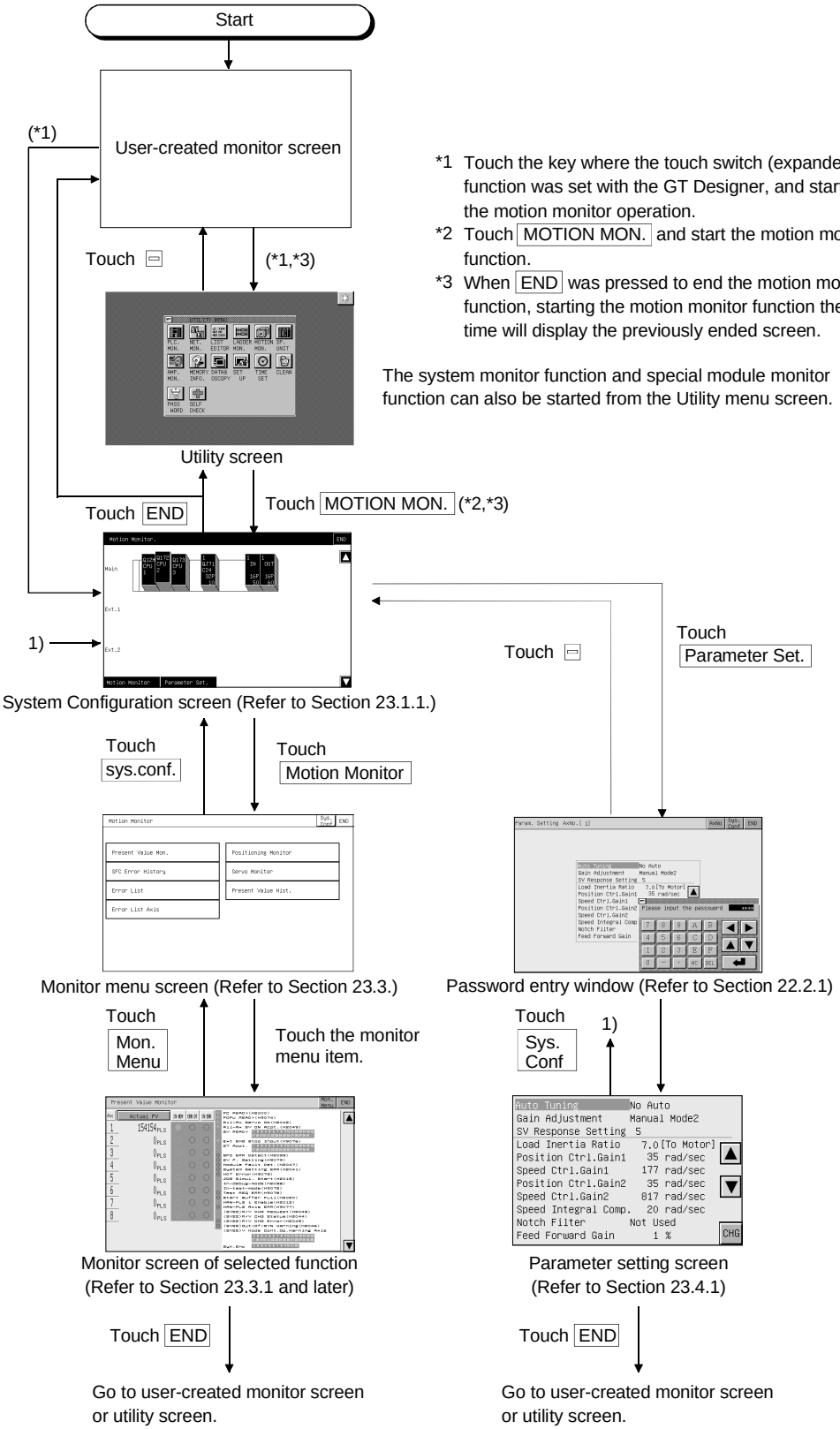
(2) Key functions

The following indicates the functions of the keys used for performing operation on the system configuration screen.

Key	Function
END	Used to end monitoring and return to the screen where the motion monitor function was started.
Q12H CPU 1 / Q172 CPU 2 / Q17 CPU 3	Used to select the motion controller CPU where servo monitor/servo parameter setting will be performed.
Motion Monitor	Used to change the system configuration screen to the motion monitor menu screen. (Refer to Section 23.4)
Parameter Set.	Used to change the system configuration screen to the parameter setting screen. (Refer to Section 23.5)
▲ ▼	Used to scroll the display data up/down one level to display the currently undisplayed, preceding/succeeding level of the system configuration. ▼: Scrolls down one level. ▲: Scrolls up one level.

23.2 Changing the screen

This section describes how to change the screen when executing each monitor function of the motion monitor function from the status where the user-created monitor screen is displayed.



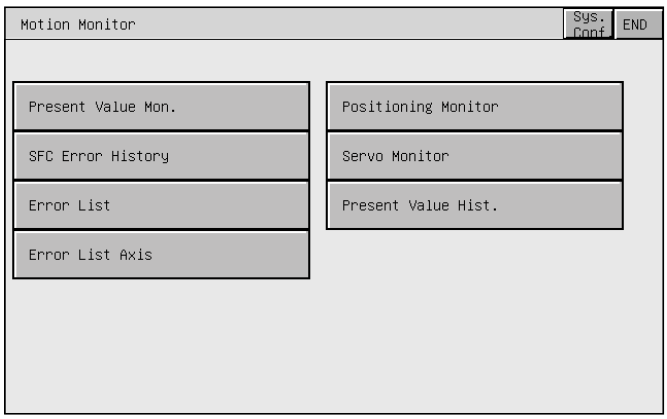
*1 Touch the key where the touch switch (expanded) function was set with the GT Designer, and start the motion monitor operation.
*2 Touch MOTION MON. and start the motion monitor function.
*3 When END was pressed to end the motion monitor function, starting the motion monitor function the next time will display the previously ended screen.

The system monitor function and special module monitor function can also be started from the Utility menu screen.

23.3 Motion monitor

The motion monitor function allows you to monitor various servo monitor data on multiple monitor screens.
To display any of the monitor screens, make selection on the monitor menu screen.

(Monitor menu screen)

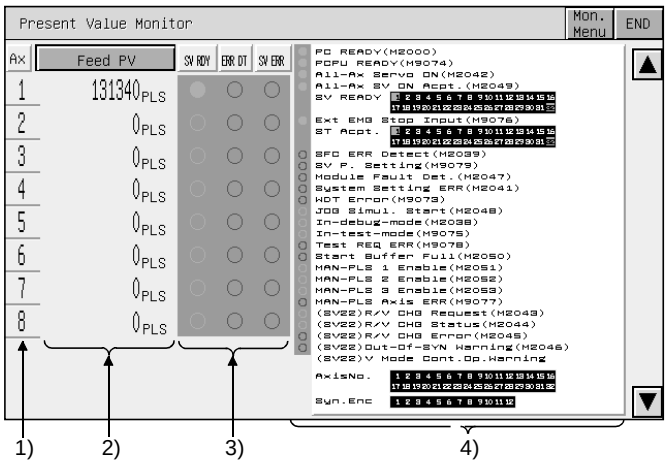


1) Present Value Mon. ... Monitors and displays the feed current values and actual current values of all running axes. (Refer to Section 23.3.1)
2) SFC Error History..... Displays the history of errors that occurred in SFC programs from when the motion CPU was powered on or reset. (Refer to Section 23.3.2)
3) Error List..... Displays the history of errors (eight latest errors) that occurred on and after the leading edge of PLC ready (M2000). (Refer to Section 23.3.3)
4) Error List Axis..... Displays the latest errors that occurred on the specified axis. (Refer to Section 23.3.4)
5) Positioning Monitor ..... Monitors the details of the positioning data set to any axis. (Refer to Section 23.3.5)
6) Servo Monitor..... Monitors the servo motor/servo amplifier. (Refer to Section 23.3.6)
7) Present Value Hist. ..... Displays the history of encoder present values, servo command values and monitor present values of the ABS axis at servo amplifier power-on/off or at home position return. (Refer to Section 23.3.7)
(Not displayed when the A95*GOT is used.)

23.3.1 Display data and key functions of present value monitor screen

This section explains the display data of the present value monitor screen and the key functions displayed on-screen.

(1) Displayed data



No.	Item	Description
1)	Ax	The axis Nos. of the running axes being monitored are displayed.
2)	Actual PV Feed PV	The feed present values or actual present values of the running axes are displayed. Touching the display part of the monitored value switches to the positioning monitor screen of the touched axis No. (Refer to Section 23.3.5)
3)	SV RDY, ERR DT, SV ERR	Whether the servo ready signals, major/minor errors and servo error detection signals are ON (lit) or OFF (extinguished) are displayed. Touching the error indication part "●" switches to the error list designated-axis screen of the touched axis No. (Refer to Section 23.3.4)
4)	Bit device screen *1	The common bit devices are always monitored and displayed. • Error detection type bit devices .....Displayed red • General status type bit devices .....Displayed green

*1 Not displayed when the A95*GOT/A956WGOT is used.

(2) Key functions

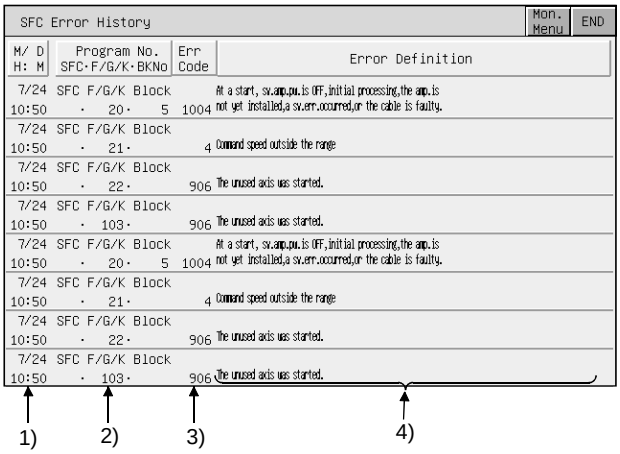
The following indicates the functions of the keys used for operation of the present value monitor screen.

Key	Function
Feed PV / Actual PV	Touching the key alternates the monitor item between the "feed present value" and "actual present value". (Only in the real mode)
Mon. Menu	Used to return to the monitor menu screen.
END	Used to end the present value monitoring and return to the screen that was being displayed when the motion monitor function was started.
▲ ▼	Used to change the displayed axis No. (Displayed only for Q173CPU monitoring.)

23.3.2 Display data and key functions of SFC error history screen

This section explains the display data of the SFC error history screen and the key functions displayed on-screen.

(1) Displayed data



No.	Item	Description
1)	M/D H: M	The dates and times when SFC errors occurred are displayed.
2)	Program No.	The SFC program Nos. where SFC errors occurred are displayed.
3)	Err Code	The error codes of the errors that occurred are displayed.
4)	Error Definition *1	The definitions of the SFC errors that occurred are displayed.

*1 Not displayed when the A95*GOT/A956WGOT is used.

(2) Key functions

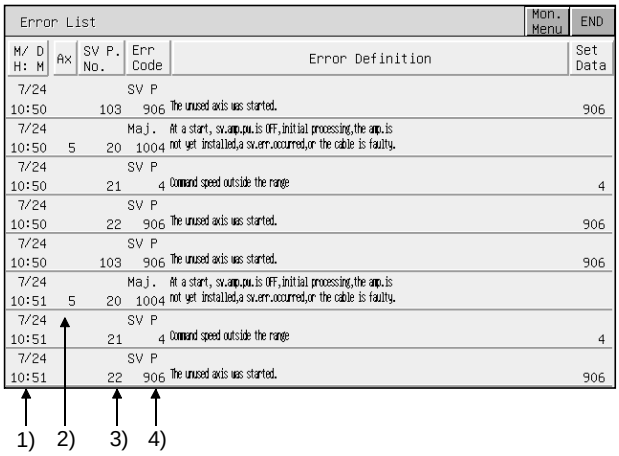
The following indicates the functions of the keys used for operation of the SFC error history screen.

Key	Function
Mon. Menu	Used to return to the monitor menu screen.
END	Used to end the SFC error history and return to the screen that was being displayed when the motion monitor function was started.
▲ ▼	Used to scroll the SFC error history display. (Displayed only when the A95*GOT/A956WGOT is used.)

23.3.3 Display data and key functions of error list screen

This section explains the display data of the error list screen and the key functions displayed on-screen.

(1) Displayed data



No.	Item	Description
1)	H/D H: M	The dates and times when errors occurred are displayed.
2)	Ax	The axis Nos. and axis types of the axes where errors occurred are displayed. Virtual axis : Virtual Synchronous encoder axis : Sync
3)	SV P. No.	The servo program Nos. that were being executed at error occurrence are displayed. The execution destination of the servo program in error is not displayed. Using the servo program No., refer to the execution destination.
4)	Err Code	The types and error codes of the errors that occurred are displayed. The error types are displayed as indicated below. • Minor error.....Minor • Major error.....Major • Servo error .....Servo • Servo program setting error.....Servo P • Real/virtual switching .....Switch • Test mode request error .....Test • Manual pulse generator setting error .....Manual • PCPU ERROR.....P-WDT • SSCNET ERROR .....Communication error
5)	Error Definition *1	The definitions of the errors that occurred are displayed.
6)	Set Data *1	The program number in error is displayed if the set data have any errors.

