3.2 EtherNet/IP Communication Settings

Configure settings necessary for EtherNet/IP communication. In addition to host communication and loader communication, the settings can be used to enable EtherNet/IP explicit message communication. Items configured are "Configuration-related setting" and "Number of measured data items (IN)" and "Number of setting data items (OUT)."

**EtherNet/IP Communication Settings**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Data size indicated in brackets</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RKC communication (Modbus)</td>
<td>Communication protocol</td>
<td>Data bit configuration</td>
<td>Reference value</td>
</tr>
<tr>
<td>idle</td>
<td>OFF</td>
<td>Do not execute the default IP address setting</td>
<td>Factory set value: Enabled</td>
</tr>
<tr>
<td>OFF</td>
<td>Enable (making the IPv4 setting)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OFF</td>
<td>Disable (making the host communication or loader communication)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- The only host communication or loader communication settings that are enabled are the host communication speed and protocol and the data bit configuration.
- When the communication protocol is set with the DIP switch, the data bit configuration is automatically set to "data bit width, without parity, stop 1 bit." To change to another data bit configuration, set the configuration in host communication or loader communication.
- In each item, set the default address range (first address) of all communication items used in EtherNet/IP communication (including explicit message communication) to "0x0." Set the default address range to the same as the EtherCAT attribute. Set the number of data used in each item to 0x80. In addition, configure data items following attributes set to 0x80 (modbus) as well.

**Number of measured data items (IN)**

- For object models and register addresses of communication data items, see COM-ML [For SRZ] Communication Data List (IMR02E07-E2) and COM-ML [For SRZ] Instruction Manual (IMR02E08-E2).
- Measured data items (IN) uses attribute 3 of instance 100, and setting data items (OUT) uses attribute 3 of instance 101. The tool is used in verification and setting of measured data items (IN) and setting data items (OUT).

**Number of setting data items (OUT)**

- For the I/O communication that used a tool, see 4.4 Tool Settings and 4.5 I/O Communication Settings.
- For the method of accessing 0x64, see 4.6 Explicit Message Communication.

3.3 Other Communication Data Settings

Set communication data other than the items set in Section 3.2 (PID constants of the Z-TIO and Z-DIO commands) and other communication data settings after the IP address setting.

For each of the communication setting items, see COM-ML [For SRZ] Communication Data List (IMR02E07-E2) and COM-ML [For SRZ] Instruction Manual (IMR02E08-E2).

4. USAGE EXAMPLE

The example given in this section is based on the system configuration below.

4.1 System Configuration

Programmable controller (PLC) | Ethernet switch | EtherCAT communication converter | EtherCAT communication (PLC) | EtherCAT communicator (SRZ) | Load controller 
---|---|---|---|---|---

**Setting example**

Using CH1 to CH4 of the measured value (PV) and set value (SV) of the 2-TIO module in I/O communication Setting condition: Measured data items (IN): Measured value (PV), Set value (SV). Setting data items (OUT): Measured value (PV). Setting position: CH1 of identifier OG. Set value: 1000 H. Setting position: CH2 of identifier QG. Set value: 2780 H.
4.2 Controller Settings

The COM-MLs and controllers (2-TIO modules) are connected by internal communication, and settings for the 2-TIO modules such as communication speed, protocol, and data bit configuration are not necessary. The only setting that is configured for the controllers is the modulus address. The address is the same when a Z-TOI module is used. Module address: 2-TIO module, 1, 2

In this example, the initial settings for COM-ML communication data are configured using Rockwell communication, and thus COM-ML communication settings are not necessary.

For the communication controller settings, see Z-TOI Host Communication Quick Instruction Manual (IM81702-E2) and Z-DIO Instruction Manual (IM81703-E2).

4.3 Initial Communication Data Settings

Use the following instructions to configure the initial communication data settings.

1. Click on the [Controller Test] icon at the left side of the tool window.
2. Select "I/O Configuration" from the tree on the left side of the test project window and click the [COM-ML (For SRZ)] button. Double-click "COM-ML (For SRZ)," and then click the Close button to store the COM-ML settings.

4. Select "I/O Configuration" from the tree on the left side of the test project window and click the [COM-ML (For SRZ)] button. Double-click "COM-ML (For SRZ)," and then click the Close button to store the COM-ML settings.

4.5 I/O Communication

The settings for I/O communication were completed in Section 4.4, and thus I/O communication can now be executed and data verified as shown below.

1. Select "I/O Configuration" from the tree on the left side of the test project window and click the [COM-ML (For SRZ)] button. Double-click "COM-ML (For SRZ)," and then click the Close button to store the COM-ML settings.

4.6 Explicit Message Communication

An example of using explicit message communication to set the value of set (SV) channel 2 to "200" is shown in Section 4.4.

Creating a ladder program

To send an explicit message, create a program similar to the program below:

1. Register the "Exp_enb" relay (contact A), which is the trigger for explicit message transmission, ahead of time in "Tasks" → "Main Task" → "Main Program" → "Program Tags" in the tree at the left side of the test project screen. In this example, the Tag Name is "Exp_enb" and the Type is "BOOL." Store "Message" in Edit Tags of "Controller Test" → "Main Program" → "Program Tags" in the tree at the left side of the test project screen. In this example, "Message" is entered for the Tag Name under "COM_ML." I/O communication, and "MESSAGE" is selected for the Type.

5. Set the path of the CPU module in the test project window. Click "Path" at the upper right and settings for the Z-TIO modules such as communication speed, protocol, and data bit configuration are not necessary. The only setting that is configured for the controllers is the modulus address. The address is the same when a Z-TOI module is used. Module address: 2-TIO module, 1, 2

In this example, the initial settings for COM-ML communication data are configured using Rockwell communication, and thus COM-ML communication settings are not necessary.

