DX100 OPTIONS
INSTRUCTIONS
FOR UNIFIED LOGGING FUNCTION

Upon receipt of the product and prior to initial operation, read these instructions thoroughly, and retain for future reference.

MOTOMAN INSTRUCTIONS

MOTOMAN-□□□ INSTRUCTIONS
DX100 INSTRUCTIONS
DX100 OPERATOR’S MANUAL
DX100 MAINTENANCE MANUAL

Please have the following information available when contacting Yaskawa Customer Support:
- System
- Primary Application
- Software Version (Located on Programming Pendant by selecting: {Main Menu} - {System Info} - {Version})
- Robot Serial Number (Located on robot data plate)
- Robot Sales Order Number (Located on controller data plate)

Part Number: 188943-1CD
Revision: 0
### MANDATORY

- This manual explains the unified logging function of the DX100 system. Read this manual carefully and be sure to understand its contents before handling the DX100.
- General items related to safety are listed in Chapter 1: Safety of the DX100 Instructions. To ensure correct and safe operation, carefully read the DX100 Instructions before reading this manual.

### CAUTION

- Some drawings in this manual are shown with the protective covers or shields removed for clarity. Be sure all covers and shields are replaced before operating this product.
- The drawings and photos in this manual are representative examples and differences may exist between them and the delivered product.
- YASKAWA may modify this model without notice when necessary due to product improvements, modifications, or changes in specifications. If such modification is made, the manual number will also be revised.
- If your copy of the manual is damaged or lost, contact a YASKAWA representative to order a new copy. The representatives are listed on the back cover. Be sure to tell the representative the manual number listed on the front cover.
- YASKAWA is not responsible for incidents arising from unauthorized modification of its products. Unauthorized modification voids your product’s warranty.
Notes for Safe Operation

Read this manual carefully before installation, operation, maintenance, or inspection of the DX100.

In this manual, the Notes for Safe Operation are classified as “DANGER”, “WARNING”, “CAUTION”, “MANDATORY”, or “PROHIBITED”.

**DANGER**
Indicates an imminent hazardous situation which, if not avoided, could result in death or serious injury to personnel.

**WARNING**
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to personnel.

**CAUTION**
Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury to personnel and damage to equipment. It may also be used to alert against unsafe practices.

**MANDATORY**
Always be sure to follow explicitly the items listed under this heading.

**PROHIBITED**
Must never be performed.

Even items described as “CAUTION” may result in a serious accident in some situations.

At any rate, be sure to follow these important items.

**NOTE**
To ensure safe and efficient operation at all times, be sure to follow all instructions, even if not designated as “DANGER”, “WARNING” and “CAUTION”.
WARNING

- Confirm that no person is present in the P-point maximum envelope of the manipulator and that you are in a safe location before:
  - Turning ON the DX100 power
  - Moving the manipulator with the programming pendant
  - Running the system in the check mode
  - Performing automatic operations

Injury may result if anyone enters the P-point maximum envelope of the manipulator during operation. Always press an emergency stop button immediately if there are problems. The emergency stop buttons are located on the right of the front door of the DX100 and the programming pendant.

- Observe the following precautions when performing teaching operations within the P-point maximum envelope of the manipulator:
  - Be sure to use a lockout device to the safeguarding when going inside. Also, display the sign that the operation is being performed inside the safeguarding and make sure no one closes the safeguarding.
  - View the manipulator from the front whenever possible.
  - Always follow the predetermined operating procedure.
  - Keep in mind the emergency response measures against the manipulator's unexpected motion toward you.
  - Ensure that you have a safe place to retreat in case of emergency.

Improper or unintended manipulator operation may result in injury.

- Before operating the manipulator, check that servo power is turned OFF when the emergency stop buttons on the front door of the DX100 and programming pendant are pressed.
  When the servo power is turned OFF, the SERVO ON LED on the programming pendant is turned OFF.

Injury or damage to machinery may result if the emergency stop circuit cannot stop the manipulator during an emergency. The manipulator should not be used if the emergency stop buttons do not function.

