Introduction

Overview of This Manual

This manual provides information about Operation Display Pendant PC000G3, a direct drive servo motor. Make sure to refer to this manual when you use the motor.

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Strategic Goods Advisory

It is required to obtain approval from the Japanese government to export goods regulated by the Foreign Exchange and Foreign Trade Control Law from Japan.
Conventions

Symbol Marks

Throughout this manual, the following symbol marks are used to distinguish explained information.

⚠️ DANGER: Describes cautions for avoiding danger in potentially hazardous situations that may put operators' lives and bodies in danger such as electric shock accident.

⚠️ WARNING: Describes points to be noted in situations that may cause damages to software and/or hardware or system troubles.

⚠️ CAUTION: Describes important points when understanding operations and functions.

⚠️ TIP: Describes supplementary information about descriptions.

⚠️ SEE ALSO: Describes items and pages that should be referenced.
_Precautions_

**Precautions Regarding this Manual**

- Please make sure this manual is made available to all end users.
- Do not operate the product before reading this manual and thoroughly understanding its contents.
- This manual was created to provide detailed explanations of the functions offered by the product. It is not guaranteed that it will suit any particular purpose a customer might have.
- The reproduction or copying of any portion of this manual is strictly prohibited without prior permission from Yokogawa Electric.
- The information provided in this manual is subject to change without notice.
- If you have any questions or find any errors and/or omissions in the information provided in this manual, please contact our Sales Department or the dealer from whom the product was purchased.

**Precautions Regarding Protection, Safety and Product Modification**

- To ensure your protection and that of the product, as well as the systems that use the product, please observe all safety instructions and other precautions listed in this manual.
- If you operate the product in a manner contrary to the instructions provided in this manual, the safety protection may be lost. In such an event, we make no warranties for the quality, performance, functions and safety of the product.
- If you install protection/safety circuits for the product or systems that use this product, make sure to install them on the product separately and externally. Do not install them inside the product, nor should any internal parts of the product be modified in order to do so.
- Be sure to replace any parts and consumables of the product with parts specified by us.
- This product is neither designed nor manufactured to be used under conditions that may directly affect the safety of humans including in nuclear or radiation-related devices, railway facilities, aircraft instruments, marine instruments, air-navigation facilities or medical devices. If it is necessary to apply the product in systems that directly affect the safety of humans, it is the user's own responsibility to construct a system for securing the safety of humans with devices and equipment other than the applicable product.
- Modification of the product is strictly prohibited.

**Product Disclaimer**

- We make no warranty for the product except as prescribed by the guarantees.
- We assume no responsibility for damages any user or third party may incur through use of the product, nor for any direct or indirect damages that the user or a third party may incur due to product defects that cannot be predicted by us, etc.
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◆ Revision Record
A. Operation Display Pendant

This section describes the operation display pendant PC000G3 that is connected to the intelligent drive DrvGIII series to be used for drive maintenance and parameter setting.

A.1 Overview

The operation display panel is used by connecting to the <CN1> serial interface connector (RS232C/RS485) of the DrvGIII drive. It is in the RS485 single channel communication, regardless of the <RS-ID> rotary switch setting state on the front panel. Moreover, it can be connected or disconnected even when the drive is in the current-carrying state.

The operation display pendant has a display area of 16 digits x 4 lines and has the following functions (screens). Some of the screens have sub-screens.

- Error status screen
  This screen allows you to check the information of current errors and past history recorded in the drive.

- #parameter/#monitor screen
  This screen updates and displays the data of #parameters and #monitors expressed with # or ## repeatedly.

- #parameter setup screen
  This screen allows you to change #parameter values that are expressed as # or ## and can be written.

- Special command screen
  This screen allows you to issue frequently used commands to the drive.
The pendant does not allow any data registration immediately after it is connected in order to prevent operation mistakes. The command to cancel this interlock is also available in this screen.

- Table data edit screen
  This screen allows you to check, edit or delete information of the operation table data.

- I/O monitor screen
  This screen updates and displays contact status of hard I/O and logic I/O repeatedly.

- I/O setup screen
  This screen allows you to perform hard I/O logic settings, initial value settings of logic I/O and I/O pin assignment.

- Batch maintenance function screen
  From this screen, you can back up all user data in the EEP-ROM built into the pendant in a batch. You can also restore previously stored data to the drive. Data for 16 drives can be stored within one operation display pendant.

- Absolute encoder maintenance screen
  A screen for setting maintenance data unique to an ABS type motor. This screen is displayed only when a drive for an ABS type motor is connected and the registration interlock is cancelled.

- Version display screen
  This screen displays the drive firmware version and drive model name.
A.2 Names of Components

(1) Liquid Crystal Display Area

- Title display area
  This area displays the title of the screen currently displayed. It also displays the title of a sub-screen if it is being displayed.
- Data display area
  This area allows you to display communication information and perform tasks on it.
- Function key description display area
  This area displays abbreviated titles of functions that can be assigned to F0 to F7 for each screen. If a function is represented by two abbreviated letters separated by "/," it means that the function corresponding to the abbreviation on the right side of the slash is obtained by pressing the SHIFT key together with the corresponding function key.

(2) LED Display Area

- [SRDY]: Servo ready status display. It turns on when the connected motor's servo is on.
- [ERR]: Error status display. It turns on when an error occurs in the connected drive.
- [BUSY]: Busy status display. It displays the status of the OUT_BUSY signal of the drive.
- [EEPROM]: It indicates that the EE-PROM built into the pendant is being accessed. Please note that saved data may be corrupted if you mount or dismount the pendant while this LED is turned on.

