
READ FIRST!!

DX100

WELCOME...

...to the Yaskawa Motoman family of robotics. We take pride in the work we do and would like to take this opportunity to thank you for your business. This **READ FIRST!!** packet familiarizes you with your new Motoman® robotic system. Please review all the information contained here before operating your system.

Contained in this **READ FIRST!!** packet you will find:

- Documentation Survey Card
- Customer Service Information
- Alarm Error Information
- Lithium Battery Safety Information
- System Drawings (if applicable)
- Door Key (if applicable)
- Additional Information

We continually strive to provide the highest quality systems and service available. If you have any questions or comments, please call us. We appreciate your business and want Yaskawa Motoman to continue to be the best solution to your automation needs.

ADDITIONAL INFORMATION

For additional information, refer to the following:

- Motoman Manipulator Manual for your robot model
- Motoman DX100 Controller Manual (p/n 155494-1CD)
- Motoman Operator's Manual for your application
- Motoman Concurrent I/O Parameter Manual (p/n 155491-1CD)
- Equipment mounting guidelines refer to the installation section of the manipulator manual and if applicable, ArcWorld system manual. The installation section of the manipulator manual contains the robot repulsion forces. Contact your local concrete and masonry supplier in order to meet equipment mounting and anchoring requirements.

CUSTOMER SERVICE INFORMATION

If you are in need of technical assistance, contact the Yaskawa Motoman service staff at 937.847.3200. Please have the following information ready before you call.

- Robot type (MA1400, MH50, ES165D, etc.)
- Application type (arc and spot welding, handling, etc.)
- System type (ArcWorld®, FabWorld®, etc.)
- Software version (access using MAIN MENU, SYSTEM INFO, VERSION on programming pendant)
- Robot serial number (located on the back side of robot arm)
- Robot sales order number (located on front of DX100 controller)

ALARM ERRORS

We make every effort to ensure safe delivery of your robotic system. However, occasionally a robotic system will encounter problems with data loss and physical movement caused during the shipping process. Therefore, when turning on the system and a Minor Alarms occurs they are probably ALARM:4311 and ALARM:4107. The following is a description of each cause and remedy.

Alarm 4311 Encoder Backup Error

Should you receive a 4311 alarm, please contact the Yaskawa Motoman Service Department. While not a major cause for concern, there are several remedies for this error. A Yaskawa Motoman service representative can help determine the best solution for your system.

Alarm 4107 Out of Range (ABSOLUTE DATA)

A 4107 Out of Range alarm occurs at power ON if the robot's position has changed during shipment or since last shutdown. The out of range axes will highlight in the alarm display. After resetting the alarm and turning servo power ON, a "Check Position" prompt occurs. The "Check Position" procedure involves jogging the robot to a known pulse count position (a specified point) and verifying that the robot is physically at the proper position. This position called the "Second Home."

To check position:

1. Select ROBOT from the main menu.
2. Select SECOND HOME POS, the Second Home Position window appears.
3. Press the Page key. The group axes by which the second home position is set when there are two or more group axes.
4. Press FWD, and observe the robot moves to the second home position. Robot speed is set as selected manual operation speed.
5. Select DATA.
6. Select CONFIRM POSITION. The "Home Position Checked" message appears.

A comparison of the current pulse data and second home position to ensure allowable ranges, and resumes playback operations. However, if outside the allowable range, the alarm occurs again. Contact a Yaskawa Motoman Service representative if this occurs.

LITHIUM BATTERY SAFETY

This section contains basic information regarding safe storage, disposal, installation, and transportation of lithium batteries used in your robotic system.

Safety

To ensure proper battery operation and to reduce personal hazards:

- Use only for intended operation;
- Dispose of cells only according to recommended procedures;
- Only ship using freight aircraft.

DANGER!

Excessive heat may cause batteries to burn or explode, therefore:

- **Do not charge batteries;**
- **Do not incinerate, solder, or expose to high temperatures;**
- **Do not short positive & negative terminals together.**

Storage

Always store the lithium batteries in a cool and dry place, typically 20 to 25 C (68.5 to 77 F) at 40% to 60% relative humidity. Place batteries and a copy of these instructions away from flammable materials.

Transportation

Each battery contains 0.23 grams of lithium. Two batteries can ship together within the United States without restriction. Transportation procedures for transferring three or more batteries within the United States are in the Department of Transportation (DOT), Code of Federal Regulations, CFR49, "Transportation." An exemption to these regulations, DOT-E7052, covers transportation of certain hazardous materials classified as flammable solids. This exemption authorizes transport of lithium batteries by motor vehicle, rail freight, cargo vessel, and cargo-only aircraft, providing meeting certain conditions. Regulations governing shipment to, or within, other countries may differ from those of the U.S. A special provision of DOT-E7052 (11th Rev., October 21, 1982, par. 8-a) provides that: Persons who receive cells and batteries covered by this exemption may reship them pursuant to the provisions received.

The Code of Federal Regulations, 49 CFR 173.22a, relates to the use of packaging authorized under exemptions. In part, you must maintain a copy of the exemption at each facility where the packaging is in connection with shipment under the exemption. Shipment of depleted batteries intended for disposal may be subject to specific regulations under the IATA Restricted Articles of the International Air Transport Association, Geneva, Switzerland. NOTE: Periodically Regulations for transportation of lithium batteries are changed.

Disposal

For disposal, batteries must be packaged and shipped in accordance with transportation regulations to a disposal site. For more information contact:

U. S. Department of Transportation
Research and Special Programs Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

WARNING!

Do not incinerate or dispose of lithium batteries in general trash collection. Explosion or violent rupture is possible. Collect batteries for disposal in a manner to prevent against short-circuiting, compacting, or destruction of integrity and hermetic seal. Although the Environmental Protection Agency has no specific lithium battery regulations at this time, lithium may be considered toxic, reactive, or corrosive. Persons disposing of the material are responsible for any hazard created in doing so. State and local regulations may exist regarding the disposal of these materials.

BATTERY REPLACEMENT

Your lithium batteries provide memory backup for approximately five years. Batteries are located in both the robot base and controller.

DANGER!

Only qualified electricians familiar with high voltage location within the controller should replace the battery.

Controller

A "Memory Battery Weak" error message appears on the pendant screen, indicating battery replacement must occur within 40 hours. If this message occurs within 30 minutes of power-up following an extended power-off period of more than two days, replace battery immediately as follows:

1. Set MAIN POWER switch on controller to ON.
2. Open cabinet and remove battery connector and fixing screw on YIF01 board.
3. Unplug battery from CN110/BAT connection and remove.
4. Replace battery and plug connector into CN100/BAT connection.
5. Close controller cabinet.

Robot

An "Encoder Battery Weak" error message appears on the pendant screen, indicating battery replacement must occur within 40 hours as follows.

NOTE: Connect new battery pack before removing old one to avoid losing encoder absolute data.

1. Set the MAIN POWER switch on the controller to OFF.
2. Remove mounting screws for the battery pack on the connector base.
3. Remove battery pack from holder.
4. Connect the new battery pack to the unoccupied connector.
5. Remove the old battery pack from the connector.
6. Mount the new battery pack on the holder.
7. Securely fix the battery pack on the connector base with the mounting screws.

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