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1. INTRODUCTION

This manual describes the part names, dimensions, mounting, and specifications of the product. Before use, read this manual fully to acquire proficiency in handling and operating the product. Make sure to learn all the product information, safety information, and precautions.

Store this manual in a safe place so that it can be taken out and read whenever necessary. Always forward it to the end user.

Registration:
The company and product names described in this manual are registered trademarks or the trademarks of their respective companies.

Effective April 2015
Specifications are subject to change without notice.
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1.1 CAUTION

Safety Precaution (Read these precautions before use.) This manual classifies the safety precautions into two categories: 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.

Depending on the circumstances, procedures indicated by CAUTION may also cause severe injury. It is important to follow all precautions for personal safety.

APPLICABLE STANDARDS
FX3G-5DM units made in November, 2008 or later comply with the EC Directive (EMC Directive).

Attention
• This product is designed for use in industrial applications.

Note
Authorized Representative in the European Community:
Mitsubishi Electric Europe B.V.
Gothaer Str. 8, 40880 Ratingen, Germany

1.2 INCLUDED ITEMS

The FX3G-5DM display module (hereinafter called display module) is installed to the FX3G main unit to monitor/change device states and values.

<table>
<thead>
<tr>
<th>Included Items</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FX3G-5DM display module</td>
<td>1 unit</td>
</tr>
<tr>
<td>Manual [English version]</td>
<td>1 manual</td>
</tr>
</tbody>
</table>

1.3 EXTERNAL DIMENSIONS AND PART NAMES

---

[2] “ESC” button Use to cancel operation or return to previous screen.
[3] “-” button Use to move cursor or set the value.
[4] “+” button Use to move cursor or set the value.
[5] “OK” button Use to choose the item, set the value, etc.
[6] Connector for main unit Used to connect display module to main unit.
[7] Display module fixing hook Used to fix display module to main unit.

2. INSTALLATION

DANGER INSTALLATION PRECAUTIONS
• Make sure to cut off all phases of the power supply externally before attempting installation or wiring work. Failure to do so may cause electric shock or damage to the product.

CAUTION INSTALLATION PRECAUTIONS
• Use the product within the generic environment specifications described in PLC main unit manual. Never use the product in areas with excessive dust, oily smoke, conductive dusts, corrosive gas (salt air, Cl₂, H₂S, SO₂, or NO₂), flammable gas, vibration or impacts, or expose it high temperature, condensation, or rain and wind. If the product is used in such conditions, electric shock, fire, malfunctions, deterioration or damage may occur.
  • Do not touch the conductive parts of the product directly. Doing so may cause device failures or malfunctions.
  • Connect the display module securely to their designated connectors. Loose connections may cause malfunctions.

The following section describes the installation method for the FX3G Series PLC (FX3G-40MR). In this example, turn off the power to the PLC before installation. For more details on installation and removal, refer to the PLC main unit manual.
Installing the Display Module Directly to the Main Unit
• Remove the top cover (A in the figure below).
• Make sure the display module (B in the figure below) is in parallel with the main unit and attach it to the optional equipment connector.

CAUTION Display module cannot attach to the top cover (S) side of a 40/60-point types main unit.

Using the Display Module Together with an Expansion Board
• Assuming that the expansion board is attached to the main unit. The connector cover for the expansion board is removed.
• Cut off the part A shown below (display module).
• Make sure the display module is in parallel with the main unit and attach it to the optional equipment connector (B in the figure below).

CAUTION Display module cannot attach to the top cover (S) side of a 40/60-point types main unit.

3. SPECIFICATIONS

CAUTION STARTUP AND MAINTENANCE PRECAUTIONS
• Do not disassemble or modify the PLC. Doing so may cause fire, equipment failures, or malfunctions.
• Do not drop the product or exert strong impact to it. Doing so may cause damage.

CAUTION DISPOSAL PRECAUTIONS
• Please contact a certified electronic waste disposal company for the environmentally safe recycling and disposal of your device.

CAUTION TRANSPORT AND STORAGE PRECAUTIONS
• The product is a precision instrument. During transportation, avoid any impacts. Failure to do so may cause failures in the product. After transportation, verify the operations of the product.

The general specifications are equivalent to the PLC main unit. For general specifications, refer to the Quick Start guide.

4. FUNCTION LIST

The functions of a display module are listed as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Function</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Screen (Time Display)</td>
<td>Displays the time indicated by the main unit's internal real-time clock.</td>
<td>Button operation</td>
</tr>
<tr>
<td>Menu Screen Functions</td>
<td>Monitor/Test (Input Y)*1, output Y), auxiliary relay (M), state (S), timer (T), counter (C), data register (D) [16-bit/32-bit], extended register (R) [16-bit/32-bit], and extended file register (ER) [16-bit/32-bit]</td>
<td>Monitor/test function</td>
</tr>
<tr>
<td></td>
<td>ErrorCheck</td>
<td>Performs error checks and displays the results.</td>
</tr>
<tr>
<td></td>
<td>LANGUAGE (Selects the Menu Display Language) Selects either Japanese or English as the menu display language.</td>
<td>Button operation</td>
</tr>
<tr>
<td></td>
<td>Contrast</td>
<td>Adjusts the contrast (-5 to 10); default setting: 0</td>
</tr>
<tr>
<td></td>
<td>Clock Menu Display</td>
<td>Displays the current time. Button operation</td>
</tr>
<tr>
<td></td>
<td>Setting</td>
<td>Sets the current time. Button operation</td>
</tr>
<tr>
<td></td>
<td>Keyword</td>
<td>The currently specified password can be canceled.</td>
</tr>
<tr>
<td>Non-Menu Functions</td>
<td>Specified Device Monitor Function Displays the monitor/test screen for a specified device at the top.</td>
<td>Requires program</td>
</tr>
<tr>
<td></td>
<td>Screen Saver Function</td>
<td>Displays the screen saver if key operation is not given for specified period of time.</td>
</tr>
<tr>
<td></td>
<td>Display Screen Protect Function Enables all functions, prohibits change (test) functions, and protects the top screen (time display).</td>
<td>Requires program</td>
</tr>
<tr>
<td></td>
<td>Operation button ON/OFF Information Allows monitoring of operation button ON/OFF status.</td>
<td>Requires program or monitor</td>
</tr>
<tr>
<td></td>
<td>Hexadecimal Current Value Display Setting Changes the display format of the current values and setting values for the timer, counter, data register, extended register, and extended file register to a hexadecimal display format.</td>
<td>Requires program</td>
</tr>
</tbody>
</table>

1. There is no test function for “Input (X)”.
2. A sequence program is required to enable a hexadecimal display of the timer (T), counter (C), data register (file register) (D) [16-bit/32-bit], extended register (R) [16-bit/32-bit], and extended file register (ER) [16-bit/32-bit] current values.
3. When no setting is made within a program the screen saver function becomes effective after 10 minutes.