(3) Operation Area

The basic operation method involves entering characters and then committing them with the return key, in the same way as entering commands on a PC. Some screens require you to keep the return key pressed for a while to commit settings. The functions assigned to the function keys differ for each screen.

If you press any of the keys, the character printed on the upper part of the key is entered. To enter the character printed on the lower part of the key, press the key while holding the SHIFT key down. The repeat function will be activated by keeping the cursor keys pressed down for a while.
A.3 Transition of Screens

This section explains how to change screens by key operations. Operate the function keys following the information in the function key description display area in each screen. The initial screen displayed when the power is turned on and when the operation display pendant is connected to the drive while the power is on, is the error status screen.

1) Displayed Abbreviations and Functions

This product uses the following abbreviations to indicate and provide information about functions assigned to the function keys, due to limitations of the display area size.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>N (Next):</td>
<td>Move to the next screen.</td>
</tr>
<tr>
<td>P (Previous):</td>
<td>Move to the previous screen.</td>
</tr>
<tr>
<td>Sel (SELect):</td>
<td>Use it to select an option from several candidates.</td>
</tr>
<tr>
<td>Chg (CHanGe):</td>
<td>Use it to switch displayed information in the main screen.</td>
</tr>
<tr>
<td>Esc (ESCape):</td>
<td>Use this function to cancel an operation.</td>
</tr>
<tr>
<td>&lt;A&gt;:</td>
<td>This key is used to enter characters A to F when entering hexadecimal numbers. Use it together with the SHIFT key to switch among digits to be displayed.</td>
</tr>
</tbody>
</table>
(2) Transition of Screens

This section explains how to change screens by key operations. Operate the function keys following the information in the function key description display area in each screen. The initial screen displayed when logging into the maintenance screen is the error status screen. Note that some screens have sub-screens.

- Error status screen
- Error history screen
- Parameter/monitor screen
- Parameter setup screen
- Special command screen
- Table data edit screen
- Table data copy screen
- Hard I/O monitor screen
- Logic (Soft) I/O monitor screen
- I/O logic setup screen
- I/O pin assignment screen
- I/O initial value setup screen
- Backup screen
- Restoration screen
- Absolute encoder maintenance screen
- Version display screen
A.4 Common Processing Message Screens

This section explains the common message screen, which displays the status of an operation after executing the operation in each screen (sending a command to the drive). It is not guaranteed that an operation succeeds every time you command the drive to change a parameter value or execute a command. An operation may fail if a change is not appropriate or if the drive is not in a status to receive a command.

/ Operating
For some commands, the result may not be returned immediately after the command in question is issued. The following screen, which indicates that a command is being processed, is displayed while waiting for the result.

```
Prm Setting
##000 LoadJ_or_M
-- Operating!--
<A>        N/P
```

/ Operation complete
The following screen is displayed when an operation is completed normally. The screen displayed before starting the processing is displayed again by pressing the return key or after approximately 1 second has passed.

```
Prm Setting
##000 LoadJ_or_M
-- Complete! --
<A>        N/P
```

/ Operation failed
If processing fails for some reason, the following screen, which indicates that the processing failed, is displayed until the return key is pressed.

```
Prm Setting
##000 LoadJ_or_M
-- Incomplete!--
<A>        N/P
```

/ Registration prohibited
This message is displayed if it is attempted to set data in the drive when the "registration interlock" is not cancelled. Press the return key to return to the previous message.

```
Prm Setting
##000 LoadJ_or_M
-- Inhibit! --
<A>        N/P
```
A.5 Registration Interlock

Select the registration permission (Rgst Enable) command from the special command setup screen first in order to change parameters, register table data, perform I/O setting etc. from the pendant. This function is provided in order to prevent registration data of the drive from being changed inadvertently by pendant operations. Once canceled, the interlock remains canceled while the pendant is connected.

- AT Command
  >00: Abort
  01: Stop
  N/P

  \[\text{SHIFT + } 2\]

- AT Command
  >19: Rgst Enable
  00: Abort
  N/P

Select the registration permission command and keep the return key pressed for a while.

- AT Command
  <R00
  N/P

 Indicates that the command was received for 1 second.
A.6 Error Status Screen

There are two types of error status screens; the status screen, which displays currently occurring errors, and the history screen, which displays records of errors that occurred in the past.
You can switch between these two screens by pressing the function key to which the chg function is assigned.

A.6.1 Error Status Screen - Status Display Screen

This screen periodically obtains the error status from the drive and displays it. There are 16 buffers for storing error states within the drive; nothing is stored in these buffers as long as there are no errors. Buffer numbers are assigned to errors in the ascending order. The error status buffers are cleared by an error reset command from a host controller such as the communication host or communicating PLCs. You can check different error descriptions by selecting the corresponding buffer numbers.

In this example, the following contents are displayed:
The total number errors being generated is 12. The screen shows contents of the third error occurred among them.
Error code: 30.0
Error prompt: SrvNotRdy

Display when no error is being generated

Error code
Error prompt

TIP

The error code consists of a main code in the integer part and a subcode in the decimal part.
A.6.2 Error Status Screen - History Display Screen

The History display screen periodically obtains the error history from the drive and displays them. There are 16 history buffers within the drive. When all the buffers are used, the oldest record is deleted to make room for a new error. Buffer numbers are assigned to errors in the ascending order.