*1 Not displayed when the A95*GOT/A956WGOT is used.

(2) Key functions

The following indicates the functions of the keys used for operation of the error list screen.

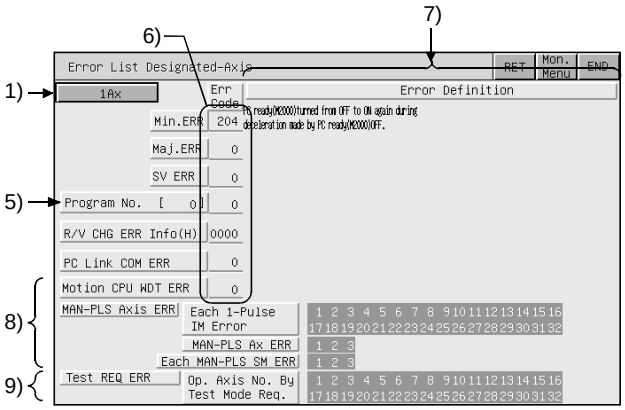
Key	Function
Mon. Menu	Used to return to the monitor menu screen.
END	Used to end the error list and return to the screen that was being displayed when the motion monitor function was started.

23.3.4 Display data and key functions of error list designated-axis screen

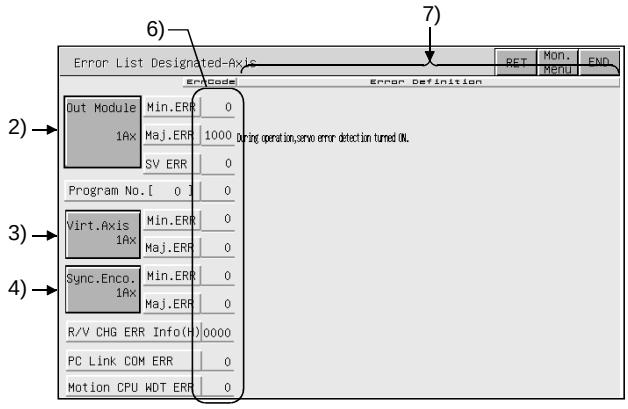
This section explains the display data of the error list designated-axis screen and the key functions displayed on-screen.

(1) Displayed data

(In real mode)



(In virtual mode)

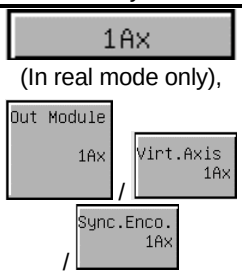


No.	Item		Description
1)	1Ax		The axis No. currently monitored is displayed.
2)	Out Module		The output module axis No. currently monitored is displayed.
3)	Virt. Axis		The virtual axis No. currently monitored is displayed.
4)	Syne. Enco.		The synchronous encoder axis No. currently monitored is displayed.
5)	Program No.		The servo program No. that was being executed at error occurrence is displayed.
6)	Err Code		The error codes of the minor/major/servo error, servo program setting error, real/virtual switching error information (error code: hexadecimal), personal computer link communication error code and motion CPU WDT error that are currently occurring are displayed.
7)	Err Definition *1		The definitions of the errors that occurred are displayed.
8)	MAN-PLS Axis ERR *1	Each 1-Pulse 1M Error	The axes where a 1-pulse input magnification setting error occurred are displayed.
		MAN-PLS AX ERR	The errors of the axis Nos. set to the manual pulse generators P1 to P3 are displayed.
		Each MAN-PLS SM ERR	The errors of the smoothing magnifications set to the manual pulse generators P1 to P3 are displayed.
9)	Test REQ ERR		The axis Nos. that are being started at a test mode request are displayed.

*1 Not displayed when the A95*GOT/A956WGOT is used.

(2) Key functions

The following indicates the functions of the keys used for operation of the error list designated-axis screen.

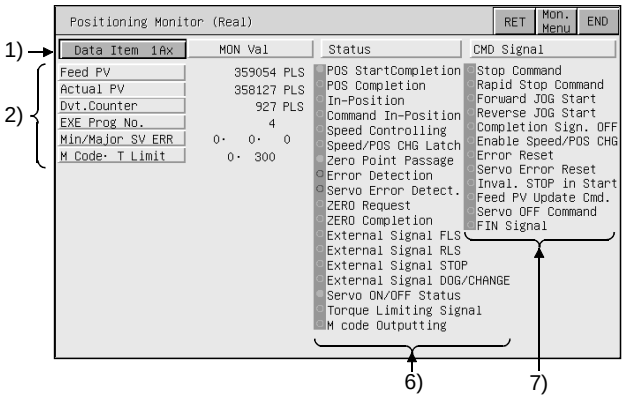
Key	Function
	Used to change the axis to be monitored.
	Used to return to the previous screen.
	Used to return to the monitor menu screen.
	Used to end the error list designated-axis monitoring and return to the screen that was being displayed when the motion monitor function was started.

23.3.5 Display data and key functions of positioning monitor screen

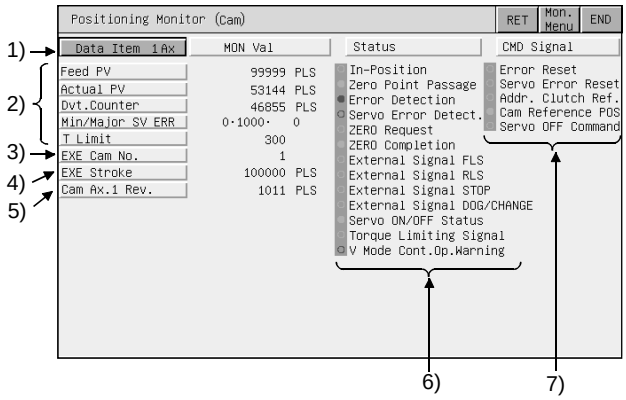
This section explains the display data of the positioning monitor screen and the key functions displayed on-screen.

(1) Displayed data

(In real mode)



(In virtual mode)



No.	Item	Description
1)	Data Item	The axis No. of the running axis being monitored is displayed. For the virtual axis, the axis type is displayed. • Roller • Ballscrew • Rotary table • Cam
2)	Feed PV	The data during positioning control of the PCPU are displayed. • Feed present value : Target address output to the servo amplifier (value of the roller surface speed for the roller axis) • Actual present value : Actually traveled present value (no value is displayed for the roller axis) • Deviation counter : Difference between feed present value and actual present value • Executed program No. : Servo program No. in execution • Minor/major/servo error : Error code of the latest minor/major/servo error
3)	EXE Cam No.	The cam No. currently controlled is displayed.
4)	ExE Stroke	The stroke amount currently controlled is displayed.
5)	Cam Ax.1 Rev.	The present value within one cam axis revolution pulse is displayed.
6)	Status *1	The ON and OFF of the symbols that represent the axis-by-axis control statuses are displayed. • In the ON status, the symbol is lit green. • At error or servo error detection, the symbol is lit red.
7)	CMD Signal *1	The ON and OFF of the positioning command signals are displayed. In the ON status, the signal is lit green.

*1 Not displayed when the A95*GOT/A956WGOT is used.

(2) Key functions

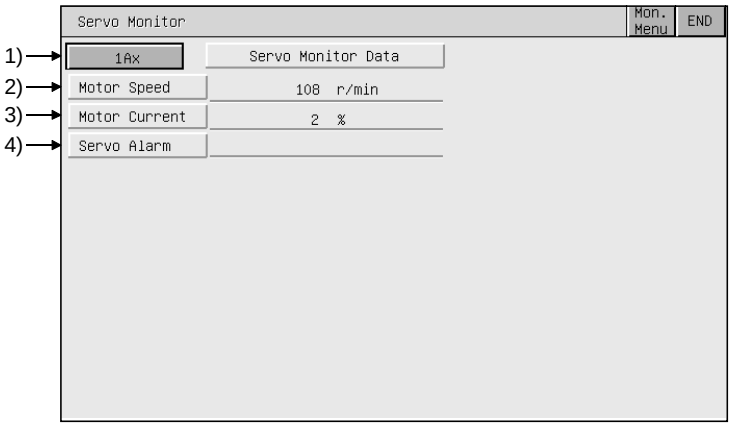
The following indicates the functions of the keys used for operation of the positioning monitor screen.

Key	Function
Data Item 1Ax (Display example: When axis 1 is monitored)	Used to change the axis to be monitored.
RET	Used to return to the previous screen.
Mon. Menu	Used to return to the monitor menu screen.
END	Used to end the positioning monitoring and return to the screen that was being displayed when the motion monitor function was started.

23.3.6 Display data and key functions of servo monitor screen

This section explains the display data of the servo monitor screen and the key functions displayed on-screen.

(1) Displayed data



No.	Item	Description
1)	Ax	The axis No. of the running axis currently monitored is displayed.
2)	Motor Speed	The actual speed of the servo motor is displayed.
3)	Motor Current	The motor current value at the rated current of 100% is displayed.
4)	Servo Alarm	The alarm detected by the servo amplifier is displayed.

(2) Key functions

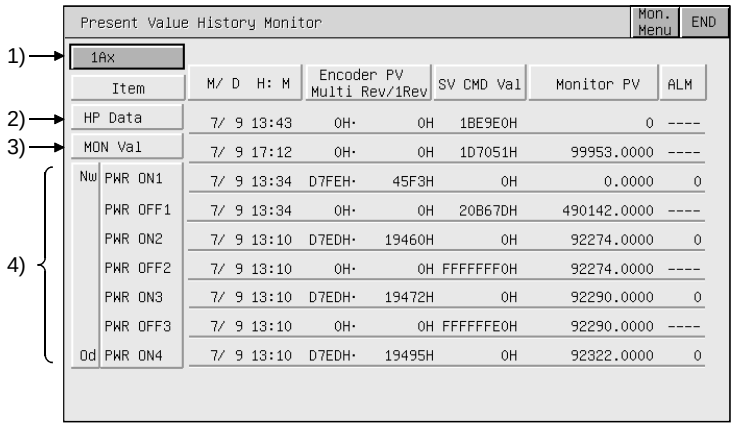
The following indicates the functions of the keys used for operation of the servo monitor screen.

Key	Function
1Ax (Display example: When axis 1 is monitored)	Used to change the axis to be monitored.
Mon. Menu	Used to return to the monitor menu screen.
END	Used to end the servo monitoring and return to the screen that was being displayed when the motion monitor function was started.

23.3.7 Display data and key functions of present value history monitor screen

This section explains the display data of the present value history monitor screen and the key functions displayed on-screen.

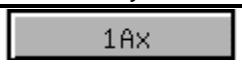
(1) Displayed data



No.	Item	Description
1)	Ax	The axis No. of the axis currently monitored is displayed.
2)	HP Data	The following values monitored at home position return are displayed. • Home position return completion time • Encoder present value Multi-revolution data of absolute position reference point data Within-one-revolution position of absolute position reference point data • Servo command value • Monitor present value
3)	MON Val	The following present monitor values are displayed. • Present time • Encoder present value Present multi-revolution data of encoder present value Present within-one-revolution position of encoder present value • Present servo command value • Present monitor present value
4)	PWR ON/ PWR OFF	The four past present values of the ABS axis at servo amplifier power-on/off are displayed. [At power-on] • Power-on time • Encoder present value Multi-revolution data of initial encoder Single-revolution data of initial encoder • Servo command value after recovery • Monitor present value after recovery • Alarm occurrence information at present value recovery (error code of minor/major error) [At power-off] • Servo amplifier power-off time • Encoder present value Multi-revolution data of encoder present value before servo amplifier power-off Single-revolution data of encoder present value before servo amplifier power-off • Servo command at servo amplifier power-off • Monitor present value at servo amplifier power-off

(2) Key functions

The following indicates the functions of the keys used for operation of the present value history monitor screen.

Key	Function
 (Display example: When axis 1 is monitored)	Used to change the axis to be monitored.
	Used to return to the monitor menu screen.
	Used to end the present value history monitoring and return to the screen that was being displayed when the motion monitor function was started.

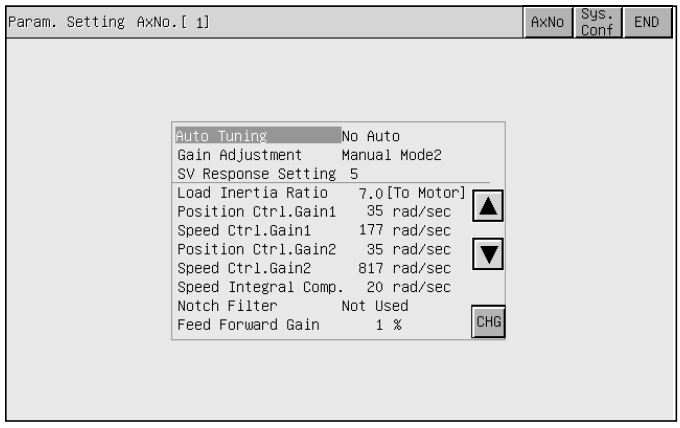
23.4 Parameter setting

With the parameter setting function, you can set the servo parameters (basic parameters/adjustment parameters) of the connected motion controller CPU (Q172CPU, Q173CPU).