5. ACCESSING THE MENU SCREEN

All operation explanations and display screen examples in this manual are in English. When the menu display language is set to Japanese, please convert the screen messages to their Japanese translations.
TITLE SCREEN

The screen shown below is displayed for 1.5 seconds after the power is turned on.

<table>
<thead>
<tr>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1] Model name</td>
</tr>
</tbody>
</table>

MELSEC-F
FX3G Series
Ver. 1.10

TOP SCREEN (TIME DISPLAY)

Following the title screen display, the “Current Time screen” is then displayed.

- The specified device monitor screen is displayed instead when the specified device monitor function is used.
- Although the year displays in a 2-digit format (08), this can be changed to a 4-digit format (2008) by revising the program.

01.10.08
23:59:59 (Wed)

MENU SCREEN

As shown below, the menu screen displays 4 lines of the total menu. Press the [+] button to scroll downward through the menu.

<table>
<thead>
<tr>
<th>Button</th>
<th>Operation Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC</td>
<td>Returns to the “top screen” (time display).</td>
</tr>
<tr>
<td>-</td>
<td>Scrolls upward through the menu. Hold for 1 second or longer for high-speed scrolling. This button is disabled when the cursor is located at the beginning of the menu.</td>
</tr>
<tr>
<td>+</td>
<td>Scrolls downward through the menu. Hold for 1 second or longer for high-speed scrolling. This button is disabled when the cursor is located at the end of the menu.</td>
</tr>
<tr>
<td>OK</td>
<td>Selects the item where the cursor is blinking</td>
</tr>
</tbody>
</table>

6. MENU STRUCTURE

<table>
<thead>
<tr>
<th>Title screen</th>
<th>Operation keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>MELSEC-F</td>
<td>Press the [OK] button</td>
</tr>
<tr>
<td>FX3G Series</td>
<td>Press the [ESC] button</td>
</tr>
<tr>
<td>Ver. 1.10</td>
<td>The [+] / [-] button are used to move the cursor and switch between display screens.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Top screen (Time display)</th>
<th>Monitor/Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>D (16bit)</td>
</tr>
<tr>
<td>ESC</td>
<td>DD (32bit)</td>
</tr>
<tr>
<td></td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>R (16bit)</td>
</tr>
<tr>
<td></td>
<td>DR (32bit)</td>
</tr>
<tr>
<td></td>
<td>ER (16bit)</td>
</tr>
<tr>
<td></td>
<td>DER (32bit)</td>
</tr>
<tr>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>M</td>
</tr>
<tr>
<td></td>
<td>S</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Menu screen</th>
<th>ErrorCheck</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>ErrorCheck</td>
</tr>
<tr>
<td></td>
<td>No errors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Menu screen</th>
<th>LANGUAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>LANGUAGE</td>
</tr>
<tr>
<td></td>
<td>Japanese</td>
</tr>
<tr>
<td></td>
<td>English</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Menu screen</th>
<th>Contrast</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>Contrast</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>(-5 ~ 10)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Menu screen</th>
<th>ClockMenu</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>ClockMenu</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Menu screen</th>
<th>Current time</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>Current time</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Display example</th>
<th>Display example</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Top screen (Time display)

01.10.08
23:59:59 (Wed)

Specified device monitor screen
X010 . . . 34567
(Specified)

Switched by system information setting

Display example

Approx. 1.5 secs.
7. MONITOR/TEST MODE

7.1 RELEVANT DEVICES

Monitoring and testing can be performed from the “Monitor/Test” menu for the devices listed below. (Monitoring/testing is not possible for the file register (D) and the index register (V/Z)).

- X  Possible  O  Conditionally Possible  ■  Not Possible
- Item not supported by this device

### Devices

<table>
<thead>
<tr>
<th>Device</th>
<th>Monitored Items</th>
<th>Itemized Items</th>
<th>Operation Direction</th>
<th>Current Value</th>
<th>Setting Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input [X]</td>
<td>Contact</td>
<td>Reset</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Output [Y]</td>
<td>X</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Auxiliary Relay [M]</td>
<td>O</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>State [S]</td>
<td>X</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Timer [T]</td>
<td>X</td>
<td>X</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Counter [C]</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Data Register [D, DD]</td>
<td>–</td>
<td>–</td>
<td>X</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>File Register [D, DD]</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Extended Register [R, DR]</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Extended File Register [ER, DER] *3</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Index Register [V, Z]</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

- Item not supported by this device

Forced ON/OFF

- Device Model
- Current Value
- Setting Change

- All devices
- OK  Switches to the test mode when held for 1 second or longer.

1. A forced ON or OFF is executed for only one operation cycle, and therefore has a considerable effect on the SET/RST and self retaining circuits when the PLC is running. Moreover, a forced ON/OFF result is retained for devices (Y, M, S) which are not being driven by an OUT instruction, etc., in the program.

2. The C200 to C255 32-bit up/down counters and the high-speed counters have counting directions.

3. Extended file registers stored in the EEPROM in the main unit.

### MONITOR MODE OPERATION

This section explains the procedure for monitoring the input [X], output [Y], auxiliary relay [M], state [S], timer [T], counter [C], data registers [D, DD], extended registers [R, DR], and the extended file registers [ER, DER]. The file register [D] and the index registers [V, Z] cannot be monitored.

1. At the menu screen, use the [+] and [-] buttons to move the cursor to the “Monitor/Test” item, then press [OK] to display the “device selection screen” shown at right. To cancel the operation and return to the top screen (time display), press [ESC] at the menu screen.

2. Use the [+] and [-] buttons to move the cursor to the device which is to be monitored. To cancel the operation and return to the “menu screen,” press [ESC].

3. Press [OK] to display the monitor screen for the device which was selected for monitoring. To cancel the operation and return to the “device selection screen,” press [ESC]. After the power is turned on, the number of the device to be displayed is shown as follows.

- The first time the power is turned on, the display begins with device No.1.
- At subsequent power ONs, the device which was being monitored at the previous operation is displayed (they are saved in memory for each device type).