In this example, the following contents are displayed:
- The total number of errors stored in the history buffers is 12. The screen shows contents of the third error occurred among them.
- Error code: 30.0
- Error prompt: ServNotRdy

Left/right arrow keys: Move the cursor on a buffer number.
Up/down arrow keys: Increase/decrease the numeric value pointed by the cursor.
"Chg": Shifts to the Status display screen.

Display when nothing is stored in the history buffers

The error code consists of a main code in the integer part and a subcode in the decimal part.

TIP

The error code consists of a main code in the integer part and a subcode in the decimal part.
A.7 #parameter/#monitor Screen

This screen periodically obtains the current value of the #parameter/#monitor of the specified number (expressed with #*** or ##***) from the drive and displays this information together with the prompt.

The screen above shows the following contents:
The registration value of #parameter 0 is being monitored, and its value is "100" in decimal notation and the #parameter prompt is "LoadJ_or_M."

/ Display in hexadecimal notation

#parameter values
#parameter setup values: #000 to #128
Parameter values stored in the built-in RAM. The drive operates using these settings. The data is overwritten with #parameter registration value when the power is cycled.
#parameter registration values: ##000 to ##128
Parameter values stored in the built-in EEPROM. The settings are not deleted even when the power is turned off. If the #parameter registration value is changed, the #parameter setup value is also changed.
#monitor values: #300 to #427
Condition variables indicating the drive condition. They cannot be set.
A.8 #parameter Setup Screen

This screen allows you to enter a #parameter (expressed with #*** or ##***) value from the drive. Operate the cursor to select the #parameter number you want to edit to display the currently set value. Edit the data and commit the change by keeping the return key pressed for a while.

- **Left/right arrow keys:** Move the cursor on a #parameter/#monitor number and data.
- **Up/down arrow keys:** Increase/decrease the numeric value pointed by the cursor.
- **Numeric keys:** Use them to enter numeric values. A numeric value exceeding the parameter number range cannot be entered.
- **# key:** Switches the displayed value between a #parameter setup value "#" and #parameter registration value "##." Keep it pressed for a while to commit and send edited data to the drive.
- **"<A>":** Use it to enter hexadecimal numbers. The displayed digit can be changed from A to F by using this key together with the SHIFT key.

### Editing in hexadecimal notation

To edit a parameter displayed in hexadecimal notation, use the function keys or the "↑↓" keys to enter values from A to F.

### Display when a non-existent #parameter number is specified
A.9 Special Command Screen

This screen is used to instruct selected commands to the drive. Select a command using the up/down arrow keys and then keep the return key pressed for a while to send the command to the drive. Some commands require keeping the return key pressed for a while for the sake of security. Moreover, for some commands, the displayed command name may be changed automatically after issuing the command. See the list of commands on the next page for further details.

[In the cases other than “Start”]

- **Name of the selected command**
- **Table number**

- **Up/down arrow keys**: Use them to select a command.
- **Numeric keys**: Use them to enter a table number for the Start command. A numeric value exceeding the range cannot be entered.
- **“*”**: Keep it pressed for a while to commit and send edited data to the drive.

[Display when a command is being executed]

In cases of commands for which the processing take time to complete, screen [1] above is displayed for approximately 1 second and then screen [2] is displayed. The “***” display at the upper right corner of the screen disappears when the processing is completed.

[Display at normal completion]

This screen is displayed for approximately 1 second and then the display returns to the menu screen.

[Display in case of error]

An error number and error prompt are displayed.

Press the “*” key to return to the menu screen.
### List of available commands

<table>
<thead>
<tr>
<th>Displayed characters</th>
<th>Command name</th>
<th>Display after execution</th>
<th>Keeping the key pressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Abort”</td>
<td>Abort command</td>
<td>→</td>
<td></td>
</tr>
<tr>
<td>“Stop”</td>
<td>Stop command</td>
<td>→</td>
<td></td>
</tr>
<tr>
<td>“Start”</td>
<td>Start command</td>
<td></td>
<td>Abortion command</td>
</tr>
<tr>
<td>“Reset Error”</td>
<td>Reset Error</td>
<td>→</td>
<td></td>
</tr>
<tr>
<td>“OpeMode Sr1”</td>
<td>Switch Operation Privilege (to serial communication side)</td>
<td>→</td>
<td></td>
</tr>
<tr>
<td>“OpeMode Cnt”</td>
<td>Switch Operation Privilege (to CN4 side)</td>
<td>→</td>
<td></td>
</tr>
<tr>
<td>“Servo ON”</td>
<td>Servo On</td>
<td>Servo Off</td>
<td>Required</td>
</tr>
<tr>
<td>“Servo OFF”</td>
<td>Servo Off</td>
<td></td>
<td>Required</td>
</tr>
<tr>
<td>“Org Offset N”</td>
<td>Set Homing Offset Position N</td>
<td>→</td>
<td>Required</td>
</tr>
<tr>
<td>“Org Offset +”</td>
<td>Set Homing Offset Position +</td>
<td>→</td>
<td>Required</td>
</tr>
<tr>
<td>“Org Offset -”</td>
<td>Set Homing Offset Position -</td>
<td>→</td>
<td>Required</td>
</tr>
<tr>
<td>“Jog Up”</td>
<td>Jog Up command</td>
<td>Jog Stop command</td>
<td>Required</td>
</tr>
<tr>
<td>“Jog Down”</td>
<td>Jog Down command</td>
<td></td>
<td>Required</td>
</tr>
<tr>
<td>“Jog Stop”</td>
<td>Jog Stop command</td>
<td></td>
<td>Required</td>
</tr>
<tr>
<td>“Clear Crdnt”</td>
<td>Set Coordinate System to 0</td>
<td>→</td>
<td>Required</td>
</tr>
<tr>
<td>“Auto I-limit”</td>
<td>Set Integral Limiter Automatically</td>
<td>→</td>
<td>Required</td>
</tr>
<tr>
<td>“Regist Param”</td>
<td>Register All Parameters</td>
<td>→</td>
<td>Required</td>
</tr>
<tr>
<td>“ResetErr His”</td>
<td>Clear History</td>
<td>→</td>
<td>Required</td>
</tr>
<tr>
<td>“Soft Reboot”</td>
<td>Restart Drive</td>
<td>→</td>
<td>Required</td>
</tr>
<tr>
<td>“Rgst Enable”</td>
<td>Registration Permission command</td>
<td>→</td>
<td>Required</td>
</tr>
</tbody>
</table>