23.4.1 Display data and key functions of parameter setting screen

This section explains the display data of the parameter setting screen and the key functions displayed on-screen.

(1) Display screen



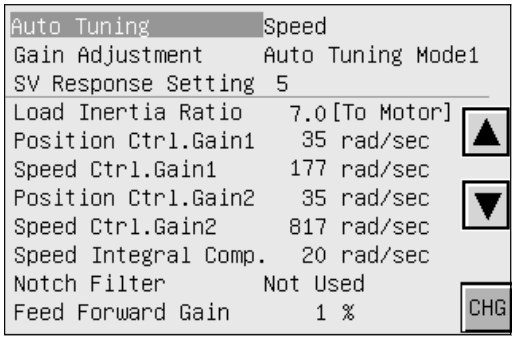
(2) Key functions

The following indicates the functions of the keys used for operation of the parameter setting screen.

Key	Function
CHG	Used to change the servo parameter setting of the selected item.
▲ ▼	Used to choose the servo parameter setting item.
AxNo	Used to change the axis whose parameter setting will be made.
Sys. Conf	Used to return to the system configuration screen.
END	Used to end the parameter setting and return to the screen that was being displayed when the motion monitor function was started.

23.4.2 Parameter setting operation

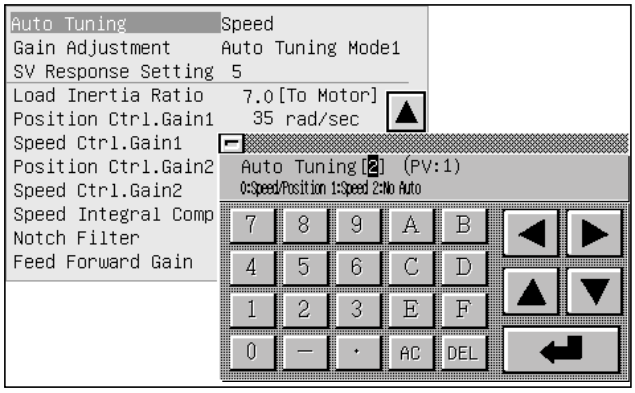
The following describes the procedure of changing the setting of the "Auto Tuning" item as an example of parameter setting operation.



↓

CHG (Touch)

↓



↓

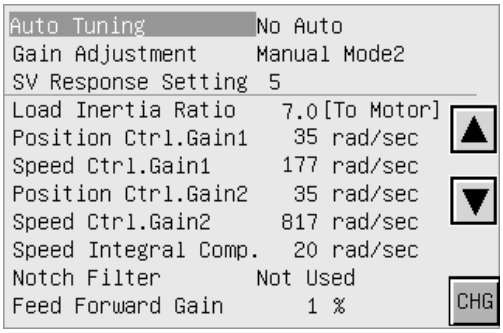
(Touch)

↓

↓

OK (Touch)

↓



1) Choose the item whose parameter will be set with the ▲, ▼ key, and touch the CHG key.

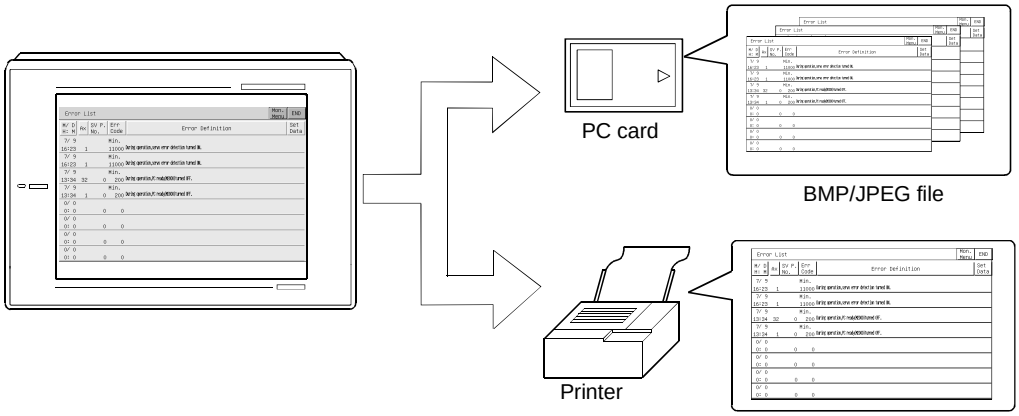
2) As the parameter setting window appears, enter the parameter setting data with Alphanumeric, and touch ↵ to confirm the setting.
If you do not confirm it, touch ⊟ to close the parameter setting window.

3) As the confirmation window appears, touch the OK key to write the parameter setting to the motion controller CPU.
When you do not write the parameter setting, touch the Cancel key.

4) After completion of write, the parameter setting screen whose display has been updated to the new parameter setting appears.

23.5 About Hardcopy Output

This section describes the way to print the motion monitor screen with the printer or to save it in the PC card in the BMP/JPEG file format during motion monitor.



The printout method varies with the used GOT as described below.

(1) When A985GOT or A97*GOT is used

To start printout, touch the Print Screen / Cancel Print key displayed on the motion monitor screen.

(2) When A95*GOT or A956WGOT is used

To start printout, set the hardcopy function start/stop triggering device using GT Designer, and turn that set device on/off.

POINT

- Before printing out the motion monitor screen, always install the option driver into the GOT.
- Set the output destination (PC card/printer) of the hardcopy in the hardcopy setting of GT Designer.
  Refer to Help of GT Designer for details of the hardcopy setting.

CHAPTER 24 ERROR DISPLAY AND HANDLING WITH MOTION MONITORING

This section gives the errors that may be displayed during motion monitoring operation and their corrective actions.

Error message	Error Definition	Corrective Action
No. PLC Communications	Communication with the monitor destination PLC CPU cannot be made.	• Check the connection status of the PLC CPU and GOT (for unplugged connector, open cable). • Check the PLC CPU for error occurrence.
This PLC type is not supported	The CPU selected on the system configuration screen is other than the Q172CPU or Q173CPU.	Choose the Q172CPU or Q173CPU on the system configuration screen.
Controllers' OS type is different	The motion controller OS installed into the monitor destination motion controller CPU (Q172CPU, Q173CPU) is other than SV13 or SV22.	Install SV13 or SV22 into the monitor destination motion controller CPU (Q172CPU, Q173CPU) as the motion controller OS.
It is not a version for GOT	The version of the motion controller OS installed into the monitor destination motion controller CPU is not compatible with the motion monitor function.	Install the motion controller OS whose version is "00E" or later into the motion controller CPU.
Monitor data not found	Monitor data was not installed or was deleted.	Download the monitor data of the motion monitoring.
Unused axis selected	The axis No. selected has not been set.	• Choose the axis No. that has been set. • Set the axis using the peripheral software.
It is not possible to select	During servo parameter setting, the item that cannot be set has been selected.	Choose the item that can be set.
Incorrect setting range	The value that is outside the setting range has been set.	Set the value within the setting range.
Unmatched password	The password entered as the motion parameter changing password is illegal.	Enter the correct password.

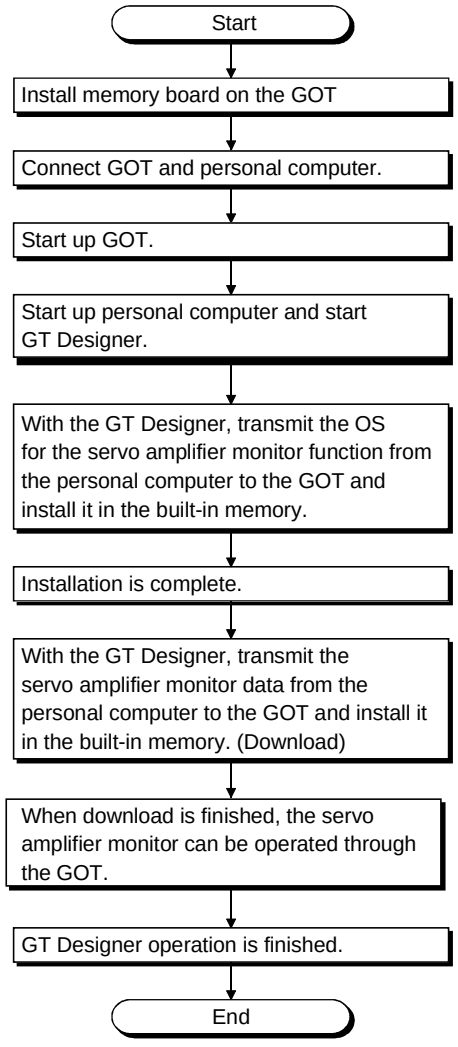
MEMO

CHAPTER25 OPERATION PROCEDURES FOR SERVO AMPLIFIER MONITOR FUNCTION

The operation procedure when using the servo amplifier monitor function is explained in this chapter.

25.1 Operation procedures before starting motion monitoring

This section contains a summary of the procedure for transmitting the system program (OS) for the servo amplifier monitor function and the motion monitor data from the personal computer to the GOT until it is installed in built-in memory.
For details, please refer to the Help in GT Designer. Details of the screen display and key operation are shown in the Help.



Transmit the data using the installation dialog box.

When installation is finished, "Completed" is displayed on the installation dialog box.

Transmit the data using the download dialog box.

When download is finished, "Completed" is displayed on the download dialog box.

Proceed to Section 26.1 to operate the servo amplifier monitor.

25.2 Operation procedures from user-created monitor screen display to start of motion monitor

This section provides the GOT operating procedure for starting the operation of any servo amplifier monitor function after completion of the installation of the "servo amplifier monitor function OS".

Start

Start up GOT.

Display the use-created monitor screen.

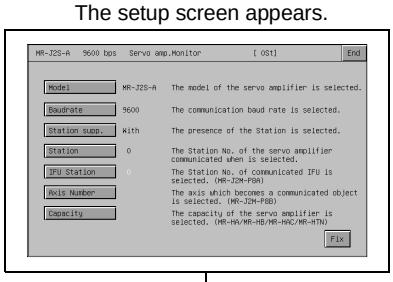
Start the servo amplifier monitor function. ···Start in either of the following methods.
- Touch the key for which the touch key (extended) function has been set on GT Designer.
- Display the utility menu screen and touch AMP. MON. .

Have you started servo amplifier monitor for the first time after powering on the GOT?

NO

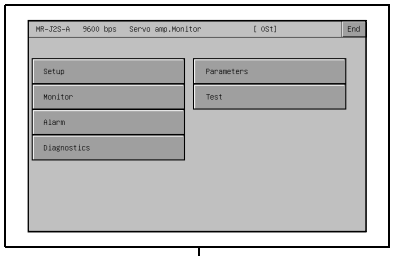
YES

The setup screen appears.



···Appears at the initial start only.
Set the communication baudrate, servo amplifier model, etc.
Powering off the GOT returns the setup screen settings to the initial states.

The function selection menu screen appears.



Select the servo amplifier monitor function to be used.

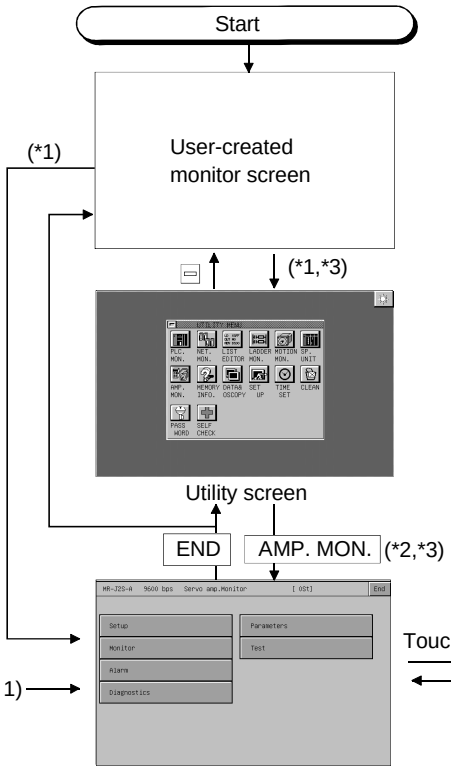
- Setup (Section 26.3) ···Selects the model to be monitored, baudrate and station number presence/absence.
- Monitor (Section 26.4) ···Displays the monitor data of the servo amplifier in real time.
- Alarm (Section 26.5) ···Displays/resets the alarm currently occurring.
- Diagnostics (Section 26.6) ···Runs various diagnostics on the monitored servo amplifier/servo motor.
  - ON/OFF states of external I/O signals and I/O function devices
  - Indications of the servo amplifier software number, servo motor model, ID and encoder resolution
  - Listing of the absolute position data and unit composition
- Parameters (Section 26.7) ···Displays the parameter data list and changes the parameter setting.
- Test (Section 26.8) ···Performs various test operations (JOG operation, positioning operation, motorless operation, DO forced output).