4. Use the [+] and [-] buttons to move the cursor or the screen to the until the device to be monitored is displayed.

### MONITOR SCREEN AND STATUS DISPLAY

Data register [D (16-bit)] / extended register [R (16-bit)] / extended file register [ER (16-bit)]

<table>
<thead>
<tr>
<th>Display Content</th>
<th>[1]</th>
<th>Device Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>[2]</td>
<td>Current Value</td>
<td></td>
</tr>
</tbody>
</table>
Data register [DD (32-bit)] / extended register [DR (32-bit)] / extended file register [DER (32-bit)]

Display Content
[1] Device No.  [Upper 16-bit device No. (odd number)]  
[2] Current Value

File register (D):
The file register (D) current value cannot be directly monitored at the display module.

Display Content
[1] Device No.  [Lower 16-bit device No. (even number)]]  
[2] Contact ON
[3] Off: Blank
[4] Reset image
[5] Current value
[6] Setting value *1

*1. When not using it in a program, a setting value is displayed as “-----”.

Counter [C]:

Display Content
[2] Contact image
ON: ■  
OFF: Blank
[3] Reset image
ON: ■  
OFF: Blank
[4] Count direction display
UP: ■  
DOWN: □  
Blank (32-bit up/down counter and high-speed counter only)
[5] Current value
[6] Setting value *1

*1. When not using it in a program, a setting value is displayed as “-----”.


Display Content
Input (X) and output (Y): 8 points per line.  
Auxiliary relay (M), special auxiliary relay (M), and state (S): 10 points per line.
[2] ON/OFF status
ON: Last digit of device No.
OFF: “-”

7.4 TEST MODE OPERATION

There are 3 types of test mode operations, depending on the device type. The 3 operations are explained below.

DATA REGISTERS [D, DD]

[D: D (16-bit), DD (32-bit)] / extended registers
[R: R (16-bit), DR (32-bit) / extended file registers
[ER: ER (16-bit), DER (32-bit)]

1. Perform a monitor mode operation to display the device whose current value is to be changed.
2. Hold the [OK] button for 1 second or longer to switch to the test mode. The current value begins blinking (refer to fig. at right).
3. Use the [+ / [-] buttons to change the value as desired. To cancel the operation and return to the “monitor screen”, press [ESC].
4. Press [OK] to register the current value and return to the “monitor screen”.

• File register (D)
The display module’s test function cannot be used to change the current value of the file register (D) which is stored in the program memory.

TIMER [T], COUNTER [C]

1. Perform a monitor mode operation to display the device where the test function is to be used. However, when not using it in a program, a setting value is displayed as “-----”. Test function cannot be used.
2. Press the [OK] button to display the cursor, then select the “test subject selection screen”. To cancel the operation and return to the “monitor screen”, press [ESC].
3. Use the [+ / [-] buttons to select the test subject. To cancel the operation and return to the “monitor screen”, press [ESC].


Test Subject  Test Description
[1] Contact forced ON/OFF
[2] Current value change
[3] Setting value change

Test Subject  Test Description
[1] No change
5. Operation varies as shown below, depending on the selected test subject.
   - For "contact forced ON/OFF" The contact ON/OFF status is highlighted when [OK] is pressed.

<table>
<thead>
<tr>
<th>Test Subject</th>
<th>Test Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC</td>
<td>Returns to the &quot;test subject selection screen&quot;.</td>
</tr>
<tr>
<td>-</td>
<td>Disabled</td>
</tr>
<tr>
<td>+</td>
<td>Disabled</td>
</tr>
<tr>
<td>OK</td>
<td>Highlights the contact ON/OFF status, meaning the current value can not be changed.</td>
</tr>
</tbody>
</table>

   - For "current value change," "setting value change" Use the [+]/[-] buttons to change the value as desired, then press [OK] to register the changed value.

<table>
<thead>
<tr>
<th>Test Subject</th>
<th>Test Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC</td>
<td>Cancels the operation and returns to the &quot;test subject selection screen&quot;.</td>
</tr>
<tr>
<td>-</td>
<td>Reduces the value. Hold for 1 second or longer for high-speed decrease.</td>
</tr>
<tr>
<td>+</td>
<td>Increases the value. Hold for 1 second or longer for high-speed increase.</td>
</tr>
<tr>
<td>OK</td>
<td>Registers the current value or the setting value and returns to the &quot;test subject selection screen&quot;.</td>
</tr>
</tbody>
</table>

6. After the setting operation is completed, return to the "test subject selection screen", where the [ESC] button can then be pressed to return to the "monitor screen".


1. Perform a monitor mode operation to display the device whose ON/OFF status is to be changed.
2. Hold the [OK] button for 1 second or longer to switch to the test mode. The device then begins blinking (refer to figure at right). To cancel the operation and return to the "test subject selection screen", press [ESC].
3. Use the [+]/[-] buttons to move the blinking position to the device where a forced ON/OFF is desired. To cancel the operation and return to the "monitor screen", press [ESC].

<table>
<thead>
<tr>
<th>Test Subject</th>
<th>Test Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC</td>
<td>Cancels the operation and returns to the &quot;monitor screen&quot;.</td>
</tr>
<tr>
<td>-</td>
<td>Moves in the lower device No. direction (for forced ON/OFF subject selection). Hold for 1 second or longer for high-speed scrolling.</td>
</tr>
<tr>
<td>+</td>
<td>Moves in the higher device No. direction (for forced ON/OFF subject selection). Hold for 1 second or longer for high-speed scrolling.</td>
</tr>
</tbody>
</table>

4. Press the [OK] button to highlight the contact’s ON/OFF status. Return to the "monitor screen", press [ESC].

5. Press [ESC] to return to the monitor screen.

### 7.5 TEST MODE OPERATION NOTES

1. When using multiple same-number timers (T) and counters (C). Operation occurs as follows if multiple timers [T] and counters [C] are used in programs which contain CJ instructions and step ladders.
   - When a setting change is performed after switching from the device monitor to the test function mode, the setting change is applied to the timer [T] or counter [C] which is nearest to Step 0.
   - When changing the setting values for same-number timers [T] and counters [C], use the programming tool to change the program.

2. When the set values of timers (T) and counters (C) are specified indirectly. When the set values of timers (T) and counters (C) are specified indirectly in programs, the values of indirectly specified devices change if the set values of timers (T) and counters (C) are changed in the display module.

3. When changing the values of extension file registers (ER and DER). When the value of an extension file register (ER or DER) is changed, such a change is counted as write to the EEPROM memory. Be careful not to exceed the allowable number of writes. The allowable number of writes is 20,000 or less for the built-in memory (EEPROM).

### 8. ERROR CHECK

The main unit’s error status displays at the “ErrorCheck” menu.

1. At the menu screen, use the [+]/[-] buttons to move the cursor to the “ErrorCheck” item, then press [OK]. The error check result then displays at the “error display screen” (refer to fig. at right). To cancel the operation and return to the “top screen (time display)”, press [ESC] at the menu screen.

