![kepware logo]

Client Connectivity Guide

ThingWorx Kepware Server with FANUC ROBOSHOT Molding Machines

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1. Overview

This guide describes establishing a connection between the ThingWorx® Kepware® Server data server with the EUROMAP 63 driver and a FANUC ROBOSHOT injection molding machine (IMM).

🔸 **Tip**:   ThingWorx Kepware Server version 6.6 and the EUROMAP 63 5.8.13 application are used for this guide.

The FANUC Corporation provides a FANUC ROBOSHOT EUROMAP 63 interface communication application called EM63App, which can be used for communication between the IMM and the ThingWorx Kepware Server data server though the EUROMAP 63 driver.
The application communicates with the driver through files placed in the configured Session File Directory Path that conform to the EUROMAP 63 specification.

🔸 **Note**:   It may be necessary to configure the computer system firewall to allow these applications to communicate with the IMM.

2. Configure the FANUC ROBOSHOT IMM

🔸 The molding machine and the computer on which the EM63App is installed must be able to communicate with each other on the network.

1. Configure the IMM with the IP address of the computer on which the EM63App is installed. On the COMMUNICATION page, set this in the IP ADDRESS in the upper right.

2. Configure the physical IMM with the correct machine number. It must match the number in the Machine Master application, which assigns numbers to each configured machine starting with 1. On the COMMUNICATION page, set this in the MACHINE ID in the upper right.

3. Configure the IP Address, sub-net mask, and default gateway of the IMM.

4. On the COMMUNICATION page, set these values in the upper left box (titled MACHINE).

5. Note the IP ADDRESS assigned to the ROBOSHOT for configuring the EM63App.

3. Install and Configure the FANUC ROBOSHOT EUROMAP 63 Interface Communication Application

1. Run EM63IF_setup.exe with administrative privileges.

2. Click through the install wizard dialogs to install the FANUC EUROMAP 63 interface.

3. After the files are copied and the install completes, restart the computer.

4. When the computer is rebooted, a new database should automatically be created. If not, use the Database Utility application as described in the EM63IF_Setup application system startup document to create the database.

5. Create a MACHINE.INI file in the format defined by the EUROMAP 63 specification.

   > An example MACHINE.INI:
   > [MACHINES]
   > 1=MACHINE_1
   > [MACHINE_1]
   > SESSIONPATH=C:\Machine_1
   > MAXSESSIONS=10

6. Open the Machine Master application and add the machine, Machine_1, with the IP address of the IMM (where Machine_1 is the machine number in the MACHINE.INI file).

7. Select the machine type.

8. Save and exit.

9. Run the EM63 setup application and specify the path to the MACHINE.INI file.

10. Click on the **Advanced** button to configure other interface parameters.

    a. Change Rename LOG file or not at writing to **Don't rename and write**.

    b. Change Rename DAT file or not at writing to **Don't rename and write**.

11. Apply the changes.

12. Close the application.

13. Run the Data Control application and start data exchange between the EM63App and the molding machine.

4. Test the EM63App and IMM Data Exchange

While the Data Control application is running, it is watching for files to appear in the session directory defined in the MACHINE.INI file. It consumes the session and presentation request files, which contain EUROMAP 63 specific commands, and communicates with the IMM using the proprietary protocol to obtain the requested information. When the IMM cycle completes, it responds to the requests and the data control application writes session, presentation, and application response files as required by the request and then deletes the session request file to indicate the transaction is complete.

1. The IMM display panel COMMUNICATION page should show "Waiting for server" next to the Status in the upper right.

2. The data control application log window should indicate that it is initialized and waiting for a session request.

3. Create a text file in the session directory, named REPORTTEST.JOB, with these lines:

   ```
   JOB REPORTTEST RESPONSE "REPORTTEST.RSP";
   REPORT REPORTTEST APPEND "REPORTTEST.DAT"
   START IMMEDIATE
   STOP NEVER
   CYCLIC SHOT 1
   SAMPLES 1
   SESSIONS 1
   PARAMETERS
   ActCntCyc,
   ActCntCycRej;
   ```

4. Create a text file in the session directory named SESS0000.REQ with these lines:

   ```
   00000000 CONNECT;
   00000001 EXECUTE "REPORTTEST.JOB";
   ```

5. As soon as that session request file is saved, the data control application should communicate with the IMM. Verify this on the IMM display panel on the COMMUNICATION page. In the upper right, the text should show "COMMUNICATING" next to Status.

6. If the test is successful, the SESS0000.REQ file is deleted and three new files appear: SESS0000.RSP, REPORTTEST.RSP, and REPORTTEST.DAT.

5. Install ThingWorx Kepware Server

1. Locate and launch the ThingWorx Kepware Server install (by double-clicking on the icon).

2. Select **Run** or **Open** to start the install. If an active content warning is displayed, click **Yes** to continue.

3. In the installation welcome screen, click **Next**.

4. Read and click **I accept the terms in the License Agreement** in End-User License Agreement.

5. Click **Next**.

6. Continue through the installation and adjust the settings for the environment.

7. In the Vertical Suite Selection; choose a Vertical, Typical, or Custom options.

8. In Select Features, expand the tree to view and select drivers to install.

9. Select the EUROMAP 63 driver.

10. Select **Will be installed on local hard drive** and click **Next**.

11. Click **Install** to start the installation.

6. Configure a EUROMAP 63 Channel and Device

1. Start the ThingWorx Kepware Server 6 Configuration application.

2. Create a new EUROMAP 63 channel under connectivity. *See the help file for steps.*

3. Add a device to the channel. *See the help file for steps.*

4. Device properties that may need to change from the default:

   a. **Request Timeout** - This timeout should be longer than the typical cycle time of the IMM.

   b. **Session File Directory Path** – Configure this to a folder that is accessible by the users of both ThingWorx Kepware Server and the EUROMAP 63 interface communication application. This path must be the one specified in the machine.ini as the SESSIONPATH.

   c. **Minimum/Maximum Session Numbers** - Session numbers must not overlap with other applications that may be communicating in the same session directory. To eliminate issues during the initial setup and testing, no other applications should be using the session directory.

5. Confirm there are no errors in the Event Log window.

7.   Verify Communication

1. Open the property editor for the device under the EUROMAP 63 channel.

2. Select the **Tag Generation** group.

3. Under the **Tag Import Method** section, configure the Tag Import Source to 'Device'.

4. Under the **Tag Generation** section, click on the **Create Tags** hyperlink.

🔶 If this is not available, the server_config application is not connected to the server_runtime application. Click **Connect** under the **Runtime** menu.

5. View the ThingWorx Kepware Server Event Log for information on the status of the automatic tag generation.

6. View the device detail pane. If successful, tags should be created under the device.

🔶 If no tags are created, examine the FANUC ROBOSHOT EM63App data control application log, the ThingWorx Kepware Server configuration application event log, and help files to determine and resolve the issue.

7. Once tags are generated, launch the ThingWorx Kepware Server QuickClient application. The tags should update with values from the IMM.

🔶 If tags fail to update, check the configuration application event log for messages that pertain to the channel and device communication issue and resolve.