CHAPTER26 OPERATIONS OF SERVO AMPLIFIER MONITOR SCREENS

This chapter describes the screen operations to be performed when using the servo amplifier monitor functions.
The display screens of the servo amplifier monitor functions change slightly depending on the used GOT. This chapter mainly uses the screens of the A975GOT for explanation.

26.1 Screen Transition

This section gives the screen transition from the user-created monitor screen display status to the servo amplifier monitor function screen operations.



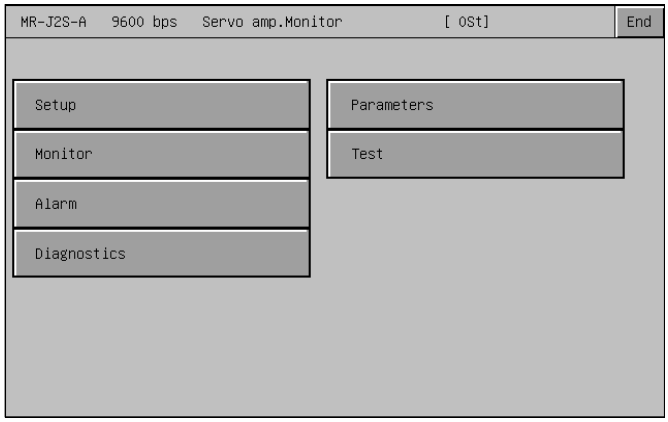
*1 Start the servo amplifier monitor functions by touching the key for which the touch key (extended) function has been set on GT Designer.
*2 Touch AMP. MON. to start the servo amplifier monitor functions.
*3 When End was touched to terminate the servo amplifier monitor functions, he screen on which the functions were terminated appears when the servo amplifier monitor functions are started next time.

- Setup . . . (refer to Section 26.3)
- Monitor . . . (refer to Section 26.4)
- Alarm . . . (refer to Section 26.5)
- Diagnostics . . . (refer to Section 26.6)
- Parameters . . . (refer to Section 26.7)
- Test . . . (refer to Section 26.8)

26.2 About the Servo Amplifier Monitor Functions

The servo amplifier monitor functions allow various monitor functions, parameter setting changes, test operations and others to be performed for the servo amplifier connected to the GOT.
Select and display the required function from the function selection menu screen.

(Function selection menu screen)



1) Setup..... Selects the model of the servo amplifier to be monitored by the servo amplifier function, the communication baudrate, station number setting (station number presence/absence, station number selection), and IFU station number.
(Refer to Section 26.2)

2) Monitor ..... Displays all monitor data of the servo amplifier in real time.
(Refer to Section 26.3)

3) Alarm..... Displays the currently occurring alarm and displays the history. Also resets the alarm or clears the history.
(Refer to Section 26.4)

4) Diagnostics ..... Runs the following various diagnostics on the connected servo amplifier.
(Refer to Section 26.5)
- DI/DO display
  Displays the ON/OFF states of the external I/O signals.
- Function device display
  Displays the ON/OFF states of the I/O function devices.
- Amplifier information display
  Displays the model, ID and encoder resolution of the servo motor connected to the servo amplifier.
- ABS data display
  Displays the absolute position data of the absolute position detection system.
- Unit composition list display
  Displays the servo amplifier unit composition list.

5) Parameters ..... Displays the parameter data and changes the parameter setting.
(Refer to Section 26.6)

6) Test ..... Performs various test operations (JOG operation, positioning operation, motorless operation, DO forced output).
(Refer to Section 26.7)

26.3 Setup

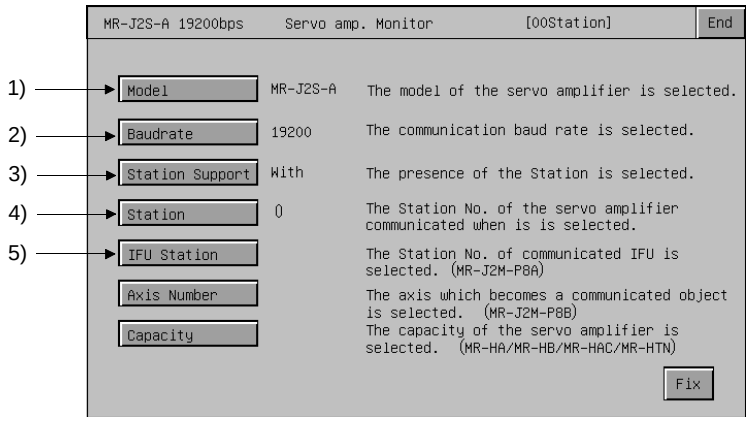
Set communication with the servo amplifier.

POINT

(1) Before making the settings on the setup screen, also make the same settings on the servo amplifier side.
If the settings on this screen differ from the settings on the servo amplifier side, normal communication may not be performed.
(2) The settings on the setup screen return to the initial states when the GOT is powered off or reset.
After powering on the GOT, make settings on the setup screen again.

26.3.1 Setup screen

This section explains the display data of the setup screen and the key functions displayed on the screen.



*You cannot set "Axis number" and "Capacity setting".

(1) About the display data

No.	Item	Description
1)	Model	Displays the servo amplifier model to be connected.
2)	Baudrate	Displays the communication baudrate (38400/19200/9600) with the servo amplifier.
3)	Station supp.	Displays the station number presence/absence.
4)	Station	Displays the station number (00 to 31) of the servo amplifier to communicate with.
5)	IFU Station	Displays the serial communication station number of the IFU (interface unit).

(2) About the key functions
The following table indicates the functions of the keys used for the operations of the alarm display screen.

Key	Function
Model	Sets the servo amplifier model to be connected.
Baudrate	Sets the communication baudrate (38400/19200/9600) with the servo amplifier. • Set the communication baudrate parameter on the servo amplifier side to 38400 or less.
Station Support *1	Sets the station number presence/absence.
Station	Sets the station number (00 to 31) of the servo amplifier to communicate with.
IFU Station *2	Sets the serial communication station number of the IFU (interface unit).
Fix	Confirms the settings and returns to the function selection menu screen.
End	Terminates the servo amplifier monitor functions.

*1: Valid only when the MR-J2S-□A is connected.
*2: Valid only when the MR-J2M A series is connected.

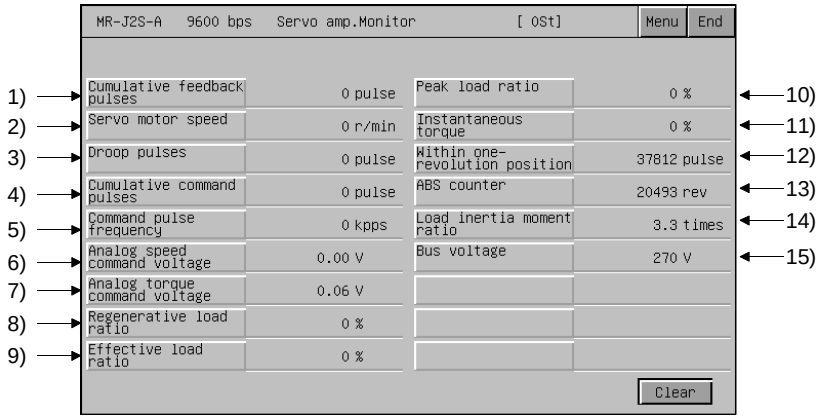
26.4 Monitor Functions

All monitor data of the servo amplifier are displayed in real time.

26.4.1 Monitor screen

This section explains the display data of the monitor screen and the key functions displayed on the screen.

(1) About the display data



No.	Item	Description
1)	Cumulative feedback pulses	Counts and displays the feedback pulses form the servo motor encoder. • When the setting exceeds 9999999, it starts from 0. • The - sign appears for reverse rotation.
2)	Servo motor speed	Displays the servo motor speed. • The value is displayed with the 0.1r/min unit rounded off. • The - sign appears for reverse rotation.
3)	Droop pulses	Displays the droop pulses of the deviation counter. • The - sign appears for reverse rotation.
4)	Cumulative command pulses	Counts and displays the position command input pulses. • Since the value before multiplication of the electronic gear (CMX/CDV) is displayed, this value may not match the indication of the cumulative feedback pulses. • The - sign appears for the reverse rotation command.
5)	Command pulse frequency	Displays the position command input pulse frequency. • The value before multiplication of the electronic gear (CMX/CDV) is displayed. • The - sign appears for the reverse rotation command.
6)	Analog speed command voltage (In speed control mode) *1	Displays the input voltage of the analog speed command (VC).
	Analog speed limit voltage (In torque control mode) *1	Displays the input voltage of the analog speed limit (VLA).
7)	Analog torque command voltage (In position/speed control mode) *1	Displays the voltage of the analog torque limit (TLA).
	Analog torque limit voltage (In torque control mode) *1	Displays the voltage of the analog torque command (TC).

*1 Displayed only when the MR-J2S-□A is connected.

No.	Item	Description
8)	Regenerative load ratio	Displays the ratio of the regenerative power to the permissible regenerative power in %. • The permissible regenerative power changes depending on the presence/absence of the regenerative brake option. Set the parameter No. 0 value correctly according to the regenerative option. (Set 80% or less as a guideline.)
9)	Effective load ratio	Displays the continuous effective load torque. • The effective value is displayed on the assumption that the rated torque is 100%.
10)	Peak load ratio	Displays the maximum torque generated. • The maximum value for the past 15 seconds is displayed on the assumption that the rated torque is 100%.
11)	Instantaneous torque	Displays the instantaneously generated torque. • The value of the generated torque is displayed in real time on the assumption that the rated torque is 100%.
12)	Within one-revolution position	Displays the within one-revolution position in the servo motor in pulse units of the encoder. • When the value exceeds the maximum pulse count, it returns to 0.
13)	ABS counter	Displays the distance from the home position (0) in the absolute position detection system as the multi-revolution counter value of the absolute position encoder.
14)	Load inertia moment ratio	Displays the estimated ratio of the servo motor shaft-equivalent load inertia moment to the servo motor's inertia moment.
15)	Bus voltage	Displays the voltage (across P - N) of the main circuit converter.

(2) About the key functions

The following table indicates the functions of the keys used for the operations of the monitor screen.

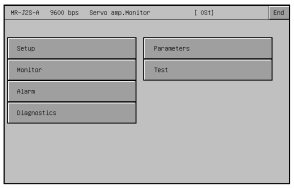
Key	Function
Clear	Clears the "cumulative feedback pulses" or "cumulative command pulses" to 0.
Menu	Returns to the function selection menu screen.
End	Terminates the servo amplifier monitor functions.
▲ ▼	Scrolls the monitor items in units of six items. (Displayed only when the A95*GOT/A956WGOT is used.)

26.5 Alarm Function

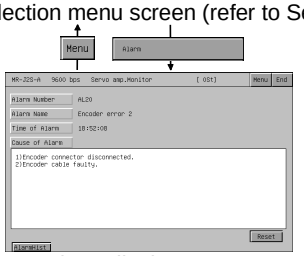
The following alarm definitions are displayed.

- Alarm display: Displays the currently occurring alarm.
  (Refer to Section 26.5.1.)
- Alarm history: Displays the history of alarms that occurred.
  (Refer to Section 26.5.2.)

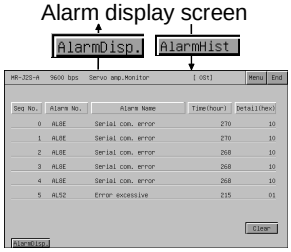
The following shows the screen transition after selection of Alarm on the function selection menu screen.



Function selection menu screen (refer to Section 26.2)



Alarm display screen



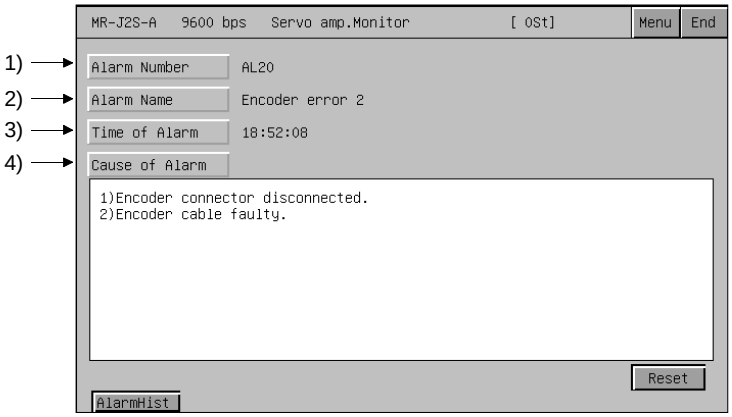
Alarm history screen

POINT
If the alarm display screen data has not been downloaded to the GOT, "Monitor data not found" appears and the subsequent screen is not displayed.

26.5.1 Alarm display screen

This section describes the display data of the alarm display screen and the key functions displayed on the screen.