2. If multiple errors have occurred, the [+]/[-] keys can be used to switch between the error display pages.

<table>
<thead>
<tr>
<th>Test Subject</th>
<th>Test Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC</td>
<td>Returns to the &quot;menu screen&quot;.</td>
</tr>
<tr>
<td>-</td>
<td>Disabled</td>
</tr>
<tr>
<td>+</td>
<td>Displays the previous-page's error screen</td>
</tr>
<tr>
<td>OK</td>
<td>Displays the next-page's error screen</td>
</tr>
</tbody>
</table>

When no errors have occurred

<table>
<thead>
<tr>
<th>ErrorCheck</th>
<th>No errors</th>
</tr>
</thead>
</table>

When 1 error has occurred

| ErrorCheck | Error code XXX |

When multiple errors have occurred

| ErrorCheck | Error code XXX |

When an error code 0 occurs

| ErrorCheck | Error code XXX |

When an error code other than 0 occurs

| ErrorCheck | Error code XXX |

When an error code 0 occurs

| ErrorCheck | Error code XXX |

When an error code other than 0 occurs

| ErrorCheck | Error code XXX |
9. LANGUAGE MENU

The language used at the display module menus is specified at the “LANGUAGE” menu. The language setting procedure is described below. All operation explanations and display screen examples in this manual are in English. When the menu display language is set to Japanese, please convert the screen messages to their Japanese translations.

9.1 CHANGING TO JAPANESE MENUS

The procedure for changing from English menus to Japanese menus is described below.

1. Turn the PLC power on. Following a brief title screen display (1.5 seconds), the “top screen (time display)” or a “specified device monitor screen” is displayed.

2. Press the [ESC] button when the specified device screen is displayed. Press the [OK] or [ESC] button when the time is displayed. Then, the menu screen shown on the right appears. Four lines out of the whole menu are displayed at one time on the menu screen.

3. At the menu screen, use the [+]/[-] buttons to move to the “LANGUAGE” item, then press [OK] to display the “display language selection screen.” To cancel the operation and return to the “top screen (time display)”, press [ESC].

4. Use the [+]/[-] buttons to move the cursor to Japanese. To cancel the operation and return to the “menu screen”, press [ESC].

5. Press [OK] to register the selected display language and return to the “menu screen.”

9.2 D8302 CHANGES BY PROGRAM AND RELATED DEVICES

Selections made at this menu are saved at D8302. A Language setting of “1” is specified at factory default. D8302 changes by user program can also be specified.

<table>
<thead>
<tr>
<th>D8302 “1” Current Value</th>
<th>Display Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>K0</td>
<td>Japanese</td>
</tr>
<tr>
<td>K1</td>
<td>English</td>
</tr>
<tr>
<td>Other</td>
<td>English</td>
</tr>
</tbody>
</table>

*K1 English

Other

D8302 *1 Current Value Display Language

1. Latch device

When the display language is set to “Japanese”

<table>
<thead>
<tr>
<th>MB002</th>
<th>MOV</th>
<th>K0</th>
<th>D8302</th>
</tr>
</thead>
</table>

10. DISPLAY CONTRAST

The liquid crystal display contrast setting is specified at the “Contrast” menu. Selections made at this menu are saved at D8302. A contrast setting of “0” is specified at factory default.

1. At the menu screen, use the [+]/[-] buttons to move the cursor to the “Contrast” item, then press [OK] to display the “contrast adjustment screen.” To cancel the operation and return to the “top screen (time display)”, press [ESC].

2. Use the [+]/[-] buttons to adjust the contrast. To cancel the operation and return to the “menu screen”, press [ESC].

3. Press the [OK] button to register the selected setting and return to the “menu screen.”

11. CLOCK MENU

The “ClockMenu” menu consists of “current time” and the “clock setting” items. The current time should be set before operating the system.

11.1 CLOCK SETTING PROCEDURE

1. At the menu screen, use the [+]/[-] buttons to move the cursor to the “ClockMenu” item, then press [OK] to display the selection screen shown at right. To cancel the operation and return to the “top screen (time display)”, press [ESC].

2. Use the [+]/[-] buttons to move the cursor to the “Clock setting” item. To cancel the operation and return to the “menu screen”, press [ESC].

3. Press the [OK] button to display the “Clock setting” screen.” To cancel the operation and return to the “selection screen”, press [ESC].

4. Use the [+]/[-] buttons to change the blinking data as desired, then press [OK] to register the change. Settings are performed in the following sequence: Year Month Day Hours
Minutes Seconds. After pressing [OK] to register the final “seconds” setting, a “Current time is set” message is displayed, completing the current time setting procedure.

5. Press [OK] or [ESC] to return to the “selection screen.”

6. Press [ESC] to return to the “menu screen.”

11.2 DISPLAYING THE CURRENT TIME

1. At the menu screen, use the [+]/[-] buttons to move the cursor to the “ClockMenu” item, then press [OK] to display the selection screen shown to the right. To cancel the operation and return to the “top screen (time display)”; press [ESC].

2. Use the [+]/[-] buttons to move the cursor to the “Current item”. To cancel the operation and return to the “menu screen”, press [ESC].

3. Press the [OK] button to display the current time. To cancel the operation and return to the “selection screen”, press [ESC].

4. Press [OK] or [ESC] to return to the “selection screen.”

5. Press [ESC] to return to the “menu screen.”

11.3 CHANGING THE YEAR FROM 2-DIGIT FORMAT TO 4-DIGIT FORMAT

The “Year” data displays as 2-digit value with a default. This can be changed to a 4-digit display by the following programming.

M8002 MOV K2000 D8018

12. PASSWORD

Passwords registered at the PLC can be canceled from the “Keyword” menu. When canceled, all operations are enabled. Registering or changing passwords is not possible at the display module. The programming tool must be used in advance to register new passwords.

12.1 PASSWORD TYPE AND LEVELS

Keywords can be entered in 2 ways (8-digit or 16-digit *1).

12.2 LEVEL-SPECIFIC RESTRICTIONS SCREEN LIST

X Function Enabled
O Timer and counter setting values cannot be changed.
– Only monitor function is usable (test function is not available)
– Function disabled

12.3 PASSWORD STORAGE

The system has no process for recovering registered password which are forgotten. Therefore, be sure to store the passwords in a secure location.
12.4 SCREENS REQUIRING PASSWORD FOR ACCESS

At the menu screen, use the [+] / [-] buttons to move the cursor to the “Keyword” item, then press [OK] to display one of the 4 screens shown below (the screen that displays depends on the password status).