*Fig. : Emergency Stop Button*

- Once the emergency stop button is released, clear the cell of all items which could interfere with the operation of the manipulator. Then turn the servo power ON.

Injury may result from unintentional or unexpected manipulator motion.

*Fig. : Release of Emergency Stop*
CAUTION

- Perform the following inspection procedures prior to conducting manipulator teaching. If problems are found, repair them immediately, and be sure that all other necessary processing has been performed.
  - Check for problems in manipulator movement.
  - Check for damage to insulation and sheathing of external wires.
- Always return the programming pendant to the hook on the DX100 cabinet after use.

If the programming pendant is inadvertently left on the manipulator, on a fixture, or on the floor, the angularities of the floor may activate the Enable Switch, and the servo power could be turned ON as a consequence. Also, when the manipulator starts its operation, the manipulator or a tool could collide with the inadvertently left programming pendant during manipulator movement, possibly causing injury or equipment damage.

- Injury or equipment damage. Read and understand the Explanation of the Warning Labels before operating the manipulator.

Definition of Terms Used Often in This Manual

The MOTOMAN is the YASKAWA industrial robot product.

The MOTOMAN usually consists of the manipulator, the controller, the programming pendant, and manipulator cables.

In this manual, the equipment is designated as follows:

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Manual Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DX100 Controller</td>
<td>DX100</td>
</tr>
<tr>
<td>DX100 Programming Pendant</td>
<td>Programming Pendant</td>
</tr>
<tr>
<td>Cable between the manipulator and the controller</td>
<td>Manipulator Cable</td>
</tr>
</tbody>
</table>
Descriptions of the programming pendant, buttons, and displays are shown as follows:

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Manual Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programming Pendant</td>
<td></td>
</tr>
<tr>
<td>Character Keys</td>
<td>The keys which have characters printed on them are denoted with [ ].</td>
</tr>
<tr>
<td></td>
<td>ex. [ENTER]</td>
</tr>
<tr>
<td>Symbol Keys</td>
<td>The keys which have a symbol printed on them are not denoted with [ ] but depicted</td>
</tr>
<tr>
<td></td>
<td>with a small picture.</td>
</tr>
<tr>
<td></td>
<td>ex. page key</td>
</tr>
<tr>
<td></td>
<td>The cursor key is an exception, and a picture is not shown.</td>
</tr>
<tr>
<td>Axis Keys Number Keys</td>
<td>“Axis Keys” and “Number Keys” are generic names for the keys for axis operation and</td>
</tr>
<tr>
<td></td>
<td>number input.</td>
</tr>
<tr>
<td>Keys pressed</td>
<td></td>
</tr>
<tr>
<td>simultaneously</td>
<td>When two keys are to be pressed simultaneously, the keys are shown with a “+”</td>
</tr>
<tr>
<td></td>
<td>sign between them, ex. [SHIFT]+[COORD]</td>
</tr>
<tr>
<td>Displays</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The menu displayed in the programming pendant is denoted with {}.</td>
</tr>
<tr>
<td></td>
<td>ex. {JOB}</td>
</tr>
</tbody>
</table>

**Description of the Operation Procedure**

In the explanation of the operation procedure, the expression "Select • • • " means that the cursor is moved to the object item and [SELECT] is pressed, or that the item is directly selected by touching the screen.

**Registered Trademark**

In this manual, names of companies, corporations, or products are trademarks, registered trademarks, or brand names for each company or corporation. The indications of (R) and TM are omitted.
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   2.2 Data to be Logged ........................................................................................................ 2-1

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1 Outline

This function stores the history (log) of operation on the controller and data edit in chronological order, and shows them on the display. This function enables the log data to be stored in external memory devices.

NOTE

To use this function, the memory expansion board (JANCD-YIF01-2E or JANCD-YIF01-3E) is required. This function is unavailable if the memory expansion board is not used.
2 Logging Function

2.1 Data to be Logged

This function logs the following data.