#### TIP

About command operation privilege

The operation privilege refers to which command interface—either the CN1 connector (pendant) or the CN4 connector (PLC)—commands are received from. Execute the following commands upon setting the operation privilege on the pendant side.

Commands for which the switch operation privilege command (OpeMode Sr1) makes the pendant side valid.

- “Stop”  Stop command
- “Start” Start command
- “Servo ON” Servo On
- “Servo OFF” Servo Off (The privilege is set on the PLC side when the power is turned on.)

Commands for which the pendant side becomes valid by setting bit 25 of system register 1 (#110) parameter to 1.

- “Jog Up” Jog Up command
- “Jog Down” Jog Down command
- “Jog Stop” Jog Stop command (The privilege is set on the pendant side at the shipment from the factory.)
A.10 Table Data Edit Screen

This screen is used to operate on the table data registered in the drive. You can switch between the edit screen and copy screen with the Chg function key.

A.10.1 Table Data Edit Screen - Edit

This screen is used to edit and set the table data registered in the drive. Perform necessary settings in each sub-screen, and proceed to the registration screen. Keep the return key pressed in the registration screen to register the settings in the drive. Press the DEL key to delete the displayed table number.

Deleting tables

In reality, the table number is re-registered as a dwell of 0 ms.
(1) Initial Setting Screen

Select a table number from 0 to 63 you want to edit in the initial screen. Note that it is only possible to change operation parameters for tables 60 to 63.

- **Left/right arrow keys**: Move the cursor on a table number.
- **Up/down arrow keys**: Increase/decrease the numeric value pointed by the cursor.
- **"DEL" key**: Deletes the table number being displayed.
- **"Chg"**: Use it to switch between screens.
- **""**: Use it to move to editing the table number being displayed.

![Table number and Operation code](image)

(2) Operation Code Selection Screen

There is no setup screen group corresponding to the operation codes for test operation and auto tuning. If the "" key is pressed, the screen display moves to the beginning of the setup screen group common to the operation codes.

- **Up/down arrow keys**: Use them to switch between operation codes.
- **Numeric keys**: Use them to enter numeric numbers. Numeric values exceeding the numeric range cannot be entered.
- **"Chg"**: Use it to switch between screens.
- **""**: Use it to move to editing the table number being displayed.

![Table number and Operation code](image)

<table>
<thead>
<tr>
<th>Operation code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00. Test Move</td>
<td>Test operation</td>
</tr>
<tr>
<td>01. A-Tuning</td>
<td>Auto tuning</td>
</tr>
<tr>
<td>03. Homing</td>
<td>Return to the home position</td>
</tr>
<tr>
<td>04. Abs Move</td>
<td>ABS move</td>
</tr>
<tr>
<td>05. Inc Move</td>
<td>INC move</td>
</tr>
<tr>
<td>10. Dwell</td>
<td>Dwell</td>
</tr>
<tr>
<td>18. Prm Change</td>
<td>Parameter change</td>
</tr>
<tr>
<td>1E. Branch</td>
<td>Conditional branching</td>
</tr>
<tr>
<td>1F. Command</td>
<td>Command</td>
</tr>
</tbody>
</table>

**TIP**

There is no setup screen group corresponding to the operation codes for test operation and auto tuning. If the "" key is pressed, the screen display moves to the beginning of the setup screen group common to the operation codes.
(3) Setup Screen Group Corresponding to Operation Code

This group of setup screens allows you to enter settings for the operation code selected in the previous screen. The number of screens varies depending on the operation code. Note that some of the selected operation codes do not have any setup screen group. These screens are explained for each operation code in the following:

- **Left/right arrow keys**: Move the cursor on the data.
- **Up/down arrow keys**: Increase/decrease the numeric value pointed by the cursor or select an item.
- **Use it to move to the next item.**

Table number being processed

Title of setting
### Homing

**Homing direction selection**

[Table-Edit 11
  Direction
  0. -Dir
  Chg Esc N/P]

[Selected code]
0. -Dir  Count down direction
1. +Dir  Count up direction

* This screen is not provided for ABS type motors

**Acceleration type selection**

[Table-Edit 11
  Accele Type
  0. Constant
  Chg Esc N/P]