If no keywords are registered, press [ESC] to return to the “menu screen”. To cancel the operation and return to the “top screen (time display)”, press [ESC].

12.5 CANCELING A PASSWORD

1. At the menu screen, use the [+] / [-] buttons to move the cursor to the “Keyword” item, then press [OK] to display the “keyword input screen”.

If a keyword has been registered, one of the following screens is displayed.

- If a 16-digit password is registered, an 8-digit 2-line screen (shown below) is displayed.
- If an 8-digit password is registered, an 8-digit 1-line screen (shown below) is displayed.

2. Use the [+] / [-] buttons to specify the first digit of the password, then press [OK] to proceed to the next digit. To cancel the operation and return to the “menu screen”, press [ESC].

12.6 ENABLING A PASSWORD

1. At the menu screen, use the [+] / [-] buttons to move the cursor to the “Keyword” item, then press [OK] to display the “enable keyword” screen.

2. Press the [OK] button to enable the keyword. Or, to retain the keyword’s canceled status, press [ESC].

13. SYSTEM INFORMATION

Some of the display module functions require system information settings in order to enable program control of these functions. Functions which require the use of system information are listed below.

- Specified device monitor function: Refer to Section 14 for details.
- Screen saver function: Refer to Section 15 for details.
- Display screen protect function: Refer to Section 16 for details.
- Operation button ON/OFF information: Refer to Section 17 for details.
- Monitor/test function: For hexadecimal display of current value: Refer to Section 18 for the setting procedure.

13.1 SYSTEM INFORMATION LIST

Special data register D8300 and D8301 devices with first numbers specified are assigned as system information devices (data register, auxiliary relay). The data register (excluding special data register) should be specified at the system information’s “system signal 1”, and the auxiliary relay (excluding special auxiliary relay) should be specified at the system information’s “system signal 2”. Both D8300 and D8301 have default settings of “-1”. When D8300 is “-1” the screen saver function becomes effective after 10 minutes.
**System signal 1**

<table>
<thead>
<tr>
<th>System Information</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D8300 = K00</td>
<td>+1</td>
<td>Device type to be displayed</td>
</tr>
<tr>
<td></td>
<td>+2</td>
<td>Device No. to be displayed</td>
</tr>
<tr>
<td></td>
<td>+3</td>
<td>Screen saver setting time (Forced display)</td>
</tr>
<tr>
<td></td>
<td>+4</td>
<td>Device for display screen protect function</td>
</tr>
<tr>
<td></td>
<td>+5</td>
<td>Not used</td>
</tr>
</tbody>
</table>

**System signal 2**

<table>
<thead>
<tr>
<th>System Information</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D8300 = K00</td>
<td>+1</td>
<td>Request Edit of displayed device data</td>
</tr>
<tr>
<td></td>
<td>+2</td>
<td>Edition completion response</td>
</tr>
<tr>
<td></td>
<td>+3</td>
<td>Screen saver function invalid</td>
</tr>
<tr>
<td></td>
<td>+4</td>
<td>Operation button [ESC] button ON/OFF</td>
</tr>
<tr>
<td></td>
<td>+5</td>
<td>[-] button ON/OFF</td>
</tr>
<tr>
<td></td>
<td>+6</td>
<td>[+ ] button ON/OFF</td>
</tr>
<tr>
<td></td>
<td>+7</td>
<td>[OK] button ON/OFF</td>
</tr>
<tr>
<td></td>
<td>+8</td>
<td>Device for specifying the “Monitor/Test” menu's current value and setting the value display format (hexadecimal or decimal).</td>
</tr>
<tr>
<td></td>
<td>+9</td>
<td>Specified device monitor display status</td>
</tr>
<tr>
<td></td>
<td>+10 to 14</td>
<td>Not used</td>
</tr>
</tbody>
</table>

**13.2 SYSTEM INFORMATION SETTING PROGRAM EXAMPLE**

The following is a program example in which the system information has been assigned to D50 to D54 and M50 to M64.

```
M8002  MOV  K50  D8300
Initial pulse  MOV  K50  D8311
                END

System information (system No.1) is set at D50 to D54.
System information (system No.2) is set at M50 to M64.
```

**14. SPECIFIED DEVICE MONITOR**

The specified device monitor function can change the top screen to the monitor/test screen for a device specified by the user.

For the specified device monitor function, specify the device type to be displayed in “D□□” of the system information (system signal 1), and specify the device number to be displayed in “D□□+1” of the system information (system signal 1).

It is necessary to turn ON M\(\Delta\) to enable the test operation on the specified device monitor screen.

**14.1 SYSTEM INFORMATION - SPECIFIED DEVICE MONITOR FUNCTION**

**SYSTEM SIGNAL 1**

<table>
<thead>
<tr>
<th>System Information</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D □□</td>
<td>Device type to be displayed</td>
</tr>
<tr>
<td>D □□+1</td>
<td>Device No. to be displayed *1</td>
</tr>
</tbody>
</table>

*1 Maximum or minimum value of the corresponding device if the device number is set outside the allowable range.

**SYSTEM SIGNAL 2**

<table>
<thead>
<tr>
<th>Value stored in □□</th>
<th>Device Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Input (X)</td>
</tr>
<tr>
<td>2</td>
<td>Output (X)</td>
</tr>
<tr>
<td>3</td>
<td>Auxiliary relay(M)</td>
</tr>
<tr>
<td>4</td>
<td>State (S)</td>
</tr>
<tr>
<td>5</td>
<td>Timer (T)</td>
</tr>
<tr>
<td>6</td>
<td>Counter (C)</td>
</tr>
<tr>
<td>7</td>
<td>Data register (D)</td>
</tr>
<tr>
<td>8</td>
<td>Data register (DD)</td>
</tr>
<tr>
<td>9</td>
<td>Extended register (R)</td>
</tr>
<tr>
<td>10</td>
<td>Extended register (DR)</td>
</tr>
<tr>
<td>Others</td>
<td>Not used</td>
</tr>
</tbody>
</table>

**SYSTEM SIGNAL 2**

<table>
<thead>
<tr>
<th>Value stored in □□</th>
<th>Device Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>M(\Delta)</td>
<td>Request Edit of displayed device data</td>
</tr>
<tr>
<td>M(\Delta)+1</td>
<td>Edition completion response</td>
</tr>
<tr>
<td>M(\Delta)+2</td>
<td>“ESC” key status</td>
</tr>
<tr>
<td>M(\Delta)+3</td>
<td>“-” key status</td>
</tr>
<tr>
<td>M(\Delta)+4</td>
<td>“+” key status</td>
</tr>
<tr>
<td>M(\Delta)+5</td>
<td>“OK” key status</td>
</tr>
<tr>
<td>M(\Delta)+6</td>
<td>Specified device monitor display status</td>
</tr>
<tr>
<td>M(\Delta)+7</td>
<td>ON: Enables the test function. (and enables only monitoring).</td>
</tr>
<tr>
<td>M(\Delta)+8</td>
<td>OFF: Enables the test function. (and enables only monitoring).</td>
</tr>
<tr>
<td>M(\Delta)+9</td>
<td>Specified device monitor setting time (Forced display)</td>
</tr>
</tbody>
</table>

*1 Turns ON after completion of a test operation for a specified device monitor (or when the OK or ESC key operated). To turn OFF, the request edit of a specified device monitor is turned off or is turned off in the user's program.