(1) Operation system
   • Initialization of files and programs
   • Load of files and programs
     (normal termination/abnormal termination)
   • New creation, delete, rename, parallel shift conversion, mirror shift conversion of the programs
   • Change of manipulator home position
   • Log in/log off

(2) Edit system
   • Program
     The logs of addition/change/delete of the program contents and also the screen edit log are stored.
   • File
     The edit log of the file contents is stored.
   • Parameter
     The edit log of the parameter is stored.
   • Variable
     The edit log of the variable is stored. The variable log only records the edit log on the window, however, it does not store the edit log in the remote mode.
   • I/O
     The edit log of the I/O is stored. The I/O log records only the edit log on the window, and it does not store the edit log in the remote mode.

2.2 Data to be Logged

The following shows the number of logging records for each data.

• Operation system: 100 pieces
• Edit system: 200 pieces

If those numbers are exceeded, the oldest data is deleted and overwritten with new data.
3 Operation

3.1 List of Log

The list of log can be referred by using the following procedures.

Select (SERVICE) - (SYSTEM INFO) - (LOGDATA) under the top menu.

Fig. 3-1: SUB MENU

Select the menu, and all LOGDATA appears. The list is shown successively from the newest one.

Fig. 3-2: LOGDATA window
3 Operation
3.1 List of Log

The LOGDATA window can be displayed by log type (ALL/OPERATION/EDITING).

When the LOGDATA window is displayed, press [Enable Switch] + (DISPLAY), and then select the log type to be displayed.

Fig. 3-3: Display Kind Selection

When OPERATION is selected, the following window appears.

Fig. 3-4: Operation List
When EDITING is selected, the following window appears.

*Fig. 3-5: Editing List*
3.2 Displaying of Detailed Log

Move the cursor to the displayed item with [Cursor] and press [Register] to show the details of the item.

Fig. 3-6: DETAIL

Touch {BACK} on the bottom of the window or press [RESET] to return to the list window.

Items that appear in the detailed log window are shown in the tables in the following pages. The following items appear regardless of whether the operation system or editing system is selected.

- INDEX
- DATE
- EVENT
- LOGIN NAME
### Operation system log

<table>
<thead>
<tr>
<th>Log Name</th>
<th>Remarks</th>
<th>Display Item for Detailed Display Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>File initialization</td>
<td></td>
<td>File name</td>
</tr>
<tr>
<td>File load normal termination</td>
<td></td>
<td>File name</td>
</tr>
<tr>
<td>File load abnormal termination</td>
<td></td>
<td>File name</td>
</tr>
<tr>
<td>Program creation</td>
<td></td>
<td>Program name</td>
</tr>
<tr>
<td>Program delete</td>
<td></td>
<td>Program name</td>
</tr>
<tr>
<td>Parallel shift</td>
<td></td>
<td>Program name</td>
</tr>
<tr>
<td>Mirror shift</td>
<td></td>
<td>Program name</td>
</tr>
<tr>
<td>Home position absolute data</td>
<td>Group number</td>
<td>Axis number Setting</td>
</tr>
</tbody>
</table>

### Edit system log

<table>
<thead>
<tr>
<th>Log Name</th>
<th>Remarks</th>
<th>Display Item for Detailed Display Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program edit (addition)</td>
<td>Series</td>
<td>File name</td>
</tr>
<tr>
<td>Program edit (modification)</td>
<td>Series</td>
<td>File name</td>
</tr>
<tr>
<td>Program edit (delete)</td>
<td>Series</td>
<td>File name</td>
</tr>
<tr>
<td>Edit of other files</td>
<td>Numeric</td>
<td>File name Element number Value before edit Value after edit</td>
</tr>
<tr>
<td></td>
<td>Character</td>
<td>File name Element number Value after edit</td>
</tr>
<tr>
<td>Parameter edit</td>
<td>Parameter type</td>
<td>Parameter number Value before edit Value after edit</td>
</tr>
<tr>
<td>Variable edit</td>
<td>Numeric</td>
<td>Variable type Variable number Value before change Value after change</td>
</tr>
<tr>
<td></td>
<td>Character</td>
<td>Variable type Variable number Value before edit Value after edit</td>
</tr>
<tr>
<td></td>
<td>Position</td>
<td>Variable type Variable number Value before edit Value after edit</td>
</tr>
<tr>
<td>I/O edit</td>
<td>I/O number</td>
<td>Value after edit</td>
</tr>
</tbody>
</table>
3.3 Deleting of Logging Information

When deleting the log, press [Enable Switch] + {DATA}, select {CLEAR}, and then press [Register]. The confirmation dialog box “Initialize?” is displayed.