(1) About the display data



No.	Item	Description
1)	Alarm Number	Displays the number of the alarm that occurred.
2)	Alarm Name	Displays the name of the alarm that occurred.
3)	Time of Alarm	Displays the date and time when the alarm occurred. • The alarm occurrence time is displayed on the basis of the clock data of the PLC CPU connected to the GOT. • If a fault occurred in the servo amplifier before it is connected to the GOT, an alarm is displayed when the servo amplifier is connected to the GOT. In that case, the time when the GOT and servo amplifier was connected is displayed as the alarm occurrence time.
4)	Cause of Alarm	Displays the cause of the currently occurring alarm.

(2) About the key functions

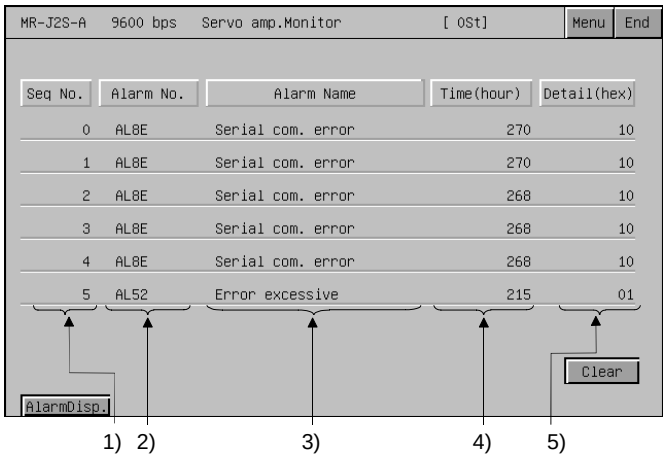
The following table indicates the functions of the keys used for the operations of the alarm display screen.

Key	Function
Reset	Resets the alarm. • Sets the servo amplifier model to be connected.
Cause of Alarm	Displays the cause of the alarm on the window screen. (Displayed only when the A95*GOT/A956WGOT is used.)
AlarmHist	Changes to the alarm history screen (refer to Section 26.5.2).
Menu	Confirms the settings and returns to the function selection menu screen.
End	Terminates the servo amplifier monitor functions.

26.5.2 Alarm history screen

This section describes the display data of the alarm history screen and the key functions displayed on the screen.

(1) About the display data



No.	Item	Description
1)	Sequence No.	Displays the alarm history, starting from the newest alarm, in order. • The newer alarms have smaller history numbers. (0 is the newest.) • Six alarms are displayed.
2)	Alarm No.	Displays the number of the alarm that occurred
3)	Alarm Name	Displays the name of the alarm that occurred. (Displayed only when the A95*GOT/A956WGOT is used.)
4)	Time (hour)	Displays the energization time of the servo amplifier until alarm occurrence on the assumption that the time at shipment from the factory is "0".
5)	Detail (hex)	Displays the code of the alarm detail information.

(2) About the key functions

The following table indicates the functions of the keys used for the operations of the alarm history screen.

Key	Function
Clear	Clears the alarm history stored in the servo amplifier.
AlarmDisp.	Changes to the alarm display screen (refer to Section 26.5.1).
Menu	Confirms the settings and returns to the function selection menu screen.
End	Terminates the servo amplifier monitor functions.

26.6 Diagnostics Function

Run the following various diagnostics on the connected servo amplifier.

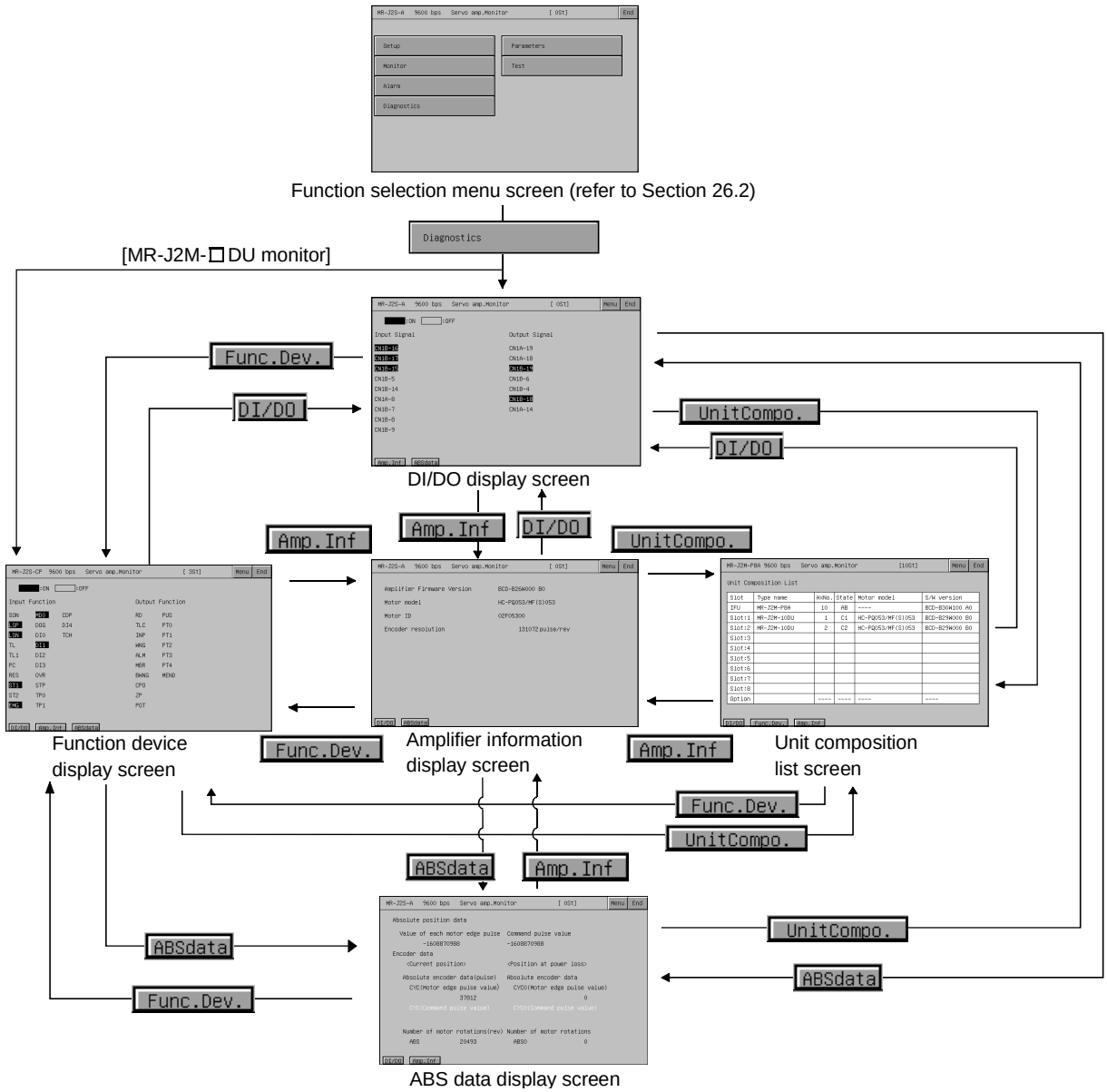
- DI/DO display : Displays the ON/OFF states of the external I/O signals. (Refer to Section 26.6.1)
- Function device display : Displays the ON/OFF states of the I/O function devices. (Refer to Section 26.6.2)
- Amplifier information display : Displays the model, ID and encoder resolution of the servo motor connected to the servo amplifier. (Refer to Section 26.6.3)
- ABS data display : Displays the absolute position data of the absolute position detection system. (Refer to Section 26.6.4)
- Unit composition list display : Displays the servo amplifier unit composition list. (Refer to Section 26.6.5)

(1) Screen transition

The following shows the screen transition after selection of Diagnostics on the function selection menu screen.

Some screens may not be displayed depending on the model of the connected servo amplifier.

For the screens that cannot be displayed, refer to (2).



POINT
If the DI/DO display screen data or function device display screen (for MR-J2M□DU monitor only) data has not been downloaded to the GOT, "Monitor data not found" appears and the subsequent screens are not displayed.

(2) Display screens

The screens that can be displayed are indicated on a servo amplifier model basis.

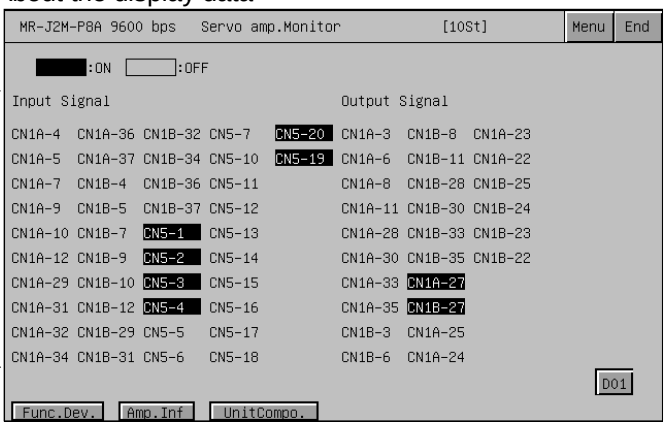
Servo Amplifier / Display Screen	MR-J2S-□A	MR-J2S-□CP	MR-J2M A Series	
			MR-J2M-P8A	MR-J2M-□DU
DI/DO display screen	○	○	○	—
Function device display screen	—	○	○	○
Amplifier information display screen	○	○	—	○
ABS data display screen	○	○	—	○
Unit composition list display screen	—	—	○	○

○: Screen present —: Screen absent

26.6.1 DI/DO display screen

This section describes the display data of the DI/DO display screen and the key functions displayed on the screen.

(1) About the display data



No.	Item	Description
1)	Input/Output Signal	Indicates the ON (lit)/OFF (extinguished) of the DI/DO signal.

(2) About the key functions

The following table indicates the functions of the keys used for the operations of the DI/DO display screen.

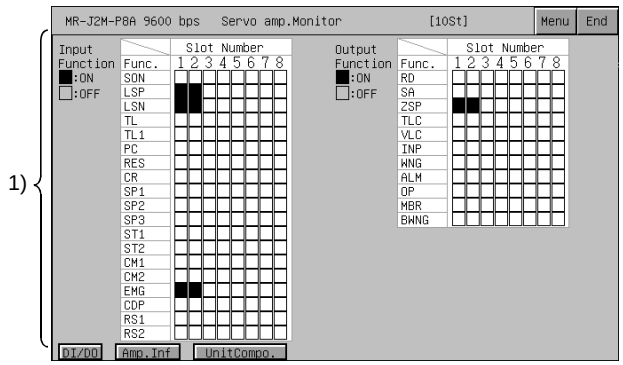
Key	Function
DO1 *1	Displays the DI/DO signals of the extension IO unit.
Func.Dev.	Changes to the function device screen (refer to Section 26.6.2).
Amp.Inf	Changes to the amplifier information screen (refer to Section 26.6.3).
UnitCompo.	Changes to the unit composition list screen (refer to Section 26.6.5).
ABSdata	Changes to the ABS data screen (refer to Section 26.6.4).
Menu	Confirms the settings and returns to the function selection menu screen.
End	Terminates the servo amplifier monitor functions.

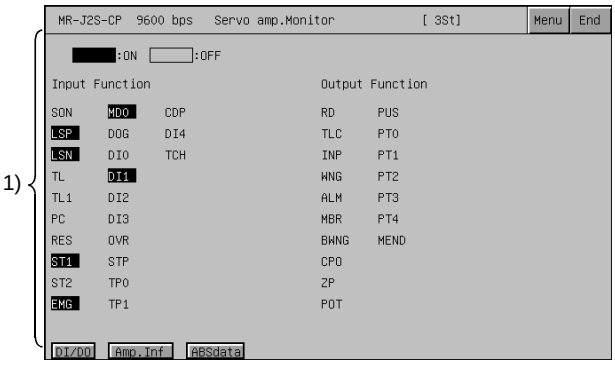
*1: Displayed only when the MR-J2M A series is connected.

26.6.2 Function device display screen

This section describes the display data of the function device display screen and the key functions displayed on the screen.

(1) About the display data





[When MR-J2S-□CP is monitored]

No.	Item	Description
1)	Input/Output Function	Indicates the ON (■)/OFF (□) state of each I/O signal.

(2) About the key functions

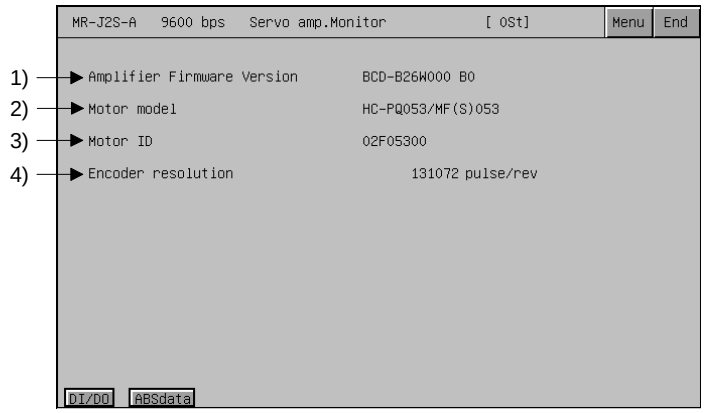
The following table indicates the functions of the keys used for the operations of the function device display screen.

