Motoman XRC Controller

MotoPass

User’s Manual

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Chapter 1
Introduction

MotoPass is Motoman’s security interface solution for the Motoman robot controller. MotoPass requires users to log into the robot system before making changes to robot jobs or system parameters. Once logged in, MotoPass records the time and date of each user login or logout (up to 80 entries), enabling tracking of users and changes to the system. User accountability is enforced by tracking the time of changes on the controller with the login/logout times recorded in MotoPass. MotoPass is accessed via a HMI/PLC touch screen.

ATTENTION!
The Administrator password has been printed on a separate sheet found at the back of this manual. It is recommended that this sheet be removed and filed for safe-keeping by the person acting as administrator.

1.1 About This Document

This manual is intended as an introduction and overview for personnel who have received operator training from Motoman, and who are familiar with the operation of their Motoman robot model. For more detailed information, refer to the manuals listed in Section 1.3. This manual contains the following sections:

SECTION 1 - INTRODUCTION
This section provides general information about MotoPass and its components, a list of reference documents, and customer service information.

SECTION 2 - SAFETY
This section provides information regarding the safe use and operation of MotoPass.

SECTION 3 - OPERATION
This section provides instructions for basic operation of the MotoPass security interface.
1.2 Overview

The MotoPass security interface provides a complete security solution in a standard configuration. The system is accessed via a HMI/PLC touch screen. The HMI can be mounted in the standard angled enclosure or in an optional top-mount enclosure for retro-fitting existing controllers. The PLC has 16 inputs and outputs with 10 inputs and 15 outputs available for additional user applications.

Figure 1 Overview

1.2.1 Major Components

The MotoPass security interface includes the following major components:

- HMI/PLC, 5.7 inch touch screen
- Angled enclosure
- Security management software

1.2.2 Optional Equipment

The following optional equipment is available for use with MotoPass:

- Top-mount XRC expansion cabinet
1.3 **Reference to Other Documentation**

For additional information refer to the following:

- Motoman manipulator manual for your robot model
- Motoman Concurrent I/O Parameter Manual (P/N 142102-1)

1.4 **Customer Service Information**

If you are in need of technical assistance, contact the Motoman service staff at (937) 847-3200. Please have the following information ready before you call:

- Robot Type (UP6 or UP20)
- Application Type (welding, handling, etc.)
- System Type (MotoPass)
- Software Version (3.74A)
- Robot Serial Number (located on back side of robot arm)
- Robot Sales Order Number (located on front door of XRC 2001 controller)
- Note any lit LED I/O indicators on back of HMI
- MotoPass software version (located on bottom right corner of start screen)
Notes
Chapter 2

Safety

2.1 Introduction

It is the purchaser’s responsibility to ensure that all local, county, state, and national codes, regulations, rules, or laws relating to safety and safe operating conditions for each installation are met and followed.

We suggest that you obtain and review a copy of the ANSI/RIA National Safety Standard for Industrial Robots and Robot Systems. This information can be obtained from the Robotic Industries Association by requesting ANSI/RIA R15.06. The address is as follows:

RoboticIndustriesAssociation
900VictorsWay
P.O.Box3724
Ann Arbor, Michigan 48106
TEL:(734)994-6088
FAX:(734)994-3338

Ultimately, the best safeguard is trained personnel. The user is responsible for providing personnel who are adequately trained to operate, program, and maintain the robot cell. The robot must not be operated by personnel who have not been trained!

We recommend that all personnel who intend to operate, program, repair, or use the robot system be trained in an approved Motoman training course and become familiar with the proper operation of the system.
This safety section addresses the following:

- Standard Conventions (Section 2.2)
- General Safeguarding Tips (Section 2.3)
- Mechanical Safety Devices (Section 2.4)
- Installation Safety (Section 2.5)
- Programming Safety (Section 2.6)
- Operation Safety (Section 2.7)
- Maintenance Safety (Section 2.8)

### 2.2 Standard Conventions

This manual includes information essential to the safety of personnel and equipment. As you read through this manual, be alert to the four signal words:

**DANGER!**

**WARNING!**

**CAUTION!**

**NOTE:**

Pay particular attention to the information provided under these headings which are defined below (in descending order of severity).

⚠️ **DANGER!**

Information appearing under the DANGER caption concerns the protection of personnel from the immediate and imminent hazards that, if not avoided, will result in immediate, serious personal injury or loss of life in addition to equipment damage.

⚠️ **WARNING!**

Information appearing under the WARNING caption concerns the protection of personnel and equipment from potential hazards that can result in personal injury or loss of life in addition to equipment damage.

