

# DX100

# INSTRUCTIONS SUPPLEMENT

FOR FPD HANDLING USE (MFS2200D-3600,MFS2500D-4000)

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

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## MOTOMAN INSTRUCTIONS

MOTOMAN-□□□ INSTRUCTIONS

DX100 INSTRUCTIONS

DX100 OPERATOR'S MANUAL

DX100 MAINTENANCE MANUAL

The DX100 operator's manuals above correspond to specific usage.  
Be sure to use the appropriate manual.

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## 1 Introduction

This manual is a supplementary instruction for the DX100 for FPD handling use (MFS2200D-3600, MFS2500D-4000).

This supplementary instruction manual describes the differences from the DX100 Instructions. For the instructions other than the differences, refer to the DX100 Instructions.

## 2 Specification

### 2.1 Connection

#### 2.1.1 Primary Power Source Connection

For the sizes of power supply cables and corresponding breakers, refer to *Table 2-1*.

*Table 2-1: DX100 Power Source Capacity, Cable Size and Breaker Capacity*

Manipulator	Power capacity (kVA)	Cable size (size of terminal) (In case of four-core cable) (mm <sup>2</sup> )	Capacity of breaker in DX100 (A)
MFS2200D-3600 MFS2500D-4000	12	8 (M6)	60

Although the power capacity differs depending on the work conditions, the maximum load value (payload, operation speed, and frequency, etc.) are taken into account to the values in the above table.

Inquire at the nearest branch office listed on the back cover for information when selecting the transformer.



The power capacity shown above is the continuous rating value.

When the robot is rapidly accelerated, the power capacity of several times the continuous rating value may be needed instantly.

## 2.2 Type of the Controller

This supplementary manual describes the following types of controllers.

The controller types differ depending on the specification of the manipulator, etc.

Table 2-2: Types of the Controller

Controller Type (ERDR-)	MFS050D-A00	MFS060D-A00
Manipulator	MFS2200D-3600	MFS2500D-4000
Dimension	850(W) X 900(H) X 550(D) mm	
Mass.	200 kg	
Ambient temperature	0 to 25 °C (during operation) -10 to 60 °C (during transportation and maintenance)	
Power supply	3-phase, 200 V <sub>AC</sub> (+10% to -15%) at 50/60 Hz (±2%), 220 V <sub>AC</sub> (+10% to -15%) at 60 Hz (±2%)	
Power capacity	12	
Switch capacity	60	

## 2.3 Dimensional Drawing

Refer to the following drawing number for each controller specification.

Vertical (long) type controller: HB1280557

### 3 Equipment Configuration

This section explains the internal layout and configuration of the DX100 equipment.