For the communication controller settings, see Z-TOI Host Communication Quick Instruction Manual (IM81702-E2) and Z-DIO Instruction Manual (IM81703-E2).

4.3 Initial Communication Data Settings

Use the following instructions to configure the initial communication data settings.

1. Click on the [Controller Test] icon at the left side of the tool window.
2. Select "I/O Configuration" from the tree on the left side of the test project window and click the [COM-ML (For SRZ)] button. Double-click "COM-ML (For SRZ)," and then click the Close button to store the COM-ML settings.

4. Select "I/O Configuration" from the tree on the left side of the test project window and click the [COM-ML (For SRZ)] button. Double-click "COM-ML (For SRZ)," and then click the Close button to store the COM-ML settings.

4.5 I/O Communication

The settings for I/O communication were completed in Section 4.4, and thus I/O communication can now be executed and data verified as shown below.

1. Select "I/O Configuration" from the tree on the left side of the test project window and click the [COM-ML (For SRZ)] button. Double-click "COM-ML (For SRZ)," and then click the Close button to store the COM-ML settings.

4.6 Explicit Message Communication

An example of using explicit message communication to set the value of set (SV) channel 2 to "200" is shown in Section 4.4.

Creating a ladder program

To send an explicit message, create a program similar to the program below:

1. Register the "Exp_enb" relay (contact A), which is the trigger for explicit message transmission, ahead of time in "Tasks" → "Main Task" → "Main Program" → "Program Tags" in the tree at the left side of the test project screen. In this example, the Tag Name is "Exp_enb" and the Type is "BOOL." Store "Message" in Edit Tags of "Controller Test" → "Main Program" → "Program Tags" in the tree at the left side of the test project screen. In this example, "Message" is entered for the Tag Name under "COM_ML." I/O communication, and "MESSAGE" is selected for the Type.

5. Set the path of the CPU module in the test project window. Click "Path" at the upper right and settings for the Z-TIO modules such as communication speed, protocol, and data bit configuration are not necessary. The only setting that is configured for the controllers is the modulus address. The address is the same when a Z-TOI module is used. Module address: 2-TIO module, 1, 2

In this example, the initial settings for COM-ML communication data are configured using Rockwell communication, and thus COM-ML communication settings are not necessary.

For the communication controller settings, see Z-TOI Host Communication Quick Instruction Manual (IM81702-E2) and Z-DIO Instruction Manual (IM81703-E2).

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Use the following instructions to configure the initial communication data settings.

1. Click on the [Controller Test] icon at the left side of the tool window.
2. Select "I/O Configuration" from the tree on the left side of the test project window and click the [COM-ML (For SRZ)] button. Double-click "COM-ML (For SRZ)," and then click the Close button to store the COM-ML settings.

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The settings for I/O communication were completed in Section 4.4, and thus I/O communication can now be executed and data verified as shown below.

1. Select "I/O Configuration" from the tree on the left side of the test project window and click the [COM-ML (For SRZ)] button. Double-click "COM-ML (For SRZ)," and then click the Close button to store the COM-ML settings.

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An example of using explicit message communication to set the value of set (SV) channel 2 to "200" is shown in Section 4.4.

Creating a ladder program

To send an explicit message, create a program similar to the program below:

1. Register the "Exp_enb" relay (contact A), which is the trigger for explicit message transmission, ahead of time in "Tasks" → "Main Task" → "Main Program" → "Program Tags" in the tree at the left side of the test project screen. In this example, the Tag Name is "Exp_enb" and the Type is "BOOL." Store "Message" in Edit Tags of "Controller Test" → "Main Program" → "Program Tags" in the tree at the left side of the test project screen. In this example, "Message" is entered for the Tag Name under "COM_ML." I/O communication, and "MESSAGE" is selected for the Type.

5. Set the path of the CPU module in the test project window. Click "Path" at the upper right and settings for the Z-TIO modules such as communication speed, protocol, and data bit configuration are not necessary. The only setting that is configured for the controllers is the modulus address. The address is the same when a Z-TOI module is used. Module address: 2-TIO module, 1, 2

In this example, the initial settings for COM-ML communication data are configured using Rockwell communication, and thus COM-ML communication settings are not necessary.

For the communication controller settings, see Z-TOI Host Communication Quick Instruction Manual (IM81702-E2) and Z-DIO Instruction Manual (IM81703-E2).

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1. Click on the [Controller Test] icon at the left side of the tool window.
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The settings for I/O communication were completed in Section 4.4, and thus I/O communication can now be executed and data verified as shown below.

1. Select "I/O Configuration" from the tree on the left side of the test project window and click the [COM-ML (For SRZ)] button. Double-click "COM-ML (For SRZ)," and then click the Close button to store the COM-ML settings.

4.6 Explicit Message Communication

An example of using explicit message communication to set the value of set (SV) channel 2 to "200" is shown in Section 4.4.

Creating a ladder program

To send an explicit message, create a program similar to the program below:

1. Register the "Exp_enb" relay (contact A), which is the trigger for explicit message transmission, ahead of time in "Tasks" → "Main Task" → "Main Program" → "Program Tags" in the tree at the left side of the test project screen. In this example, the Tag Name is "Exp_enb" and the Type is "BOOL." Store "Message" in Edit Tags of "Controller Test" → "Main Program" → "Program Tags" in the tree at the left side of the test project screen. In this example, "Message" is entered for the Tag Name under "COM_ML." I/O communication, and "MESSAGE" is selected for the Type.