**14.2 DIFFERENCES BETWEEN SPECIFIED DEVICE MONITOR SCREEN AND MONITOR/TEST SCREEN**

The figure below shows differences between the specified device monitor screen and the monitor/test screen.

```
-D000 is specified

-Monitor/Test Screen

D000  32767
(D000 is monitored)

In the case of a specified device monitor screen "specified" is displayed.
```

**14.3 PROGRAM EXAMPLE1 (when monitoring/testing a timer)**

In this program example, the device type to be displayed on the specified device monitor screen is set to “timer (T)”. Sets the device No. to “T10”.

For testing the timer T10, turn ON M0 to enable the test operation. In this program example, system information is assigned from D50 to D54 and from M50 to M64.

```
M8002  MOV  K50  D8300
Initial pulse  MOV  K50  D8301
                END

System information (system No.1) is set at D50 to D54.
System information (system No.2) is set at M50 to M64.
```

When M0 turns ON, the test operation for T10 is enabled.
14.4 PROGRAM EXAMPLE2 (when monitoring consecutive timers using operation keys)

In this program example, the device type to be displayed on the specified device monitor screen is set to "timer (T)". The operation keys [+ ] and [-] in the display module are available to scroll device numbers T0 to T10 during monitoring.

In this program example, system information is assigned from D50 to D54 and from M50 to M64.

In this program example, system information is assigned from D50 to D54 and from M50 to M64.

Initial pulse

MOV K50 D8300
MOV K50 D8301
RST D51

INOP D51

The timer number is scrolled using the [+] or [-] button while the specified device monitor screen is displayed.

Specified device monitor screen displayed

M802

14.5 PROGRAM EXAMPLE3 (when monitoring non-consecutive timers using operation keys)

In this program example, the device type to be displayed on the specified device monitor screen is set to "timer (T)". The operation keys [+ ] and [-] in the display module are available to scroll device numbers T1, T5, T10 and T20 during monitoring.

In this program example, system information is assigned from D50 to D54 and from M50 to M64.

In this program example, system information is assigned from D50 to D54 and from M50 to M64.

Initial pulse

MOV K50 D8300
MOV K50 D8301
RST D51

INOP D51

The timer number is scrolled using the [+] or [-] button while the specified device monitor screen is displayed.

Specified device monitor screen displayed

M802

14.6 MONITOR OPERATION ON SPECIFIED DEVICE MONITOR SCREEN

The monitor operation on the specified device monitor screen is common for all devices. It is not possible to monitor extension file registers (ER and DER), file registers (D) and index registers (V and Z).

1. Press the [ESC] button to return to the menu screen.

<table>
<thead>
<tr>
<th>Selected Device Type</th>
<th>Button</th>
<th>Operation Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC</td>
<td>-</td>
<td>Returns to the &quot;menu screen&quot;</td>
</tr>
<tr>
<td>-</td>
<td>+</td>
<td>Disabled</td>
</tr>
<tr>
<td>+</td>
<td>OK</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

D1000 32767
(Specified)

14.7 SPECIFIED DEVICE MONITOR SCREEN EXAMPLES

1. Data register [D (16-bit)] / extended register [R (16-bit)]

D1000 32767
(Specified)

2. Data register [DD (32-bit)] / extended register [DR (32-bit)]

File register (D):
The file register (D) current value cannot be directly monitored at the display module.

3. Timer [T]

T0 TS R
TN 0
TV 1000
(Specified)

C0 to C199

4. Counter [C]

C0 CS R
CN 0
CV 1000
(Specified)

C200 to C255


X010 ...34567
(Specified)

M1000 ...34567...
(Specified)
14.8 TEST OPERATION ON SPECIFIED DEVICE MONITOR SCREEN

To perform the test operation on the specified device monitor screen, it is necessary to turn ON $M_{\&+2}$ in the system information (system signal 2). The device test operation is same as the operation in the monitor/test mode.

15. SCREEN SAVER

The screen saver function displays the dedicated screen to prevent burning of the screen when a key operation is not given for the specified time in the display module. For the screen saver function, set the screen saver setting time in “$D_{\&+2}$” of the system information (system signal 1). The screen saver function is set as 10 minutes as an initial value in D8300, when “-1” or $D_{\&+2}$ is “0”.

15.1 SYSTEM INFORMATION - SCREEN SAVER FUNCTION

**SYSTEM SIGNAL 10**

<table>
<thead>
<tr>
<th>System Information</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D_{&amp;+2}$</td>
<td>Screen saver setting time (in units of min)</td>
</tr>
<tr>
<td>1-1 or less: Forced screen saver function (to always display the dedicated screen)</td>
<td></td>
</tr>
<tr>
<td>0: 10 minutes (initial value)</td>
<td></td>
</tr>
<tr>
<td>1 to 240: Can be set in units of minute within this range</td>
<td></td>
</tr>
<tr>
<td>241 or more: 240 minutes</td>
<td></td>
</tr>
</tbody>
</table>

**SYSTEM SIGNAL 2**

<table>
<thead>
<tr>
<th>System Information</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$M_{&amp;+2}$</td>
<td>Screen saver function invalid</td>
</tr>
</tbody>
</table>

15.2 SCREEN SAVER DISPLAY

When a key operation is not given within the specified screen saver setting time, the dedicated screen shown below appears and scrolls from the right to the left and from the top to the bottom. When a key operation is given while the dedicated screen is displayed, the former screen appears. The key operation given for the first time after the dedicated screen appeared resets the screen saver function, and is invalid as a key operation.

15.3 PROGRAM EXAMPLE (screen saver time setting)

In this program example, the screen saver time is set to “5 minutes”. Use this program as a reference when other time settings are specified. In this program example, system information is assigned from D50 to D54 and from M50 to M64.

16. DISPLAY SCREEN PROTECT FUNCTION

The display screen protect function prevents accidental operation by restricting the display module functions. The display screen protect function is enabled when no password is registered. The display screen protect function's protection level is specified in the system information (system signal 1) “$D_{\&+3}$”.