#### 3.1 Arrangement of Units and Circuit Boards

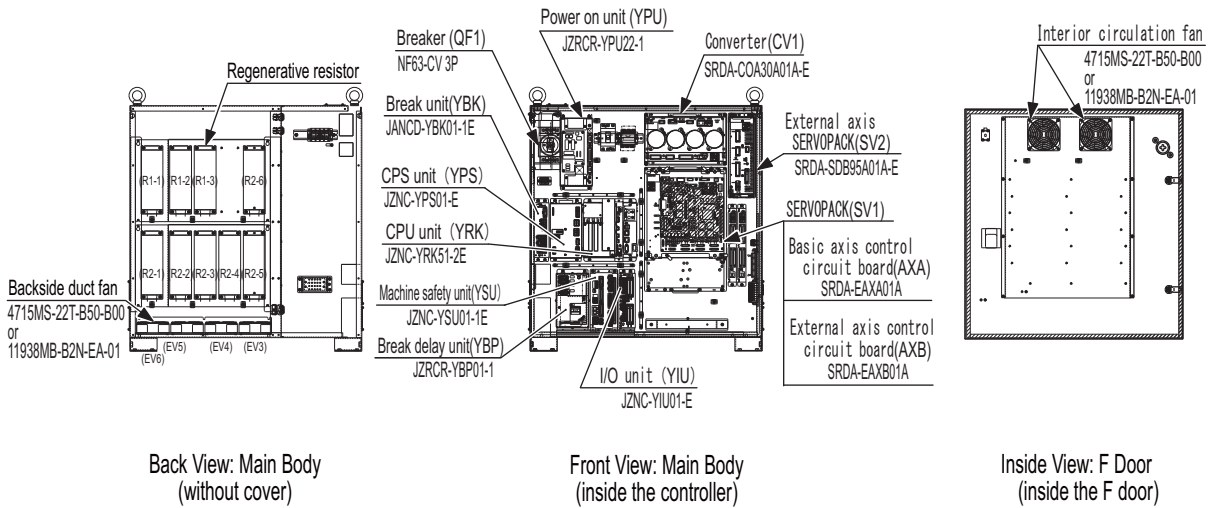


Table 3-1: Recommended Spare Parts

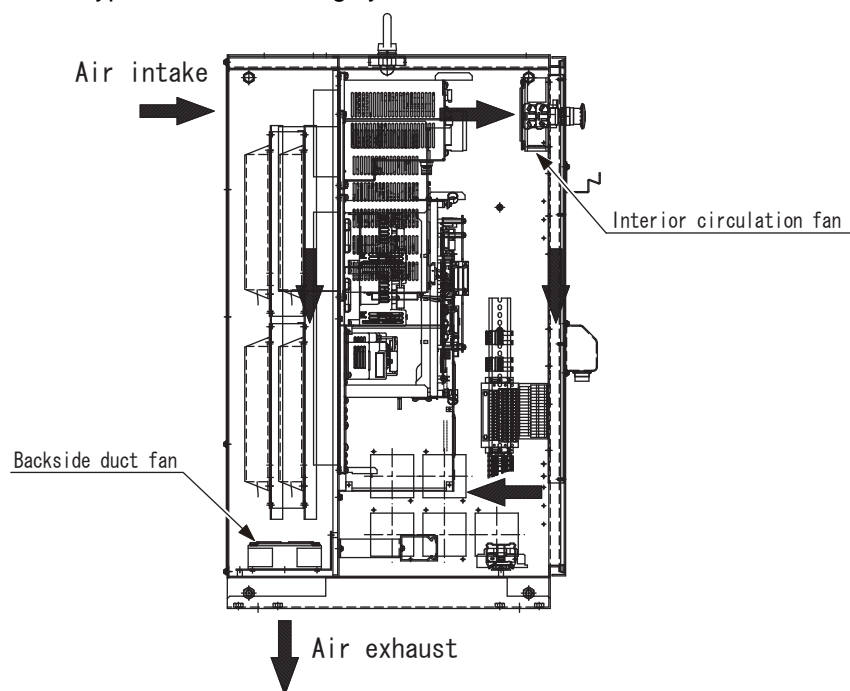
Type Model	DX100 (ERDR-)	SERVOPACK	Converter	Breaker	Power Supply Contact Unit
MFS2200D-3600 MFS2500D-4000	MFS050D-A00 MFS060D-A00	(For S-, U2-, U3-, L-, and R-axis) JZRCR-YSV06-11 (For U1-axis) <sup>1</sup> SRDA-SDB95A01AE	SRDA- COA30A01A-E	NF63-CV 3P 60A	JZRCR-YPU22-1

1 The SERVOPACK for the external-axis controls the U1-axis motor.

### 3.2 Cooling System of the Controller Interior

- The upper side of the backside duct draws in air and expels it from the bottom side of the controller or the backside duct to cool the SERVOPACK.
- Make sure that the door of the DX100 is closed to keep this cooling system effective.

Vertical type controller cooling system

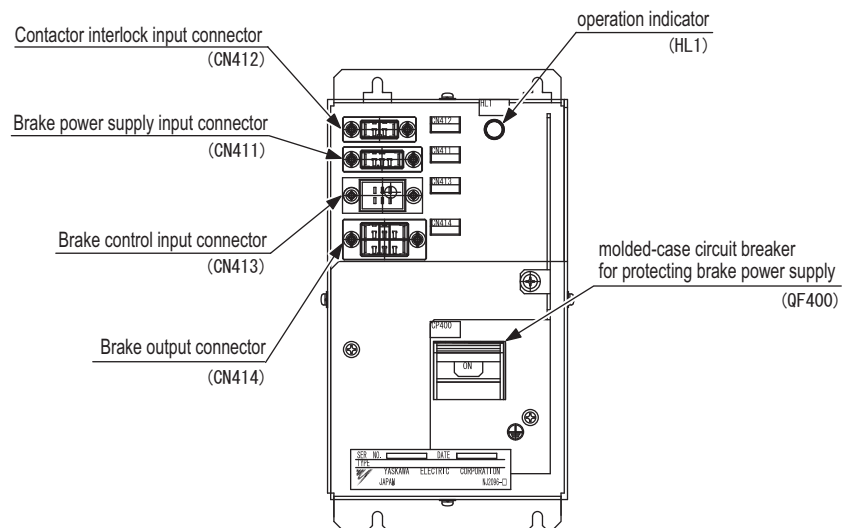




### 3.3 Brake Delay Unit

The brake delay unit is for controlling the external brake which is equipped to U1-, U2-, and U3-axis.

