

## READ FIRST!!

### YRC1000

#### 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 and in the YRC1000 Controller Manual Assembly before installing or operating your system.

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

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

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 to continue to be the best solution for your automation needs.

#### ADDITIONAL INFORMATION

For additional information, refer to the following:

- READ FIRST!!, Safety Requirements (p/n 179526-1CD)
- YRC1000 Controller Instructions (p/n 178642-1CD)
- YRC1000 Concurrent I/O Parameter Manual (p/n 178648-1CD)
- YRC1000 Maintenance Manual (p/n 178643-1CD)
- YRC1000 Alarm Codes (p/n 178644-1CD)
- Manipulator Manual for your robot model
- YRC1000 General Operators Manual (p/n 178645-1CD)
- YRC1000 Operator's Manual for your application
- 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 needing technical assistance, contact the Customer Support at 937.847.3200. Please have the following information ready before calling.

- Robot type (*GP7/AR900, GP8/AR700, etc.*)
- Application type (*arc and spot welding, handling, etc.*)
- System type (*ArcWorld®, 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 the YRC1000 controller*)

#### NATIONAL SAFETY STANDARD INFORMATION

We suggest obtaining and reviewing a copy of the ANSI/RIA National Safety Standard for Industrial Robots and Robot Systems (ANSI/RIA R15.06-2012). This document is obtainable from the Robotic Industries Association (RIA) at:

Robotic Industries Association  
900 Victors Way  
P.O. Box 3724  
Ann Arbor, Michigan 48106  
TEL: (734) 994-6088  
FAX: (734) 994-3338  
[www.roboticsonline.com](http://www.roboticsonline.com)

Ultimately, well-trained personnel are the best safeguard against accidents and damage that can result from improper operation of the equipment. The customer is responsible for providing adequately trained personnel to operate, program, and maintain the equipment. **NEVER ALLOW UNTRAINED PERSONNEL TO OPERATE, PROGRAM, OR REPAIR THE EQUIPMENT!**

We recommend approved YASKAWA training courses for all personnel involved with the operation, programming, or repair of the equipment.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

#### ALARM ERROR INFORMATION

We make every effort to ensure safe delivery of the 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:4692 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 Customer Support. While not a major cause for concern, there are several remedies for this error. Customer Support can help determine the best solution for your system.

### **Alarm 4107 Out of Range (ABS0 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 Customer Support if this occurs.

### **LITHIUM BATTERY SAFETY INFORMATION**

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

#### **Safety**

To ensure proper battery operation and to reduce personal hazards:

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

#### **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 and 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 (11<sup>th</sup> 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 CRF 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 violet 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 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 INFORMATION**

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

#### **DANGER!**

**Only qualified electricians familiar with high voltage locations 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 30 days after message appears. If this message occurs within 30 minutes of power-up following an extended power-off period of more than two days, replace battery immediately by referring to section 5.1.1.3 "Replacing the Battery" in the YRC1000 MAINTENACE MANUAL.

#### **Robot**

An "Encoder Battery Weak" error message appears on the pendant screen, indicating battery replacement must occur within 40 hours as follows. Refer to the section "Battery Pack Replacement" in the Robot Maintenance Manual.

---

YASKAWA America, Inc.  
Motoman Robotics Division  
100 Automation Way  
Miamisburg, OH 45342  
TEL: 937.847.6200  
FAX: 937.847.6277  
24-HOURS HOTLINE: 937.847.3200  
www.motoman.com