⚠️ **CAUTION!**

Information appearing under the CAUTION caption concerns the protection of personnel and equipment, software, and data from hazards that can result in minor personal injury or equipment damage.

📝 **Note:** Information appearing in a Note caption provides additional information which is helpful in understanding the item being explained.
2.3 General Safeguarding Tips

All operators, programmers, plant and tooling engineers, maintenance personnel, supervisors, and anyone working near the robot must become familiar with the operation of this equipment. All personnel involved with the operation of the equipment must understand potential dangers of operation. General safeguarding tips are as follows:

- Improper operation can result in personal injury and/or damage to the equipment. Only trained personnel familiar with the operation of this robot, the operator’s manuals, the system equipment, and options and accessories should be permitted to operate this robot system.
- Do not enter the robot cell while it is in automatic operation. Programmers must have the teach pendant when they enter the robot cell.
- Improper connections can damage the robot. All connections must be made within the standard voltage and current ratings of the robot I/O (Inputs and Outputs).
- The robot must be placed in Emergency Stop (E-STOP) mode whenever it is not in use.
- In accordance with ANSI/RIA R15.06, section 6.13.4 and 6.13.5, use lockout/tagout procedures during equipment maintenance. Refer also to Section 1910.147 (29CFR, Part 1910), Occupational Safety and Health Standards for General Industry (OSHA).

2.4 Mechanical Safety Devices

The safe operation of the robot, positioner, auxiliary equipment, and system is ultimately the user’s responsibility. The conditions under which the equipment will be operated safely should be reviewed by the user. The user must be aware of the various national codes, ANSI/RIA R15.06 safety standards, and other local codes that may pertain to the installation and use of industrial equipment. Additional safety measures for personnel and equipment may be required depending on system installation, operation, and/or location. The following safety measures are available:

- Safety fences and barriers
- Light curtains
- Door interlocks
- Safety mats
- Floor markings
- Warning lights

Check all safety equipment frequently for proper operation. Repair or replace any non-functioning safety equipment immediately.
2.5 Installation Safety

Safe installation is essential for protection of people and equipment. The following suggestions are intended to supplement, but not replace, existing federal, local, and state laws and regulations. Additional safety measures for personnel and equipment may be required depending on system installation, operation, and/or location. Installation tips are as follows:

- Be sure that only qualified personnel familiar with national codes, local codes, and ANSI/RIA R15.06 safety standards are permitted to install the equipment.
- Identify the work envelope of each robot with floor markings, signs, and barriers.
- Position all controllers outside the robot work envelope.
- Whenever possible, install safety fences to protect against unauthorized entry into the work envelope.
- Eliminate areas where personnel might get trapped between a moving robot and other equipment (pinch points).
- Provide sufficient room inside the workcell to permit safe teaching and maintenance procedures.

2.6 Programming Safety

All operators, programmers, plant and tooling engineers, maintenance personnel, supervisors, and anyone working near the robot must become familiar with the operation of this equipment. All personnel involved with the operation of the equipment must understand potential dangers of operation. Programming tips are as follows:

Any modifications to PART 1 of the XRC controller PLC can cause severe personal injury or death, as well as damage to the robot! Do not make any modifications to PART 1. Making any changes without the written permission of Motoman will VOID YOUR WARRANTY!

Some operations require standard passwords and some require special passwords. Special passwords are for Motoman use only. YOUR WARRANTY WILL BE VOID if you use these special passwords.

Back up all programs and jobs onto a floppy disk whenever program changes are made. To avoid loss of information, programs, or jobs, a backup must always be made before any service procedures are done and before any changes are made to options, accessories, or equipment.

The concurrent I/O (Input and Output) function allows the customer to modify the internal ladder inputs and outputs for maximum robot performance. Great care must be taken when making these modifications. Double-check all modifications under every mode of robot operation to ensure that you have not created hazards or dangerous situations that may damage the robot or other parts of the system.
• Improper operation can result in personal injury and/or damage to the equipment. Only trained personnel familiar with the operation, manuals, electrical design, and equipment interconnections of this robot should be permitted to operate the system.

• Inspect the robot and work envelope to be sure no potentially hazardous conditions exist. Be sure the area is clean and free of water, oil, debris, etc.

• Be sure that all safeguards are in place.

• Check the E-STOP button on the teach pendant for proper operation before programming.

• Carry the teach pendant with you when you enter the workcell.

• Be sure that only the person holding the teach pendant enters the workcell.

• Test any new or modified program at low speed for at least one full cycle.

2.7 Operation Safety

All operators, programmers, plant and tooling engineers, maintenance personnel, supervisors, and anyone working near the robot must become familiar with the operation of this equipment. All personnel involved with the operation of the equipment must understand potential dangers of operation. Operation tips are as follows:

• Be sure that only trained personnel familiar with the operation of this robot, the operator's manuals, the system equipment, and options and accessories are permitted to operate this robot system.