Key	Function
In-Func.	Changes the indication of the I/O signal. (Displayed only when the A95*GOT/A956WGOT is used.)
DI/DO	Changes to the DI/DO display screen (refer to Section 26.6.1).
ABSdata	Changes to the ABS data screen (refer to Section 26.6.4).
Amp.Inf	Changes to the amplifier information screen (refer to Section 26.6.3).
UnitCompo.	Changes to the unit composition list screen (refer to Section 26.6.5).
Menu	Confirms the settings and returns to the function selection menu screen
End	Terminates the servo amplifier monitor functions
▲ ▼	Scrolls the I/O signal items in units of 10 items. (Displayed only when the A95*GOT/A956WGOT is used.)

26.6.3 Amplifier information display screen

This section describes the display data of the amplifier information display screen and the key functions displayed on the screen.

(1) About the display data



No.	Item	Description
1)	Amplifier Firmware Version*1	Displays the software number of the servo amplifier connected to the GOT.
2)	Motor model*1	Displays the model of the servo motor connected to the servo amplifier.
3)	Motor ID*1	Displays the ID of the servo motor connected to the servo amplifier.
4)	Encoder resolution*1	Displays the encoder resolution of the servo motor connected to the servo amplifier.

*1 Not displayed for MR-J2M-P8A monitor.

(2) About the key functions

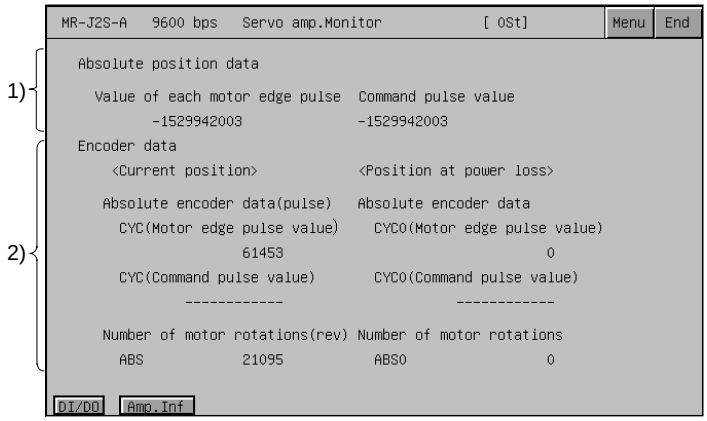
The following table indicates the functions of the keys used for the operations of the amplifier information display screen.

Key	Function
DI/DO	Changes to the DI/DO display screen (refer to Section 26.6.1).
Func.Dev.	Changes to the function device screen (refer to Section 26.6.2).
ABSdata	Changes to the ABS data screen (refer to Section 26.6.4).
UnitCompo.	Changes to the unit composition list screen (refer to Section 26.6.5).
Menu	Confirms the settings and returns to the function selection menu screen.
End	Terminates the servo amplifier monitor functions.

26.6.4 ABS data display screen

This section describes the display data of the ABS data display screen and the key functions displayed on the screen.

(1) About the display data



No.	Item	Description
1)	Absolute position data	Displays the following items of the absolute position data in the absolute position detection system. • Motor edge pulse value • Command pulse value
2)	Encoder data	Displays the following items of the encoder data. <Current position> • Absolute encoder data • CYC (Motor edge pulse value) • CYC (Command pulse value) • Number of motor rotations ABS <Position at power loss> • Absolute encoder data • CYC0 (Motor edge pulse value) • CYC0 (Command pulse value) • Number of motor rotations ABS0

(2) About the key functions

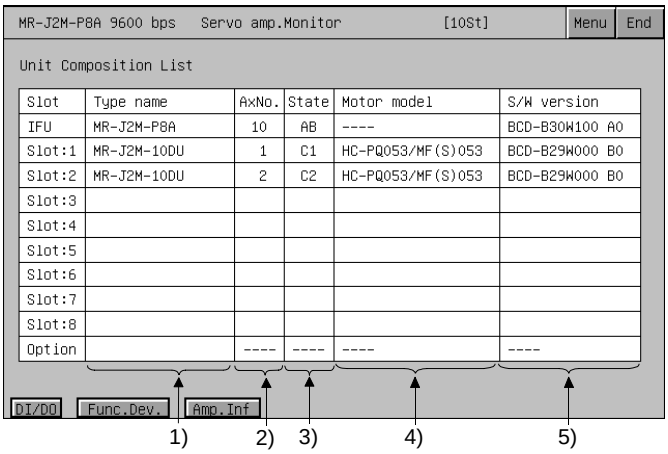
The following table indicates the functions of the keys used for the operations of the ABS data display screen.

Key	Function
Current position	Changes the indication between the current value and home position information of the encoder data. (Displayed only when the A95*GOT/A956WGOT is used.)
DI/DO	Changes to the DI/DO display screen (refer to Section 26.6.1).
Func.Dev.	Changes to the function device screen (refer to Section 26.6.2).
UnitCompo.	Changes to the unit composition list screen (refer to Section 26.6.5).
Amp.Inf	Changes to the amplifier information screen (refer to Section 26.6.3).
Menu	Confirms the settings and returns to the function selection menu screen.
End	Terminates the servo amplifier monitor functions.

26.6.5 Unit composition list display screen

This section describes the display data of the unit composition list display screen and the key functions displayed on the screen.

(1) About the display data



No.	Item	Description
1)	Type name	Displays the types of the drive unit (DRU), interface unit (IFU) and option unit installed to the slots.
2)	Axis No.	Displays the axis numbers of the drive unit (DRU) and interface unit (IFU).
3)	State	Displays the states and alarm/warning numbers of the drive unit (DRU) and interface unit (IFU).
4)	Motor model	Displays the motor model connected to the drive unit (DRU).
5)	S/W version	Displays the software numbers of the drive unit (DRU) and interface unit (IFU).

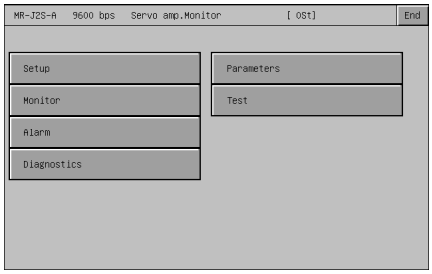
(2) About the key functions

The following table indicates the functions of the keys used for the operations of the unit composition list display screen.

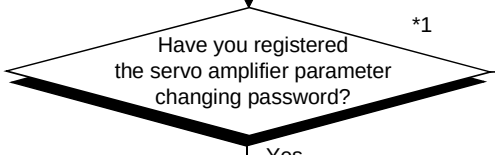
Key	Function
DI/DO	Changes to the DI/DO display screen (refer to Section 26.6.1).
ABSdata	Changes to the ABS data screen (refer to Section 26.6.4).
Amp.Inf	Changes to the amplifier information screen (refer to Section 26.6.3).
Func.Dev.	Changes to the function device screen (refer to Section 26.6.2).
Menu	Confirms the settings and returns to the function selection menu screen.
End	Terminates the servo amplifier monitor functions.
▲ ▼	Scrolls the list display in units of three items. (Displayed only when the A95*GOT/A956WGOT is used.)

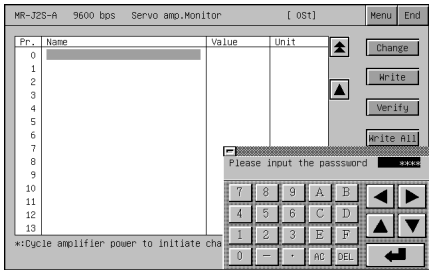
26.7 Parameter Setting

Using the parameter setting function, you can set the servo parameters (basic parameters/extension parameters 1, 2) for the connected servo amplifier.
After the password has been set on GT Designer, an attempt to access the parameter setting screen of the servo amplifier monitor displays the password input screen.
After selection of Parameters on the function selection menu screen, the screen transition is as shown below.



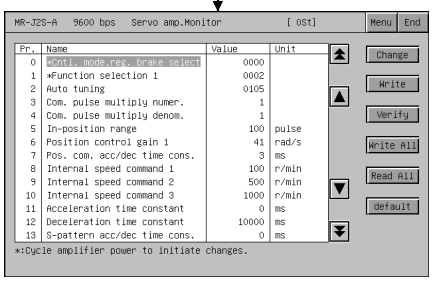
Function selection menu screen (refer to Section 26.2)





Password input screen

Enter the parameter changing password. ... Refer to Section 26.7.1

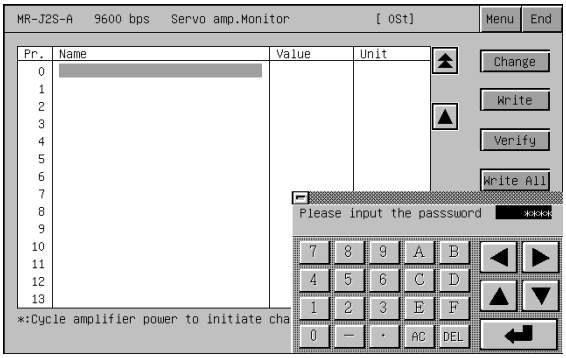


Parameter setting screen

*1 Set the servo parameter changing password on GT Designer.
For details of the parameter setting, refer to the GT Works Version 5/GT Designer Version 5 Reference Manual.

26.7.1 Password entry operation procedure

The following gives the servo parameter changing password input operation procedure.



(1) Features

- If the characters entered match a password, the Parameter Setting screen appears.
- If the password does not match, the error message appears.
  Touching ▭ returns to the function selection menu screen.
- Numerical numbers and alphabets A to F can be used for a password.

(2) Procedure

(a) To enter a password, follow these steps:

- Touch 0 to 9 and A to F to enter a password.
- Touch ↵ to confirm the password entered.
- To correct the password entered, touch DEL to delete wrong characters and then enter correct characters again.

(b) To quit entering a password:

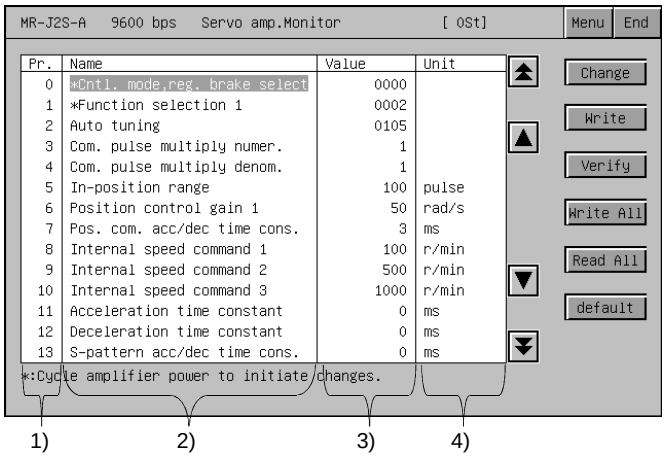
- Touch ▭ to return to the previous monitor screen.

26.7.2 Parameter setting screen

This section describes the display data of the parameter setting screen and the key functions displayed on the screen.

POINT
The ∗ mark preceding the parameter name indicates that the parameter is made valid when power is switched off once and then on again after the parameter value has been set.

(1) Display screen



No.	Item	Description
1)	Pr.*1	Displays the parameter number.
2)	Name	Displays the parameter name.
3)	Value*1	Displays the current setting of the parameter.
4)	Unit*1	Displays the setting unit of each parameter.

*1: When the A956W/A95*GOT is used, the information of only the selected parameter is displayed at the bottom of the screen.

(2) About the key functions

The following table indicates the functions of the keys used for the operations of the parameter setting screen.

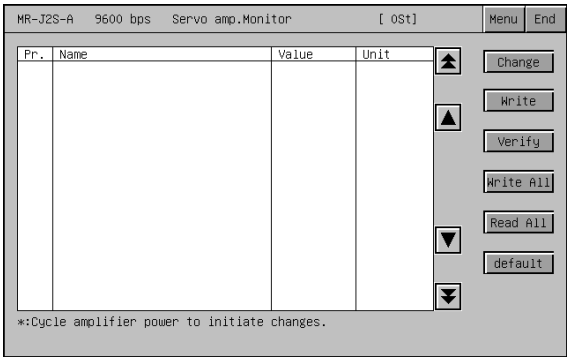
Key	Function
▲ ▼	Selects the servo parameter setting item.
⏫ ⏬	Scrolls the parameter items in units of one screen.
Change	Changes the servo parameter setting read to the GOT internal memory.
Write	Writes the servo parameter setting of the selected item to the servo amplifier.
Verify	Verifies all parameter values currently displayed on the GOT and the parameter values of the servo amplifier.
Write All	Writes all parameter values currently displayed on the GOT to the parameters of the servo amplifier.
Read All	Reads all parameter values from the servo amplifier to the GOT and displays them there.
default	Returns all parameter values to the initial values.

Key	Function
Param.IFU Param.DRU *1	Every time touched, changes the parameter display between the drive unit (DRU) and interface unit (IFU).
Slot:1 *1	Selects the slot number of the drive unit (DRU).
Pr. 0 *1	Displays the specified parameter number on the parameter list screen. (Displayed only when the A95*GOT/A956WGOT is used.)
Menu	Confirms the settings and returns to the function selection menu screen.
End	Terminates the servo amplifier monitor functions.