16.1 SYSTEM INFORMATION - DISPLAY SCREEN PROTECT FUNCTION

<table>
<thead>
<tr>
<th>System Information</th>
<th>Setting Content (Level)</th>
<th>Function Restriction Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D_{&amp;+3}$</td>
<td>1</td>
<td>All functions except the “top screen (time display)” and “top screen (specified device monitor)” functions are disabled.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>The following functions are disabled: “monitor/test’s ‘test’ function”, “contrast setting”, “time change”, “menu display language setting”</td>
</tr>
<tr>
<td></td>
<td>Other values</td>
<td>All functions are enabled.</td>
</tr>
</tbody>
</table>

System signal 2

System signal 2 is unrelated to this function.

16.2 PROGRAM EXAMPLE (SCREEN PROTECT FUNCTION SETTING)

In this program example, the display screen protect function is set to “level 2”. Use this program as a reference when other level settings are specified. In this program example, system information is assigned from D50 to D54 and from M50 to M64.

Mitsubishi Electric Automation, Inc.
16.3 KEYWORD AND DISPLAY SCREEN PROTECT FUNCTION LEVELS AND CORRESPONDING RESTRICTIONS

X Usable
O Timer and counter settings cannot be changed
■ Only monitor function is usable (test function is not available)
– Unusable

<table>
<thead>
<tr>
<th>Function Name</th>
<th>Keyword</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-Digit Keyword *1 Setting→</td>
<td>None</td>
</tr>
<tr>
<td>8-digit Keyword Setting (Level) →</td>
<td>None</td>
</tr>
</tbody>
</table>

- A (All Operations Prohibited)
- B (Read/Incorrect Write Protection)
- C (Erroneous Write Prohibited)

- Top screen (Time Display)
- Top Screen (Specified Device Monitor)
- Monitor/Test
- ErrorCheck
- Display Screen Protect Function
- Menu Display Language Setting
- Contrast Adjustment
- Time
- Keyword (Cancel)
- Memory Cassette Transfer

1. Customer keyword/Permanent PLC lock included. However, permanent PLC lock does not have a keyword input.
2. The test function can be enabled or disabled by setting the specified device monitor.

16.4 RELATIONSHIP BETWEEN PASSWORD AND DISPLAY SCREEN PROTECT FUNCTION

If the PLC’s password registration function is used, that password related restriction takes priority over the display module’s “display screen protect function.” The relationship between passwords and the display screen protect function is shown below.

<table>
<thead>
<tr>
<th>Password Registration</th>
<th>Password Status</th>
<th>Display Screen Protect Status</th>
<th>Function Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password is registered</td>
<td>Password is not canceled</td>
<td>Password is not being used</td>
<td>Restriction of functions is according to the password level.</td>
</tr>
<tr>
<td>Password is canceled</td>
<td>Password is not canceled</td>
<td>Password is not being used</td>
<td>All functions are enabled (no restrictions).</td>
</tr>
<tr>
<td>Password is not registered</td>
<td>Password is not being used</td>
<td>Restriction of functions is according to the display screen protect function.</td>
<td></td>
</tr>
</tbody>
</table>

16.5 PASSWORD LEVELS

For 8-Digit Passwords

<table>
<thead>
<tr>
<th>8-Digit Keyword Level</th>
<th>Keyword Content</th>
<th>Keyword Input Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (All operations prohibited)</td>
<td>8-digit hexadecimal value beginning with ‘A’ or ‘0 to 9’ numeral</td>
<td>0ABCDEF2</td>
</tr>
<tr>
<td>B (Read/Incorrect write protection)</td>
<td>8-digit hexadecimal value beginning with “B”</td>
<td>B1234567</td>
</tr>
<tr>
<td>C (Erroneous write prohibited)</td>
<td>8-digit hexadecimal value beginning with “C”</td>
<td>C8904567</td>
</tr>
</tbody>
</table>

For 16-Digit Keyword (Customer keyword/Permanent PLC lock included)

<table>
<thead>
<tr>
<th>16-Digit Keyword Level</th>
<th>Keyword Content</th>
<th>Keyword Input Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>All operations prohibited</td>
<td>“A” to “F,” “0 to 9” 16-digit value.</td>
<td>0ABCDEF262297529</td>
</tr>
<tr>
<td>Writing prohibited</td>
<td>“A” to “F,” “0 to 9” 16-digit value.</td>
<td>B123456789012345</td>
</tr>
<tr>
<td>Reading/writing prohibited</td>
<td>“A” to “F,” “0 to 9” 16-digit value.</td>
<td>2B90445234817567</td>
</tr>
</tbody>
</table>
16.6 RELATIONSHIP BETWEEN SPECIFIED DEVICE MONITOR FUNCTION AND DISPLAY SCREEN PROTECT FUNCTION

When the display screen protect function is used, the generated function restriction has higher priority than the specified device monitor function. The table below shows the relationship between the specified device monitor function and the display screen protect function.

<table>
<thead>
<tr>
<th>Specified Device Monitor Function</th>
<th>Display Screen Protect Function Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>1 (Initial Screen Fixing Function) 2 (Test Function Prohibition Setting)</td>
</tr>
<tr>
<td>Invalid</td>
<td>•Initial screen: Clock display • Transition to another screen: Enabled</td>
</tr>
<tr>
<td>Valid Only Monitoring is Enabled. (M△△△= OFF)</td>
<td></td>
</tr>
<tr>
<td>Valid Both Monitoring and Testing are Enabled. (M△△△ = ON)</td>
<td>•Initial screen: Specified device monitor • Transition to another screen: Enabled • Testing of specified device is disabled.</td>
</tr>
</tbody>
</table>

16.7 POINTERS FOR USING THE DISPLAY SCREEN PROTECT FUNCTION

The display screen protect function settings should be specified in a sequence program.

- The protect function is enabled by using the display module’s “monitor/test function” to change the system information’s (system signal 1) “D□□+3” current value to “1” or “2”.
- Once the setting is made, it cannot be canceled from the display module.
- To cancel the setting, use the programming tool to change the system information’s (system signal 1) “D□□+3” current value to a value other than “1” and “2”. If the system information’s (system signal 1) “D□□+3” is set in a general purpose data register, however, the display screen protect function can be canceled by turning the power off, then on again.

17. OPERATION BUTTON ON/OFF INFORMATION

Operation button ON/OFF information can be monitored at the system information (system signal 2) “M△△△+4 to M△△△+7” while the PLC is running. Various applications of this function are described below.