[Selected code]
0. Constant  Constant velocity
1. S-Curved  S-curved

**Acceleration time selection**

[Table-Edit 11
  Accele Time
  0. 0000001000
  Chg Esc N/P]

Displays the numeric value of the #parameter selected

[Selected code]
0. Follow parameter #72 Acceleration time 0
1. Follow parameter #73 Acceleration time 1
2. Follow parameter #74 Acceleration time 2
3. Follow parameter #75 Acceleration time 3

**Deceleration type selection**

[Table-Edit 11
  Decele Type
  0. Constant
  Chg Esc N/P]

[Selected code]
0. Constant  Constant velocity
1. S-Curved  S-curved

**Deceleration time selection**

[Table-Edit 11
  Decele Time
  0. 0000001000
  Chg Esc N/P]

Displays the numeric value of the #parameter selected

[Selected code]
0. Follow parameter #76 Deceleration time 0
1. Follow parameter #77 Deceleration time 1
2. Follow parameter #78 Deceleration time 2
3. Follow parameter #79 Deceleration time 3

**Hardware EOT signal use selection**

[Table-Edit 11
  Hard OvrTrvl
  0. NoUse
  Chg Esc N/P]

[Selected code]
0. NoUse  Do not use
1. Use   Use

* This screen is not provided for ABS type motors

To the next item
From the previous item

**[Home sensor signal use selection]**

| Table-Edit 11 |
| Orig Sensor |
| 0. NoUse |
| Chg Esc |
| N/P |

**[Selected code]**

| 0. NoUse | Do not use |
| 1. Use | Use |

* This screen is not provided for ABS type motors

**[Home sensor signal enable/disable selection during EOT search]**

| Table-Edit 11 |
| H-Sns in OT |
| 0. Disable |
| Chg Esc |
| N/P |

**[Selected code]**

| 0. Disable | Disable |
| 1. Enable | Enable |

* This screen is not provided for ABS type motors

**[Origin selection]**

| Table-Edit 11 |
| Orig Select |
| 0. OutSide |
| Chg Esc |
| N/P |

**[Selected code]**

| 0. OutSide | Outside |
| 1. InSide | Inside |

* This screen is not provided for ABS type motors

**[Moving direction at rotating coordinate selection]**

| Table-Edit 11 |
| Dir Option |
| 0. Type0 |
| Chg Esc |
| N/P |

**[Selected code]**

| 0. Type0 | Type 0 |
| 1. Type7 | Type 7 |

* This screen is not provided for INC type motors

**[Coin window selection]**

| Table-Edit 11 |
| Coin Width |
| 0. |
| Chg Esc |
| N/P |

**[Selected code]**

| 0. Follow #parameter #90 Coin window 0 |
| 1. Follow #parameter #91 Coin window 1 |
| 2. Follow #parameter #92 Coin window 2 |
| 3. Follow #parameter #93 Coin window 3 |
| 4. Follow #parameter #94 Coin window 4 |
| 5. Follow #parameter #95 Coin window 5 |
| 6. Follow #parameter #96 Coin window 6 |
| 7. Follow #parameter #97 Coin window 7 |

Displays the numeric value of the parameter selected

To the first screen of the setup screen group common to operation codes
### ASB move, INC move

#### [Acceleration type selection]

<table>
<thead>
<tr>
<th>Table-Edit 11</th>
<th>Accele Type</th>
<th>Chg Esc</th>
<th>N/P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0. Constant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Selected code]

- 0. Constant
- 1. S-Curved

#### [Acceleration time selection]

<table>
<thead>
<tr>
<th>Table-Edit 11</th>
<th>Accele Time</th>
<th>Chg Esc</th>
<th>N/P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0. 0000001000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Selected code]

- 0. Follow parameter #72 Acceleration time 0
- 1. Follow parameter #73 Acceleration time 1
- 2. Follow parameter #74 Acceleration time 2
- 3. Follow parameter #75 Acceleration time 3

Displays the numeric value of the parameter selected

#### [Deceleration type selection]

<table>
<thead>
<tr>
<th>Table-Edit 11</th>
<th>Decele Type</th>
<th>Chg Esc</th>
<th>N/P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0. Constant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Selected code]

- 0. Constant
- 1. S-Curved

#### [Deceleration time selection]

<table>
<thead>
<tr>
<th>Table-Edit 11</th>
<th>Decele Time</th>
<th>Chg Esc</th>
<th>N/P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0. 0000001000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Selected code]

- 0. Follow parameter #76 Deceleration time 0
- 1. Follow parameter #77 Deceleration time 1
- 2. Follow parameter #78 Deceleration time 2
- 3. Follow parameter #79 Deceleration time 3

#### [Velocity selection]

<table>
<thead>
<tr>
<th>Table-Edit 11</th>
<th>Velocity</th>
<th>Chg Esc</th>
<th>N/P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0. 0000054000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Selected code]

- 0. Follow parameter #64 Feeding velocity 0
- 1. Follow parameter #65 Feeding velocity 1
- 2. Follow parameter #66 Feeding velocity 2
- 3. Follow parameter #67 Feeding velocity 3
- 4. Follow parameter #68 Feeding velocity 4
- 5. Follow parameter #69 Feeding velocity 5
- 6. Follow parameter #70 Feeding velocity 6
- 7. Follow parameter #71 Feeding velocity 7