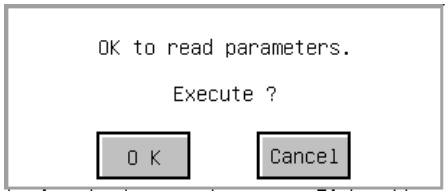
*1: Displayed only when the MR-J2M A series is connected.

26.7.3 Parameter setting operation

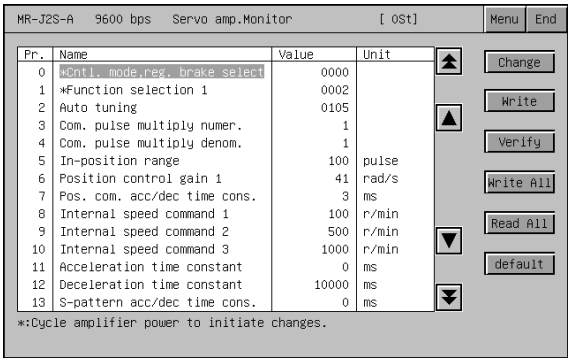
The following describes the procedure of changing the setting of the "Auto tuning" item as an example of parameter setting operation .



1) Touch the Read All key.
The parameter values in the servo amplifier are read and displayed on the screen.

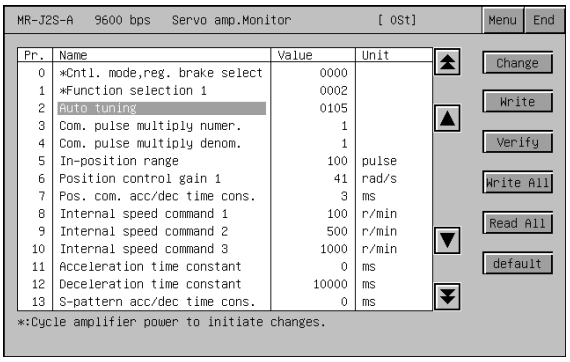


2) The parameter read confirmation window appears.
Touch the OK key to read the parameter values in the servo amplifier to the GOT.



3) The parameter values read from the servo amplifier are displayed on the screen.

The parameters disabled for write/read are not displayed on the parameter setting screen.



4) Choose the item whose parameter will be set with the ▲, ▼ key, and touch the Change key.

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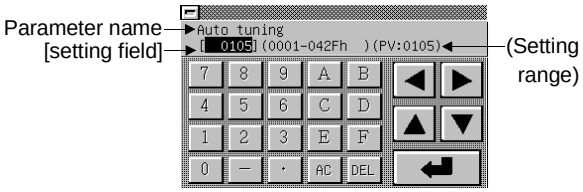
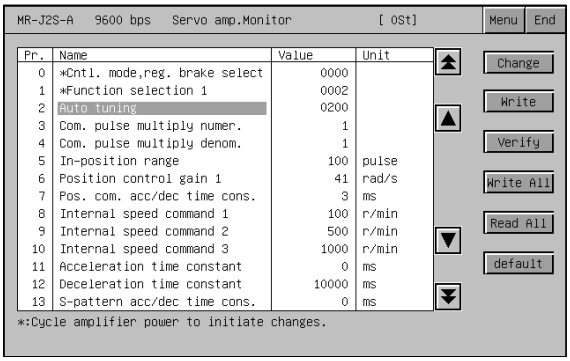
(From previous page)

↓



5) As the parameter setting window appears, enter the parameter setting data with Alphanumeric, and touch ↵ to confirm the setting.
If you do not confirm it, touch ▭ to close the parameter setting window.

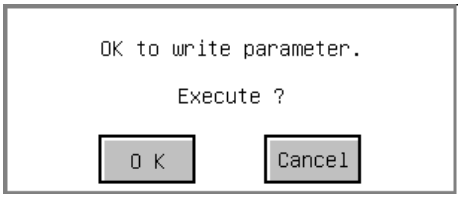
↓



6) The parameter value changes on the parameter setting screen.

Choose the changed parameter item and touch the Write key.
When you have changed the settings of two or more parameter items, touch the Write All key to write all the parameter items whose settings have been changed.

↓



7) The confirmation window appears.
Touch the OK key to write the parameter setting to the servo amplifier.
When you do not write the parameter setting, touch the Cancel key.

This completes the parameter setting write operation.

POINT

(1) The changes made to the parameter settings are written to the E^2PROM of the servo amplifier.
Hence, if the amplifier is powered off, the written parameter values are retained.

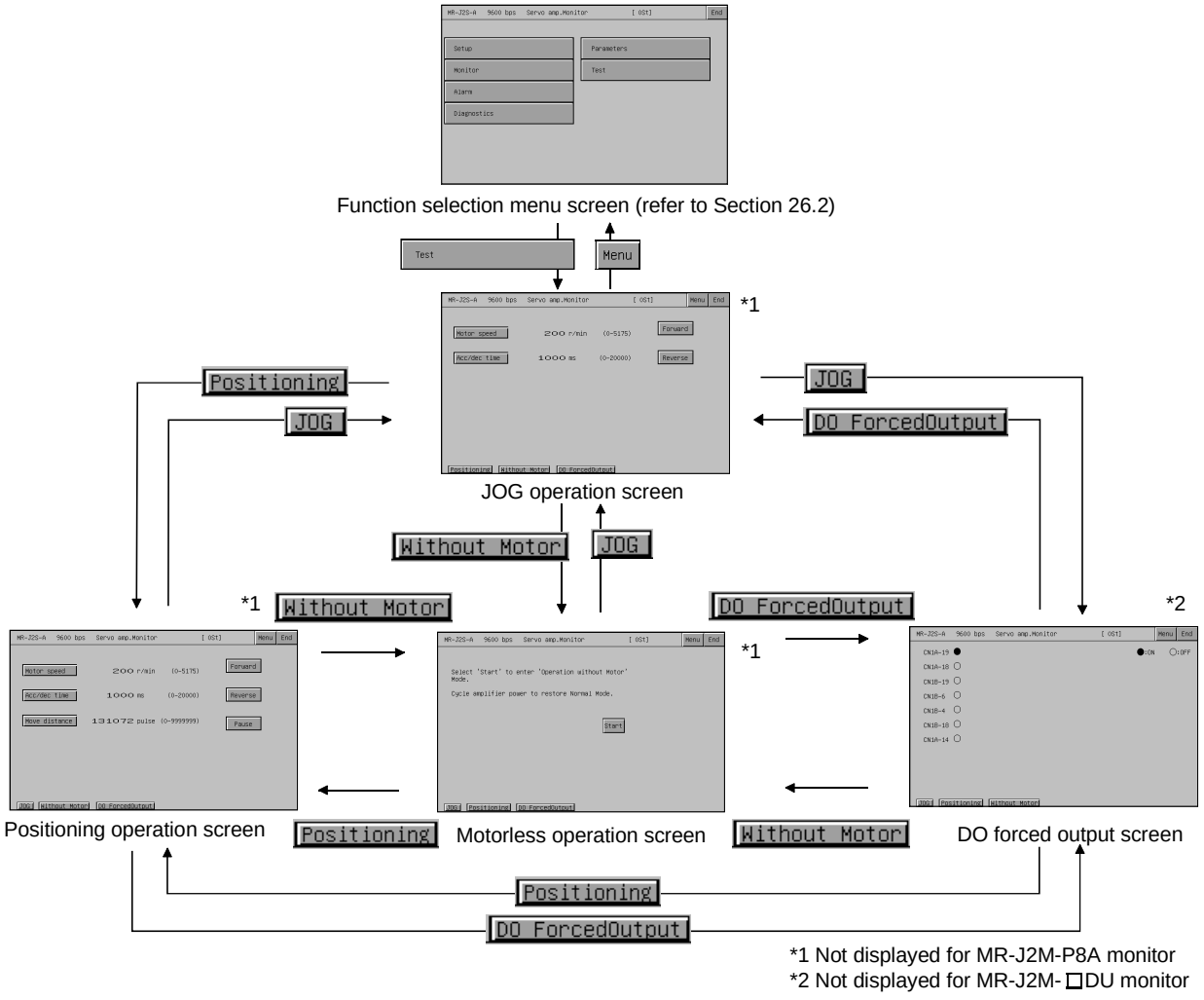
(2) When you have changed any parameter setting on the servo amplifier side, also change that setting to the same value on the setup screen of the GOT (Section 26.2).
If the setup screen settings and servo amplifier side settings do not match, normal communication cannot be made with the servo amplifier.
- Serial communication baudrate selection
- Protocol station number selection
- Station number setting

26.8 Test Operations

The following test operations are performed for the connected servo amplifier.

- JOG operation (Refer to Section 26.8.3.) : The servo motor runs while you are touching the Forward or Reverse key.
- Positioning operation (Refer to Section 26.8.4.) : When you touch the Forward or Reverse key, this operation starts and runs the servo motor by the preset distance.
- Motorless operation (Refer to Section 26.8.5.) : Simulates the operation of the servo motor in the servo amplifier if the servo motor is not connected.
- DO forced output (Refer to Section 26.8.6.) : Forcibly turns ON/OFF the output signals independently of the output conditions of the servo amplifier output signals.

(1) The following shows the screen transition after selection of Test on the function selection menu screen.
Some screens may not be displayed depending on the model of the connected servo amplifier.
For the screens that cannot be displayed, refer to (2).



POINT
If the JOG operation screen data has not been downloaded to the GOT, "Monitor data not found" appears and the subsequent screens are not displayed.

(2) Display screens

The screens that can be displayed are indicated on a servo amplifier model basis.

Servo Amplifier / Display Screen	MR-J2S-□A	MR-J2S-□CP	MR-J2M A Series	
			MR-J2M-P8A	MR-J2M-□DU
JOG operation	○	○	——	○
Motorless operation	○	○	——	○
Positioning operation screen	○	○	——	○
DO forced output screen	○	○	○	—

○: Screen present —: Screen absent

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26.8.1 Precautions for test operations

This section gives the precautions for using the test operations of the servo amplifier monitor functions.

⚠ WARNING

- Do not operate the servo amplifier switches with wet hands. Doing so can cause an electric shock.
- Do not perform operations with the front cover of the servo amplifier removed. Doing so can cause an electric shock since the high-voltage terminals and charging section are exposed.
- Do not open the front cover of the servo amplifier while power is on and during operation. Doing so can cause an electric shock.

⚠ CAUTION

- Before starting test operations, always read the precautions for test operations in the manual of the corresponding servo amplifier.
- Before starting operation, check the servo amplifier parameters. Depending on the machine, unexpected operation may be performed.
- While power is on or for some time after power-off, the servo amplifier's heat sink and regenerative brake resistor, the servo motor, and others may be hot. Do not touch them and bring the parts (cables, etc.) close to them. Doing so can cause a burn and damage to the parts.

(1) Servo on

In the JOG operation and positioning operation among the test operations, the SON digital input signal of the servo amplifier is turned ON automatically in the servo amplifier to start operation, independently of whether the SON signal is ON or OFF.

The servo amplifier does not accept any external command pulses and input signals (expect the emergency stop) until the test operation screen is closed. SON turns ON automatically by touching the Forward or Reverse key on the JOG operation screen or positioning operation screen.

(2) Stop

POINT
To make an emergency stop, turn OFF the emergency stop signal of the servo amplifier or switch off the input power.

(a) The operation for stopping the test operation on the servo amplifier monitor screen is as described below.
- JOG operation: Release the Forward or Reverse key.
- Positioning operation: Touch the Pause key.

(b) The servo motor stops if any of the following states occurs during test operation.
- The communication cable is disconnected.
- The servo amplifier monitor screen is switched to that of the other servo amplifier, or the servo amplifier monitor function is terminated. However, during motorless operation, the test mode is not canceled until the servo amplifier is powered off.

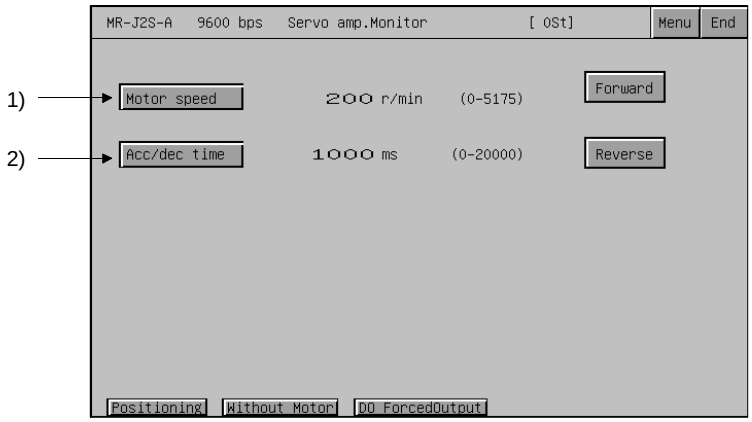
26.8.2 Preparations for test operations

To start test operations, you need to make settings for test operations on the connected servo amplifier.
For details of the servo amplifier side settings for performing test operations, refer to the manual of the connected servo amplifier.