• Check all safety equipment for proper operation. Repair or replace any non-functioning safety equipment immediately.

• Inspect the robot and work envelope to ensure no potentially hazardous conditions exist. Be sure the area is clean and free of water, oil, debris, etc.

• Ensure that all safeguards are in place.

• Improper operation can result in personal injury and/or damage to the equipment. Only trained personnel familiar with the operation, manuals, electrical design, and equipment interconnections of this robot should be permitted to operate the system.

• Do not enter the robot cell while it is in automatic operation. Programmers must have the teach pendant when they enter the cell.

• The robot must be placed in Emergency Stop (E-STOP) mode whenever it is not in use.

• This equipment has multiple sources of electrical supply. Electrical interconnections are made between the controller, external servo box, and other equipment. Disconnect and lockout/tagout all electrical circuits before making any modifications or connections.
All modifications made to the controller will change the way the robot operates and can cause severe personal injury or death, as well as damage the robot. This includes controller parameters, ladder parts 1 and 2, and I/O (Input and Output) modifications. Check and test all changes at slow speed.

### 2.8 Maintenance Safety

All operators, programmers, plant and tooling engineers, maintenance personnel, supervisors, and anyone working near the robot must become familiar with the operation of this equipment. All personnel involved with the operation of the equipment must understand potential dangers of operation. Maintenance tips are as follows:

- Do not perform any maintenance procedures before reading and understanding the proper procedures in the appropriate manual.
- Check all safety equipment for proper operation. Repair or replace any non-functioning safety equipment immediately.
- Improper operation can result in personal injury and/or damage to the equipment. Only trained personnel familiar with the operation, manuals, electrical design, and equipment interconnections of this robot should be permitted to operate the system.
- Back up all your programs and jobs onto a floppy disk whenever program changes are made. A backup must always be made before any servicing or changes are made to options, accessories, or equipment to avoid loss of information, programs, or jobs.
- Do not enter the robot cell while it is in automatic operation. Programmers must have the teach pendant when they enter the cell.
- The robot must be placed in Emergency Stop (E-STOP) mode whenever it is not in use.
- Be sure all safeguards are in place.
- Use proper replacement parts.
- This equipment has multiple sources of electrical supply. Electrical interconnections are made between the controller, external servo box, and other equipment. Disconnect and lockout/tagout all electrical circuits before making any modifications or connections.
- All modifications made to the controller will change the way the robot operates and can cause severe personal injury or death, as well as damage the robot. This includes controller parameters, ladder parts 1 and 2, and I/O (Input and Output) modifications. Check and test all changes at slow speed.
- Improper connections can damage the robot. All connections must be made within the standard voltage and current ratings of the robot I/O (Inputs and Outputs).
Chapter 3
Operation

MotoPass is used to track changes to the robot controller. Before making changes to the controller, the user must first enter a valid ID and password. Users are then prompted to enter comments to document changes they have made to the controller. Upon power up of the robot controller the following screen is displayed.

![MotoPass Screen]

The Login status button appears on most screens and gives the user a visual indication of the current login status. A dark button indicates that you are currently logged into MotoPass. A white button indicates that you are not logged into MotoPass.

3.1 Operator Mode

Operator mode is used when changes need to be made to the robot controller. An authorized user enters a valid user ID and password to bypass the controller edit-lock. To login using operator mode ID and password, proceed as follows:
1. From the main screen, press [Enter Operator Password]. The alpha-numeric keypad appears.

2. Press the flashing [Touch here, enter user #, & password] button to activate the keypad.
3. Enter two digit User ID number and press [Enter]. User ID is numeric only.
4. Enter four character Password and press [Enter]. The Password Done screen appears. Password can use a combination of letters and numbers.

5. You must now either select a defined comment, or enter a custom comment.

3.1.1 Selecting a Defined Comment

Five canned comments are available for common login entries. To use a pre-defined comment, proceed as follows:

1. Press [Select a Defined Comment] from Password Done screen. The defined comment screen appears.
2. Select any of the five pre-defined comments. The comment appears on the input buffer line.

3. Press the [To Keyboard Editor] button.

4. You can now edit the predefined comment, create your own comment, or go to the navigation screen.

Note: To change predefined comments, contact the Motoman service staff at (937) 847-3200.

### 3.1.2 Entering a Custom Comment

You may also enter your own custom comment or modify one of the pre-defined comments. To enter a custom comment, proceed as follows:

1. Pressing [Enter Custom Comment] from the Password Done screen, or the [To Keyboard Editor] from the defined comment screen brings you to the text entry screen.