If “YES” is selected, all logs of the displayed kind can be deleted. Only if the security is in the management mode, the deleting logs is available.

**Fig. 3-7: deleting Log**

**Fig. 3-8: Confirmation Dialog Box for the Initialization**
3.4 Movement of Log Display Location

When the LOGDATA window is displayed, the cursor can be moved to any log number.

Operation Procedure

1. Press [Enable Switch] + {EDIT}, and select {SEARCH}.
2. Input the log number where to move, and press [Register].

The range available to be specified as the log number where to move is as follows. If the value out of range is input, an error is displayed.

- All log display: 1 - 300
- Operation log display: 1 - 100
- Edit log display: 1 - 200

When inputting a value more than the number of logs of the currently displayed kind as a destination, the cursor moves to the end of the files currently displayed.

(Example 1: When the number of logs of all kind is 100 during all log display)
When “150” is specified as the destination, the cursor moves to the 100.

(Example 2: When the number of logs of all kind is 100, and the number of operation log is 30, during operation log display)
When “90” is specified as the destination, the cursor moves to the 30.

Fig. 3-9: Log Search
3 Operation
3.4 Movement of Log Display Location

Fig. 3-10: Input the Log No. of Destination

<table>
<thead>
<tr>
<th>No.</th>
<th>EVENT</th>
<th>DATE</th>
<th>CLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>003</td>
<td>PROGRAM EDIT(MOD)</td>
<td>2019/05/30</td>
<td>15:55</td>
</tr>
<tr>
<td>004</td>
<td>PROGRAM EDIT(NS)</td>
<td>2019/05/30</td>
<td>15:55</td>
</tr>
<tr>
<td>005</td>
<td>PARAMETER EDIT</td>
<td>2019/05/30</td>
<td>15:53</td>
</tr>
<tr>
<td>006</td>
<td>I/O EDIT</td>
<td>2019/05/30</td>
<td>15:53</td>
</tr>
<tr>
<td>007</td>
<td>I/O EDIT</td>
<td>2019/05/30</td>
<td>15:53</td>
</tr>
<tr>
<td>008</td>
<td>VARIABLE EDIT</td>
<td>2019/05/30</td>
<td>15:53</td>
</tr>
<tr>
<td>009</td>
<td>VARIABLE EDIT</td>
<td>2019/05/30</td>
<td>15:52</td>
</tr>
<tr>
<td>010</td>
<td>OTHER FILE EDIT</td>
<td>2019/05/30</td>
<td>15:52</td>
</tr>
<tr>
<td>011</td>
<td>OTHER FILE EDIT</td>
<td>2019/05/30</td>
<td>15:52</td>
</tr>
</tbody>
</table>

Input range(1 - 200)
3.5 Saving to the External Memory Device

The logging information can be saved in the external memory device.

Operation Procedure

1. Select {SERVICE} - {EX.MEMORY} - {SAVE} under the top menu.

2. Move the cursor to “LOGDATA” of the “SYSTEM DATA” and press [Register]. “★” is displayed on the “LOGDATA“.

3. The confirmation dialog box “Save?” is displayed. Select “YES” to be saved in the external memory device.

Available operations from the external memory menu are only saving and deleting files, not loading and comparing. When trying to execute loading and comparing, the error, “Load (Comparison) is not available.”, is displayed.

**NOTE**

While saving “LOGDATA” in the external memory device, the operation and the editing history are not recorded in the log during that time.
DX100 OPTIONS
INSTRUCTIONS
FOR UNIFIED LOGGING FUNCTION

For inquiries or after-sales service on this product, contact your local YASKAWA representative as shown below.

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