26.8.3 JOG operation screen

This section describes the display data of the JOG operation screen and the key functions displayed on the screen.

(1) About the display data



No.	Item	Description
1)	Motor speed	Displays the set speed of the servo motor.
2)	Acc/dec time	Displays the set acceleration/deceleration time constant of the servo motor.

(2) Operation

- Operation start
  Touch the [Forward] or [Reverse] key.
- Operation stop
  Release the [Forward] or [Reverse] key.

(3) About the key functions

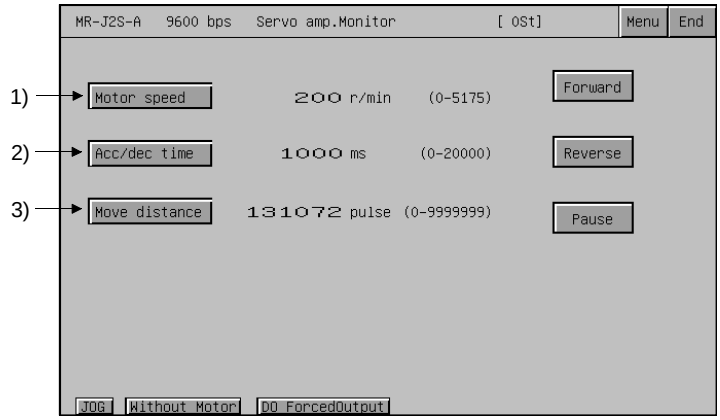
The following table indicates the functions of the keys used for the operations of the JOG operation screen.

Key	Function
Forward	Runs the servo motor in the forward rotation (CCW) direction while being touched.
Reverse	Runs the servo motor in the reverse rotation (CW) direction while being touched.
Motor speed	Changes the servo motor speed.
Acc/dec time	Changes the acceleration/deceleration time constant.
Positioning	Changes to the positioning operation screen (refer to Section 26.8.4).
Without Motor	Changes to the motorless operation screen (refer to Section 26.8.5).
DO ForcedOutput	Changes to the DO forced output screen (refer to Section 26.8.6).
Menu	Confirms the settings and returns to the function selection menu screen.
End	Terminates the servo amplifier monitor functions.

26.8.4 Positioning operation screen

This section describes the display data of the positioning operation screen and the key functions displayed on the screen.

(1) About the display data



No.	Item	Description
1)	Motor speed	Displays the set speed of the servo motor.
2)	Acc/dec time	Displays the set acceleration/deceleration time constant.
3)	Move distance	Displays the set distance.

(2) Operation

- Operation start
  Touch the [Forward] or [Reverse] key.
  To resume the operation stopped temporarily, retouch the [Forward] button for forward rotation or the or [Reverse] button for reverse rotation.
- Operation stop
  Operation stops when the axis has moved the preset distance.
  Alternatively, touch the [Pause] key to stop the operation temporarily.
  After a temporary stop, retouch the [Pause] key to erase the remaining distance.

(3) About the key functions

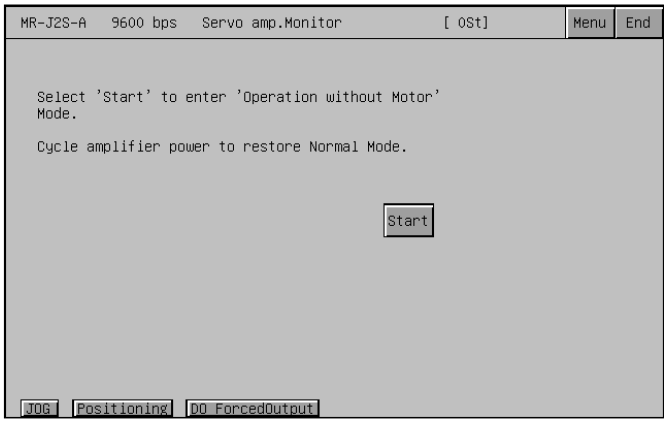
The following table indicates the functions of the keys used for the operations of the positioning operation screen.

Key	Function
Forward	Runs the servo motor in the forward rotation (CCW) direction.
Reverse	Runs the servo motor in the reverse rotation (CW) direction.
Pause	Stops the running servo motor temporarily.
Motor speed	Changes the servo motor speed.
Acc/dec time	Changes the acceleration/deceleration time constant.
Move distance	Changes the distance.
JOG	Changes to the JOG operation screen (refer to Section 26.8.3).
Without Motor	Changes to the motorless operation screen (refer to Section 26.8.5).
DO ForcedOutput	Changes to the DO forced output screen (refer to Section 26.8.6).
Menu	Confirms the settings and returns to the function selection menu screen.
End	Terminates the servo amplifier monitor functions.

26.8.5 Motorless operation screen

This section describes the display data of the motorless operation screen and the key functions displayed on the screen.

(1) About the display data



(2) Operation

- Operation start
  Touch the Start key.
- Operation stop
  Power off the servo amplifier to cancel the motorless operation.

(3) About the key functions

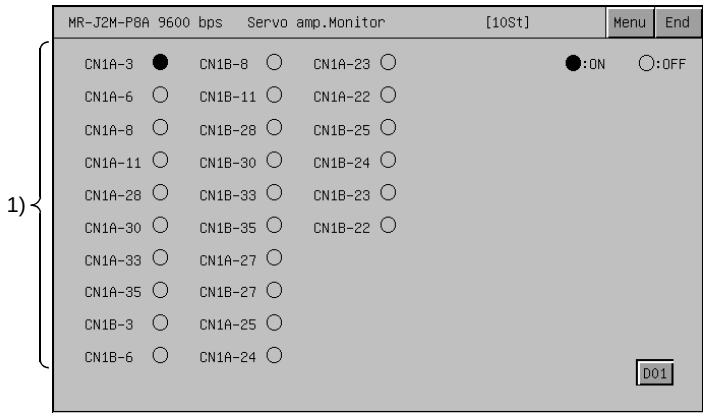
The following table indicates the functions of the keys used for the operations of the motorless operation screen.

Key	Function
Start	Starts motorless operation.
JOG	Changes to the JOG operation screen (refer to Section 26.8.3).
Positioning	Changes to the positioning operation screen (refer to Section 26.8.4).
DO ForcedOutput	Changes to the DO forced output screen (refer to Section 26.8.6).
Menu	Confirms the settings and returns to the function selection menu screen.
End	Terminates the servo amplifier monitor functions.

26.8.6 DO forced output screen

This section describes the display data of the DO forced output screen and the key functions displayed on the screen.

(1) About the display data



No.	Item	Description
1)	Output signal ON/OFF state	Displays the ON (●)/OFF (○) of each output signal of the servo amplifier. • After this screen has been switched to another screen, all external I/O signals are turned OFF

(2) Operation

Touch the required output signal name to invert the ON/OFF status of the corresponding signal and write it to the servo amplifier.

(3) About the key functions

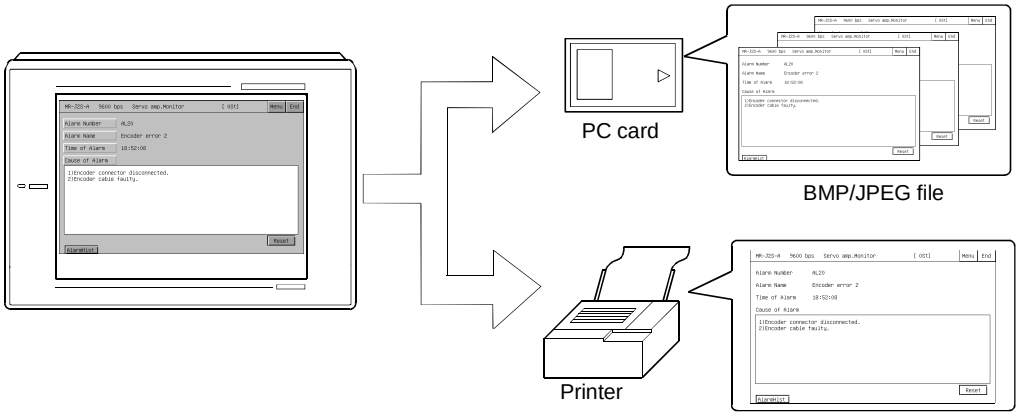
The following table indicates the functions of the keys used for the operations of the DO forced output screen.

Key	Function
CN1A-3 (Signal names of output signals)	By touching the signal name of the required output signal, SET/RESET the corresponding signal status (● : ON, ○ : OFF). • If the current output signal is ON, it is turned OFF (reset). If it is OFF, it is turned ON (set).
DO1 *1	Displays the external output signals of the extension I/O unit.
JOG	Changes to the JOG operation screen (refer to Section 26.8.3
Positioning	Changes to the positioning operation screen (refer to Section 26.8.4).
Without Motor	Changes to the motorless operation screen (refer to Section 26.8.5).
Menu	Confirms the settings and returns to the function selection menu screen.
End	Terminates the servo amplifier monitor functions.

*1 Displayed only when the MR-J2M-P8A is connected.

26.9 About Hardcopy Output

This section describes the way to print the ladder monitor screen with the printer or to save it in the PC card in the BMP/JPEG file format during ladder monitor.



Depending on the used GOT, output the hardcopy in the following corresponding method.

(1) When A985GOT or A97*GOT is used

Touch the Start hardcopy or Stop hardcopy key displayed on the ladder monitor screen to output the hardcopy.

(2) When A95*GOT or A956WGOT is used

Set the start/stop triggering device of the hardcopy function on GT Designer and turn that device ON/OFF to output the hardcopy.

POINT

- When printing out the ladder monitor screen, always install the option driver into the GOT.
- Set the output destination (PC card/printer) of the hardcopy in the hardcopy setting of GT Designer.
  Refer to Help of GT Designer for details of the hardcopy setting.

Chapter27 ERROR INDICATIONS AND CORRECTIVE ACTIONS FOR SERVO AMPLIFIER MONITOR

This chapter provides the error indications given during servo amplifier monitor operation and their corrective actions.

Error Message	Error Definition	Corrective Action
Monitor data not found	Monitor data have not been installed, or monitor data have been deleted.	Download the monitor data of the servo amplifier monitor.
No AMP Communications	Communication cannot be made with the servo amplifier set as the monitor destination.	• Check the connection state (connector disconnection, cable wire break) of the servo amplifier and GOT. • Check the servo amplifier for error occurrence. • Set the same values to the servo amplifier monitor function setup screen and servo amplifier side parameters.
This test mode cannot be selected. Operation without Motor rotation	The other test operation function has started.	End the other test operation function.
SON Make sure that operation is at a stop.	The SON signal of the servo amplifier is ON.	Turn OFF the SON signal of the servo amplifier.
Servo alarm has occurred. Alarm:＊＊	A value outside the setting range was set in the servo parameter setting.	Set the servo amplifier parameter values inside the setting ranges.
Emergency is stopping	An alarm occurred in the connected servo amplifier.	Reset the alarm of the servo amplifier.
Unit not found	The selected slot is not loaded with the drive unit.	Select the slot where the drive unit is loaded.
Unmatched password	The password entered as the servo amplifier changing password is illegal.	Enter the correct password.
Please confirm forward or reversal stroke end (LSP or LSN)	The LSP/LSN signal of the servo amplifier is OFF.	Turn ON the LSP/LSN signal of the servo amplifier.

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WARRANTY

Please confirm the following product warranty details before using this product.

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company.
However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

[Gratis Warranty Term]

The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place.
Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

(1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.
(2) Even within the gratis warranty term, repairs shall be charged for in the following cases.
1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
2. Failure caused by unapproved modifications, etc., to the product by the user.
3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

(1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued. Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.
(2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation of damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products, special damages and secondary damages whether foreseeable or not , compensation for accidents, and compensation for damages to products other than Mitsubishi products, replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

6. Product application

(1) In using the Mitsubishi MELSEC programmable logic controller, the usage conditions shall be that the application will not lead to a major accident even if any problem or fault should occur in the programmable logic controller device, and that backup and fail-safe functions are systematically provided outside of the device for any problem or fault.
(2) The Mitsubishi programmable logic controller has been designed and manufactured for applications in general industries, etc. Thus, applications in which the public could be affected such as in nuclear power plants and other power plants operated by respective power companies, and applications in which a special quality assurance system is required, such as for Railway companies or Public service purposes shall be excluded from the programmable logic controller applications.
In addition, applications in which human life or property that could be greatly affected, such as in aircraft, medical applications, incineration and fuel devices, manned transportation, equipment for recreation and amusement, and safety devices, shall also be excluded from the programmable logic controller range of applications.
However, in certain cases, some applications may be possible, providing the user consults their local Mitsubishi representative outlining the special requirements of the project, and providing that all parties concerned agree to the special circumstances, solely at the users discretion.

GOT-A900 Series Operating Manual

(GT Works Version5/GT Designer Version5 compatible
Extended•Option Functions Manual)

MODEL	SW5-GOTR-O(SYS)-E
MODEL CODE	1DM185
SH(NA)-080118-J(0601)MEE	

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