#### [Value specification selection]

<table>
<thead>
<tr>
<th>Table-Edit 11</th>
<th>Value Type</th>
<th>Chg Esc</th>
<th>N/P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0. Direct</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Selected code]

- 0. Direct
- 1. Indirect

To the next item
[Value setting]

For direct specification

Value

#parameter/#monitor number

To the first screen of the setup screen group common to operation codes

[Move direction selection for rotation coordinates]

[Selected code]

0. Type0  Type 0
1. Type7  Type 7

[Coin window selection]

[Selected code]

0. Follow #parameter #90 Coin window 0
1. Follow #parameter #91 Coin window 1
2. Follow #parameter #92 Coin window 2
3. Follow #parameter #93 Coin window 3
4. Follow #parameter #94 Coin window 4
5. Follow #parameter #95 Coin window 5
6. Follow #parameter #96 Coin window 6
7. Follow #parameter #97 Coin window 7
Dwell

[Dwell time setting]

Table - Edit 11
Dwell Time
DEC +0000000100
Chg Esc N/P

Value (msec)

To the first screen of the setup screen group common to operation codes
#parameter change

[Type selection]

<table>
<thead>
<tr>
<th>Table-Edit 11</th>
<th>Type</th>
<th>Chg Esc</th>
<th>N/P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>0. Direct</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Operator selection]

<table>
<thead>
<tr>
<th>Table-Edit 11</th>
<th>Operator</th>
<th>Chg Esc</th>
<th>N/P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>0. + Add</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Substituted #parameter number selection]

<table>
<thead>
<tr>
<th>Table-Edit 11</th>
<th>Change PrmNo</th>
<th>Chg Esc</th>
<th>N/P</th>
</tr>
</thead>
<tbody>
<tr>
<td>#100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Substitution equation setting]

Branch according to the code selected in the type selection screen.

- To [1] in case of direct substitution and monomial operation substitution 1
- To [2] in case of indirect substitution and monomial operation substitution 2
- To [3] in case of binominal operation substitution 1 and binominal operation substitution 2
- To [4] in case of binominal operation substitution 3

<table>
<thead>
<tr>
<th>Table-Edit 11</th>
<th>Ope Value</th>
<th>Chg Esc</th>
<th>N/P</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEC +00000000000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To the first screen of the setup screen group common to operation codes
### Example Table

<table>
<thead>
<tr>
<th>Example</th>
<th>Type</th>
<th>Operator code</th>
<th>Substituted parameter number</th>
<th>Operated value</th>
<th>Operated #parameter/#monitor number 1</th>
<th>Operated #parameter/#monitor number 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>#12 = 34</td>
<td>Direct substitution</td>
<td>don't care</td>
<td>12</td>
<td>34</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>#12 = #34</td>
<td>Indirect substitution</td>
<td></td>
<td>12</td>
<td>-</td>
<td>34</td>
<td>-</td>
</tr>
<tr>
<td>#12 = ~34</td>
<td>Monomial calculation substitution</td>
<td>Required setting</td>
<td>12</td>
<td>34</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>#12 = #34</td>
<td>Monomial calculation substitution</td>
<td>(Monomial operator)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#12 = 34 + #56</td>
<td>Binomial calculation substitution</td>
<td>Required setting</td>
<td>12</td>
<td>34</td>
<td>56</td>
<td>-</td>
</tr>
<tr>
<td>#12 = #34 &amp; 56</td>
<td>Binomial calculation substitution</td>
<td>(Binomial operator)</td>
<td>12</td>
<td>56</td>
<td>34</td>
<td>-</td>
</tr>
<tr>
<td>#12 = #34/#56</td>
<td>Binomial calculation substitution</td>
<td></td>
<td>12</td>
<td>-</td>
<td>34</td>
<td>34</td>
</tr>
</tbody>
</table>
## Conditional branching

### [Comparison operator selection]

<table>
<thead>
<tr>
<th>Table-Edit 11</th>
<th>Operator</th>
<th>0. &gt;</th>
<th>Chg Esc</th>
<th>N/P</th>
</tr>
</thead>
</table>

### [Number selection when conditions are satisfied]

<table>
<thead>
<tr>
<th>Table-Edit 11</th>
<th>Branch No</th>
<th>12. AbsMov</th>
<th>Chg Esc</th>
<th>N/P</th>
</tr>
</thead>
</table>

### [Compared #parameter/#monitor number selection]

<table>
<thead>
<tr>
<th>Table-Edit 11</th>
<th>1st PrmNo</th>
<th># 100</th>
<th>Chg Esc</th>
<th>N/P</th>
</tr>
</thead>
</table>

### [Reference #parameter/#monitor number selection]

<table>
<thead>
<tr>
<th>Table-Edit 11</th>
<th>2nd PrmNo</th>
<th># 101</th>
<th>Chg Esc</th>
<th>N/P</th>
</tr>
</thead>
</table>

### Selected codes

- 0. > Greater than
- 1. < Smaller than
- 2. >= Greater than or equal to
- 3. <= Smaller than or equal to
- 4. = Equal to
- 5. != Not equal to
- 6. && AND
- 7. || OR
- 8. & Bit AND
- 9. ^ Bit exclusive OR
- A. I Bit OR

To the first screen of the setup screen group common to operation codes.
There are no options for the integral limiter self-adjustment command.
(4) Setup Screen Group Common to the Operation Code

This is a group of items that must be set commonly regardless of the selected operation code.