17.1 VARIOUS APPLICATIONS

1. Operation button function checks
   The programming tool can be used to monitor the system information’s (system signal 2) “operation button ON/OFF information,” to verify that operation buttons are functioning properly.

2. Specified device monitor function device changes
   Devices handled in the specified device monitor function can be changed over by using both the “specified device monitor display status” and “operation button ON/OFF information” in the system information (system signal 2).

17.2 SYSTEM INFORMATION - OPERATION BUTTON ON/OFF INFORMATION

1. System signal 1
   System signal 1 has no system information related to this function.

2. System signal 2

<table>
<thead>
<tr>
<th>System Information</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M△△△+4</td>
<td>ON</td>
<td>[ESC] button is pressed</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>[ESC] button is not pressed</td>
</tr>
<tr>
<td>M△△△+5</td>
<td>ON</td>
<td>[+ button is pressed</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>[+ button is not pressed</td>
</tr>
<tr>
<td>M△△△+6</td>
<td>ON</td>
<td>[+ button is pressed</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>[+ button is not pressed</td>
</tr>
<tr>
<td>M△△△+7</td>
<td>ON</td>
<td>[OK] button is pressed</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>[OK] button is not pressed</td>
</tr>
</tbody>
</table>

18. SPECIFYING A HEXADECIMAL VALUE DISPLAY FORMAT

The procedure for specifying a hexadecimal display format for current values which display at the “Monitor/Test” menu explained below. The display format is specified by the system information’s (system signal 2) “M△△△+8” ON/OFF status.

The display formats which correspond to the ON and OFF statuses are shown in Section 18.1 below. The display format should either be fixed as decimal or hexadecimal. Switching between the two should be possible by an external operation.

18.1 SYSTEM INFORMATION - SPECIFYING A HEXADECIMAL CURRENT VALUE DISPLAY FORMAT

<table>
<thead>
<tr>
<th>System Information</th>
<th>Status</th>
<th>Display Format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M△△△+8</td>
<td>ON</td>
<td>Hexadecimal</td>
<td>Timer (T) [current value/setting value], data register (D) [16-bit/32-bit], extended file register (ER) [16-bit/32-bit]</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>Decimal</td>
<td>Timer (T) [current value/setting value], data register (D) [16-bit/32-bit], extended file register (ER) [16-bit/32-bit]</td>
</tr>
</tbody>
</table>
18.2 PROGRAM EXAMPLE 1  
(specifying a hexadecimal data display format)

The following program example specifies a hexadecimal display format for current values and setting values which display at the “Monitor/Test” screen. In this program example, system information is assigned from D50 to D54 and from M50 to M64.

```
M8002 Initial pulse
M8000
RUN monitor
```

```
MOVB K50 D8300
MOVB K50 D8301
```

The initial pulse is used to specify a hexadecimal display format for current values and setting values which appear at the Monitor/Test screen.

```
M8002 Initial pulse
M8000
RUN monitor
```

```
MOVB K50 D8300
MOVB K50 D8301
```

System information (system No. 1) is set at D50 to D54.
System information (system No. 2) is set at M50 to M64.
S4
S5
S6
S3
S2
S1
S0

18.3 PROGRAM EXAMPLE 2  
(SPECIFYING A DECIMAL DATA DISPLAY FORMAT)

The following program example specifies a decimal display format for current values and setting values which appear at the “Monitor/Test” screen. In this program example, system information is assigned from D50 to D54 and from M50 to M64.

```
M8002 Initial pulse
M8000
RUN monitor
```

```
MOVB K50 D8300
MOVB K50 D8301
```

System information (system No. 1) is set at D50 to D54.
System information (system No. 2) is set at M50 to M64.

```
MOVB K50 D8300
MOVB K50 D8301
```

19. OPERATION ERROR MESSAGES AND CORRECTIVE ACTIONS

The following is a list of error messages which the system displays after an operation is performed.

<table>
<thead>
<tr>
<th>Relevant Menu Screen</th>
<th>English</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>All menus</td>
<td>This operation is protected by the keyword</td>
<td>Cancel the keyword, then attempt the operation again</td>
</tr>
<tr>
<td>Keyword</td>
<td>The keyword is not set</td>
<td>No keyword has been registered. Keyword cannot be registered from the display module. A programming tool such as GX Works2, etc., is required to register keyword.</td>
</tr>
<tr>
<td></td>
<td>Incorrect Keyword!</td>
<td>The entered keyword does not match the registered keyword. Verify the registered keyword, then enter the correct keyword.</td>
</tr>
<tr>
<td>Monitor/test</td>
<td>PLC is running</td>
<td>Stop the PLC, then attempt the operation again.</td>
</tr>
<tr>
<td>Setting change*1</td>
<td>Fatal error</td>
<td>Contact Mitsubishi Electric at <a href="mailto:Amzsupport@meau.com">Amzsupport@meau.com</a></td>
</tr>
</tbody>
</table>

*1. The setting value can also be changed when the PLC is in RUN mode.

19.1 WHEN A “FATAL ERROR OCCURRED” MESSAGE APPEARS

Operation is possible with the “Level C” or “Level B” keyword function restrictions. However, the system is probably in one of the statuses described below. Check these statuses in the order shown below, and take the appropriate corrective action.

1. Perform an error check at the display module, and if an error is active, take the appropriate corrective action.

If a program error is active:
The fatal error was probably activated due to a program error. Use GX Works2 to correct the program.

If no program error is active:
There may be a problem with the PLC’s memory content. Perform the following procedure.

1. Use GX Works2 to perform a program memory all-clear.
2. Rewrite the program.
3. Stop the PLC, turn the power ON, display the “Error Check” screen and check to refer to if the “Fatal error occurred” message appears.
   - If the “Fatal error occurred” message appears, perform the corrective action described at item “2” below.
   - If the “Fatal error occurred” message does not appear, set the PLC to a RUN state, then check again if the message appears.
     If the message appears, a watchdog timer error has probably occurred. In this case, the program should be re-examined.

2. If the “Fatal error occurred” message still appears after performing the corrective actions described in item 1 above, perform the following procedure to check for symptom changes.

Turn the power OFF and disconnect expansion board connectors
Turn the power ON again at the main unit, display the “Error Check” screen again, and check if the “Fatal error occurred” message appears.

1. If the “Fatal error occurred” message appears: The main unit hardware may have failed. Contact Mitsubishi Electric at Amzsupport@meau.com.
2. If the “Fatal error occurred” message does not appear: Turn the power OFF, connect the extension devices, then operate the system again to check for errors. If the problem persists, there may be main unit or extension device hardware failure. Contact Mitsubishi Electric at Amzsupport@meau.com.