2. Press [Begin] and use the alpha-numeric keypad to enter or modify your comment. Text appears in buffer line as you type.

3. When finished, press [Done].

4. Press [Nav Scrn] to proceed to the navigation screen.

### 3.1.3 Navigation Screen

The navigation screen provide a menu of operator functions for MotoPass. It also displays the current date and time.
3.1.4 Manual/Auto Log Out

The Manual/Auto Log Out screen enables you to toggle the automatic logout feature on or off, add increments of 15, 30, or 60 minutes to the automatic logout timer, or manually log out with comment.

3.1.4.1 Manual Log Out

The manual log out button allows you to log out as desired. To log out manually, proceed as follows:

1. Press the [PRESS TO LOG OUT] button.
2. Select any of the five pre-defined comments, or press the [To Keyboard Editor] button to create your own comment.

3.1.4.2 Automatic Log Out

MotoPass automatically logs the user out after a predetermined time. You may add more time as needed by selecting the [+15 MIN], [+30 MIN], and [+60 MIN] buttons. You may also disable the automatic logout timer completely by simply pressing the [ACTIVE] button. Simply press [DISABLED] to reactivate the timer.
3.1.5 View User Log History

The user log allows the user to view the previous 80 login/logout records for the controller. If more than 80 events are recorded, older entries are removed first (first in, first out). To view the user log history, proceed as follows:


2. Navigate to the desired entry using the Page Up, Page Down or up/down arrows and press [VIEW]. The log details page appears.

3. Press [Return to Log] to view list or press [To Nav Screen] to return to the navigation screen.

3.1.6 Production Statistics

The production statistics screen allows the user to view current production statistics including: uptime timer, alarm timer, production time, and number of parts produced. To view production statistics for the current user, proceed as follows:

![Current User's Production Stats](image)

- Uptime Timer - Displays time controller has been powered
- Alarm Timer - Displays time controller has been in alarm state
- Production Time - Time controller has been in play mode with active job
- Parts Produced - Part counter

2. Press [Reset Current] to reset values for the current user.

3. Press [To Nav Screen] to return to navigation screen.
3.2 Administrator Mode

Administrator mode allows the user to reset user information including login and passwords, reset the log, modify user information and automatic logout settings. To access administrator functions, proceed as follows:

**ATTENTION!**
The Administrator password has been printed on a separate sheet found at the back of this manual. It is recommended that this sheet be removed and filed for safe-keeping by the person acting as administrator.

1. From the main screen, press [Enter Admin Password]. The administrator password screen appears.

2. Press the [Touch to Enter Password] button to activate numeric keypad.
3. Enter numeric password using keypad.
4. Press [ENTER] on keypad and then press the [Press ENTER then Here] button. The administrator functions screen appears.

3.2.1 Reset User Information

The [Reset User Info] button allows the administrator to reset all user information including login and passwords for the controller.

**WARNING!**
The [Reset User Info] button resets all user information including login and passwords for the controller. Once this is done, this information is permanently lost. This action cannot be undone.
3.2.2 **Reset Log**

The [Reset Log] button allows the administrator to reset the log entries for the controller.

**WARNING!**
The [Reset Log] button resets all log entries for the controller. Once this is done, this information is permanently lost. This action cannot be undone.

3.2.3 **Global Auto Log Out Settings**

The [Auto Log Out Settings] button allows the administrator to modify the default automatic logout timer values for all users. This is the minimum value a user can remain logged into the controller. To modify the automatic logout timer values, proceed as follows:

1. From the administrator functions screen, press [Auto Log Out Settings]. The auto log out settings window appears.

2. There are two ways to set the timer value. Either press [Default Setting (15 Min)] to set the auto logout timer value to 15 minutes.

   OR

3. Press [Touch Here to Edit] to activate the numeric keypad and enter your own value.

4. Enter the new value using the numeric keypad and press [Enter].

5. Press the [Touch When Done] button to set the value.
3.2.4 User Maintenance

The User Maintenance button allows the administrator to modify the user ID and password for each user. To modify user ID and password, proceed as follows:

1. From the administrator functions screen, press [User Maintenance]. The user maintenance window appears.

2. Press [Touch to Start].
3. Using the arrow keys, select the user number you wish to modify.
4. Using the numeric keypad, enter the new user ID number and press [Save Value].
5. Using the alpha-numeric keypad, enter the new password and press [Save Value] again.

Note: The ID number can only be a 2-digit number. The password can use up to 4 alpha and/or numeric characters.
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It is recommended that this sheet be removed from this manual and filed for safe-keeping by the person acting as administrator.
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