- **Table Edit**
  - **Coin Enable**
  - **Chg Esc**
  - **Selected code**

Left/right arrow keys: Move the cursor on a table number.
Up/down arrow keys: Increase/decrease the numeric value pointed by the cursor.
"Chg": Use it to switch between screens.
"Esc": Use it to move to editing task of the table number currently displayed.

**[Coin wait selection]**

- **Table Edit 11**
- **Coin Enable**
- **Chg Esc**
- **Selected code**
  - 0. Disable Coin wait disabled
  - 1. Enable Coin wait enabled

**[M function enable/disable selection]**

- **Table Edit 11**
- **M Function**
- **Chg Esc**
- **Selected code**
  - 0. Disable M function disabled
  - 1. Enable M function enabled

* Bypassed when "Disable" is selected

**[M function type selection]**

- **Table Edit 11**
- **M Func Type**
- **Chg Esc**
- **Selected code**
  - 0. After Execute after operation
  - 1. Parallel Parallel execution

To the next item
The selection of coin window is valid only when the operation code is either homing, ABS move or INC move. Codes other than these do not have any coin wait function in the operation itself.
A.10.2 Table Data Edit Screen - Copy

The copy screen is used to copy the table data registered in the drive to another table number.

Number of the copy source table

Number of the copy destination table

In this example, the data of table number 10 is copied to table number 20.

Table numbers 0 to 59 can be selected as the copy destination. Numbers 60 to 63 are reserved by the system.
A.11. I/O Monitor Screen

A.11.1 I/O Monitor Screen - Physical (Hard) I/O

The Physical (Hard) I/O screen is used to obtain the current status of the hard I/O with the block number specified from the drive periodically, and display the status repeatedly.

Left/right arrow keys: Move the cursor on the I/O block number.
Up/down arrow keys: Increase/decrease the numeric value pointed by the cursor.
"Sel": Use it to switch between In (input) and Out (output).
"Chg": Use it to switch between logic and hard displays.

The display of the screen above indicates that bits 1 and 3 of block number 0 are on, while the others are off.

A.11.2 I/O Monitor Screen – Logic (Soft) I/O

The logic (soft) I/O screen is used to obtain the current status of logic I/O with the block number specified from the drive periodically, and display the status repeatedly.

Left/right arrow keys: Move the cursor on the I/O block number.
Up/down arrow keys: Increase/decrease the numeric value pointed by the cursor.
"Sel": Use it to switch between In (input) and Out (output).
"Chg": Use it to switch between logic and hard displays.

The display of the screen above indicates that bits 1 and 3 of block number 0 are on, while the others are off.
A.12 I/O Setup Screen

The I/O setup screen is used to make settings related to I/O. Use the Chg function key to switch between the physical (hard) I/O logic setup screen, logic (soft) I/O input initial value setup screen and pin assignment screen.

A.12.1 I/O Setup Screen - Physical (Hard) I/O Logic Setup Screen

The hard I/O logical settings made in this screen becomes valid the next time the power is turned on.
A.12.2 I/O Setup Screen - Logic (Soft) I/O Input Initial Value Setup Screen

Left/right arrow keys: Move the cursor on the I/O block number and data.
Up/down arrow keys: Increase/decrease the numeric value pointed by the cursor. The setting changes from O to X or X to O.
"Sel": It does not function.
"Chg": Use it to switch between screens.
"?": Use it to commit the displayed data and move to the next screen.

Initial values of logic I/O can only be set for input blocks. For logic inputs assigned to hard inputs, initial values do not function even if they are set because they are initialized by hard inputs at startup. Make appropriate settings for logic I/O that have not been assigned to hard I/O only. The initial values of logic I/O set in this screen become valid the next time the power is turned on.
A.12.3 I/O Setup Screen - Pin Assignment

Perform I/O assignment based on the idea of assigning logic I/O bits to hard I/O bits. Logic I/O that has already been assigned cannot be reassigned.

Left/right arrow keys: Move the cursor on the I/O block number and bit number.
Up/down arrow keys: Increase/decrease the numeric value pointed by the cursor.
"Sel": It does not function.
"Chg": Use it to switch between screens.
"" : Use it to commit the displayed data and move to the next screen.

If you do not want to assign logic I/O to hard I/O

Press the DEL key if you intend not to assign a logic I/O bit to a hard I/O bit. The screen shows the following display; hold down the "" key and register in the same way as for normal assignment. If you press the INS key in stead, you can assign a logic I/O bit to a hard I/O bit to which no bit is assigned.

The assignment set in this screen becomes valid the next time the power is turned on.
A.13 Batch Maintenance Screen

This screen is used to back up/restore all user data in the drive. User data of up to 16 drives can be stored.

⚠️ CAUTION

Make sure to turn the servo off while backing up/restoring data. Depending on the parameter status, the motor operation may become unstable while performing backup/restoration. Moreover, the drive restarts several times during restoration. Be sure to pay sufficient attention to the safety.

A.13.1 Batch Maintenance Screen - Backup

Execution of Backup

Step 1 Place the cursor at the position of "selection of storage destination number" and select the storage destination using the arrow keys or numeric keys (No. 0 to No. 15).

Step 2 Place the cursor at the position of "comment entry" and select a comment character string using the arrow keys or numeric keys. See the following for characters that can be used.