- The operation indicator turns ON when the SERVO is ON.
- The molded-case circuit breaker for the brake power supply protection detects the ground fault and the short circuit of the brake line.
- The state of the molded-case circuit breaker is normally ON, and it turns OFF when it detects the ground fault or the short circuit. If any alarms like "BRAKE POWER ERROR" occur, check if the brake output line is not under the condition of the ground fault nor the short circuit.



## 4 Recommended Spare Parts

It is recommended that the following parts and components be kept in stock as spare parts for the DX100. The spare parts list for the DX100 is shown below. Product performance can not be guaranteed when using spare parts from any company other than Yaskawa. To buy the spare parts which are ranked B or C, inform the manufacturing number (or order number) of DX100 to Yaskawa representative. The spare parts are ranked as follows:

- Rank A: Expendable and frequently replaced parts
- Rank B: Parts for which replacement may be necessary as a result of frequent operation
- Rank C: Drive unit



For replacing parts in Rank B or Rank C, contact your Yaskawa representative.

### 4.1 Recommended Spare Parts List per Controller Type

Table 4-1: Recommended Spare Parts List for Type ERDR-MFS050D-A00, ERDR-MFS060D-A00

Rank	Parts No.	Name	Type	Manufacturer	Qty	Qty per Unit	Remarks
A	1	Battery	ER6VC3N 3.6V	TOSHIBA BATTERY CO., LTD.	1	1	
A	2	YPS Unit Cooling Fan	JZNC-YZU01-E	Yaskawa	1	1	
A	3	Interior Circulation Fan	4715MS-22T-B50-B00 or 11938MB-B2N-EA-01	Minebea Co., Ltd	1	2	
A	4	Backside Duct Fan	4715MS-22T-B50-B00 or 11938MB-B2N-EA-01	Minebea Co., Ltd	1	3	
A	5	Brake Fuse for AC Cooling Fan	GP25 2.5A 250V	Daito Communication Apparatus Co., Ltd.	2	2	
A	6	24VDC Fuse for I/O	02173.15P 3.15A 250V	Littelfuse, Inc.	3	5	
A	7	PG Power Supply Fuse	HM10 1.0A 250V	Daito Communication Apparatus Co., Ltd.	1	1	
C	8	Converter	SRDA-COA30A01A-E	Yaskawa	1	1	
B	9	Servo Amplifier 1, 2, 3	SRDA-SDA71A01A-E	Yaskawa	3	3	SERVOPACK: JZRCR-YSV06-11
B	10	Servo Amplifier 4	SRDA-SDA35A01A-E	Yaskawa	1	1	
B	11	Servo Amplifier 5, 6	SRDA-SDA21A01A-E	Yaskawa	2	2	
B	12	SERVOPACK	SRDA-SDB95A01A-E	Yaskawa	1	1	For U1-axis
B	13	Basic Axis Control Circuit Board	SRDA-EAXA01A	Yaskawa	1	1	
B	14	External Axis Control Circuit Board	SRDA-EAXB01A	Yaskawa	1	1	
C	15	CPU Unit	JZNC-YRK01B-1E	Yaskawa	1	1	1)
B	16	Control Circuit Board	JANCD-YCP01B-E	Yaskawa	1	1	
B	17	Robot I/F Circuit Board	JANCD-YIF01-2E	Yaskawa	1	1	1)
C	18	Power Supply Contactor Unit	JZRCR-YPU22-1	Yaskawa	1	1	
C	19	YPS Unit	JZNC-YPS01-E	Yaskawa	1	1	
B	20	Brake Board	JANCD-YBK01-1E	Yaskawa	1	1	
C	21	Machine Safety Unit	JANC-YSU01-1E	Yaskawa	1	1	
C	22	I/O Unit	JZNC-YIU01-E	Yaskawa	1	1	
C	23	Brake Delay Unit	JZRCR-YBP01-1	Yaskawa	1	1	
C	24	Programming Pendant	JZRCR-YPP06-1	Yaskawa	1	1	With Cable (8M)

1 The CPU unit (JZNC-YRK01B-1E) does not include the robot I/F circuit board (JANCD-YIF01-2E). Must be ordered separately if required.

# DX100

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Specifications are subject to change without notice  
for ongoing product modifications and improvements.