Step 3 Place the cursor at the position of "selection of storage destination number" and keep the return key pressed (for 1 second) to start backing up. If data has already been stored at the selected storage destination, a confirmation message is displayed. Keep the F1 key pressed to cancel backing up or keep the return key pressed again to execute the backup operation. The key operation, however, cannot be accepted when the registration interlock is enabled.

Step 4 The result is displayed after backup is completed. There are the following two types of result displays.

At normal completion

When backup is normally completed, the number of errors generated during the backup is displayed and the backup operation is completed. Normally, the number of errors during backup is 0. The maintenance screen keeps on displaying that the backup is completed until a key is pressed.

At erroneous completion

If a fatal error occurs, the backup sequence is interrupted and the message shown to the left is displayed. Use the utility software or similar tools to check the drive status etc.
**Deletion of Stored Data**

Step 1  Place the cursor at the position of "selection of storage destination number" and press the DEL key to delete data for each storage number.

Step 2  A confirmation message is displayed. Keep the F1 key pressed to cancel deletion or press the return key pressed again to execute the deletion operation. It takes approximately 1 second to delete data.

**TIP**

The following characters can be used in a comment character string.

```
!"#$%&'()+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz{[]}→←
```

**A.13.2 Batch Maintenance Screen - Restoration**

**Execution of Restoration**

Step 1  Place the cursor at the position of "selection of number to be read" and select the storage destination using the arrow keys or numeric keys (No. 0 to No. 15).

Step 2  Keep the return key pressed (for 1 second) to start restoring the data. The key operation, however, cannot be accepted when the registration interlock is enabled.

Step 3  The result is displayed after the restoration is completed. There are the following two types of result displays.

- **At normal completion**
  - After restoration is normally completed, the number of errors generated during the restoration is displayed and the restoration operation is completed. If stored data is downloaded to a different drive model, data may not be written because parameters, etc. may not exist. This fact is indicated in the number of errors, although processing is executed until the end. If unexpected errors occur, it is necessary to inspect the drive using the utility software or similar tools. Press any key to return to the top of the restoration screen.

- **At erroneous completion**
  - If a fatal error occurs, the restoration sequence is interrupted and the message shown to the left is displayed. User data in the drive is only partially updated. Investigate the causes of errors and perform the restoration processing again.
A.14 Absolute Encoder Maintenance Screen

The absolute encoder skew value is data that does not require changing by the customer. Do not change this data.

* This screen does not exist for an INC type.

⚠️ WARNING

Do not change the data. Registering wrong data may cause malfunctions such as the motor being unable to move or the position being recognized incorrectly.

The maintenance targets are absolute encoder skew values of an absolute position detector. This screen, when activated, displays the value currently registered in the drive. The value is registered in the drive by keeping the return key pressed for a while. Setting and registration are allowed only in the setup/registration enabled state. The changed skew value is reflected when the power is turned on the next time. The skew value is not initialized by All Reset of the drive.

The display format indicates that the displayed value is in decimal notation.

<table>
<thead>
<tr>
<th>Key</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left/right arrow keys:</td>
<td>Move the cursor on data.</td>
</tr>
<tr>
<td>Up/down arrow keys:</td>
<td>Increases/decrease the numeric value indicated by the cursor.</td>
</tr>
<tr>
<td>Numeric keys:</td>
<td>Use them to enter numeric values. A numeric value exceeding the data range cannot be entered.</td>
</tr>
<tr>
<td>“Enter”</td>
<td>Keep it pressed for a while to commit and send edited data to the drive.</td>
</tr>
</tbody>
</table>
A.15 Version Information Screen

The version display screen displays the design version and model name of the drive.

![Driver Version]

- **Drive firmware version code**
- **Drive specification model**

**Left/right keys:** Scroll the version information character string to the left/right. Keep it pressed to use the repeat function.
Revision Record

Document name: Operation Display Pendant PC000G3 Function Guide
Document number: TI 71M07B01-01EN

January, 2004 1st Edition
New issuance

May, 2004 2nd Edition

Formats and wording of the entire manual were modified. "Parameter/monitor" was changed to "#parameter/#monitor." The "Sel" key was changed to the return key. The "Esc" key was changed to the F1 key.

A-1 The description of ABS was added. The explanation of the special command screen was added.
A-2 The drawing was updated.
A-3 The title in Japanese was changed for "Transition of Screens."
A-4 The title in Japanese was changed for "Transition of Screens."
A-5 The registration prohibited screen was added.
A-6 The registration interlock page was added, and the page numbers and header numbers of A-7 and onward were changed accordingly.
A-9 "#" was added to the title of A-7. Supplemental explanation was added.
A-11 The paragraph starting with "Some commands..." was added. The sentence starting with ""*" is displayed..." was changed.
A-12 The descriptions of "display after execution" and "keeping the return key pressed" were added. The description of "@" was deleted and "supplemental explanation" was added.
A-13 The explanation of the DEL key was corrected and the description of the operation code was modified.
A-28 The drawing was updated.
A-26 The drawing was updated.
A-32 The "Sel" key was changed to the return key. The "Esc" key was changed to the F1 key. The description of step 3 was added and the explanation of normal completion was modified.
A-34 The title was changed from "ABS maintenance screen" to "absolute encoder maintenance screen" and the description was modified.

December, 2012 3rd Edition
A-36 Changed section name at Copyright
Changed Document (language) code TI 71M07B01-01E > TI 71M07B01-01EN

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