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Quick Start - Configuring an Ethernet motion system

Configuring a motion system is a process with many different configuration options. Basic Ethernet motion system setup requires these steps in Logix Designer:

Step	Process	Reason
1.	Add an Ethernet motion module	Identifies the motion module being used to the Logix controller
2.	Create an axis for a motion drive	An axis is used to define forward and backward motion in one direction.
3.	Create a motion group	Consolidates the axes into a control set to provide coordinated motion.
4.	Configure the axis properties	Defines the individual properties for the axis, including motor feedback, axis configuration, and scaling.

For the purposes of this quick start, assume this configuration:

- An Ethernet motion module, either Kinetix or PowerFlex
- Motor feedback
- Position loop axis configuration
- A new controller project with an Ethernet communications module configured

Add an Ethernet motion module

1. Right-click the Ethernet network (node) and choose **New Module**.
2. In **Select Module Type**, under **Module Type Category Filters**, select the appropriate checkbox to filter the selections and select the motion module from the list.
3. Click Create. The **New Module** dialog box appears.
 - In **Name**, type a name for the module.
 - (optional) In **Description**, type a description.
4. In **Ethernet Address** specify an IP address.
5. Under **Module Definition**, click **Change**. The **Module Definition** dialog box appears.
6. In **Electronic Keying** select **Compatible Module**.

Important: The electronic keying feature automatically compares the expected module, as shown in the configuration tree, to the physical module before communication begins.

When you are using motion modules, set the electronic keying to either **Exact Match** or **Compatible Keying**.

Never use **Disable Keying** with motion modules.

7. In **Connection**, select **Motion**.
8. (optional) In **Power Structure**, select the appropriate power structure from the list (Example: 2094-BC01-MP5-M) and then select **Verify Power Rating on Connection**.

Tip: Power structure identifiers are not required for all modules. If needed, these numbers are found on the hardware, in the device documentation, and on the bill of materials. Many modules have power structures defined by default.



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9. Click **OK** to apply the changes.

Create an axis for a motion drive

1. Double-click the drive in the **Controller Organizer** to open the **Module Properties** dialog box.
2. Click the **Associated Axes** tab.
3. Click **New Axis**. The **New Tag** dialog box appears.
 - In **Name**, type a tag name.
 - (optional) In **Description**, type a description.
4. In **Type**, select **Base**.
5. In **Data Type** select **AXIS_CIP_DRIVE**.
6. Click **Create**.

Create a Motion Group

1. In the **Controller Organizer**, right-click **Motion Groups** and select **New Motion Group**.
2. The **New Tag** dialog box appears.
 - In **Name**, type a tag name.
 - (optional) In **Description**, type a description.
3. In **Type**, select **Base**.
4. In **External Access**, select **Read/Write**.
5. Click **Create**. The new motion group appears in the **Controller Organizer** under the **Motion Groups** folder.
6. Right-click the new motion group and choose **Properties**. The **Motion Group Properties** dialog box appears.
7. Click the **Axis Assignment** tab and move the axes (created earlier) from **Unassigned** to **Assigned**.
8. Click the **Attribute** tab in the **Motion Group Properties** dialog box, set the **Base Update Period** to 5 ms. For the Kinetix 6500 drive, the minimum Base Update Rate is 1 ms.
9. Click **OK**.

Configure the Axis Properties

1. In the **Controller Organizer**, double-click the axis.
2. Configure **General** properties
 - In **Axis Configuration**, select **Position Loop**.
 - In **Feedback Configuration**, select **Motor Feedback**.
 - In **Application Type**, select **Basic**
 - In **Loop Response**, select **Medium**.
3. Configure **Motor** properties
 - Select the **Motor** page.
 - Specify a motor with the **Data Source** selected as **Catalog Number**. All of the motor settings are completed automatically to match the settings specified for that catalog number.
4. **Motor Feedback** properties are configured by default.
5. Configure **Scaling** properties
 - Select the **Scaling** page.
 - In **Load Type**, select **Direct Coupled Rotary**.
 - In **Scaling** for **Units**, select **Position Units**.
 - Then in **Scaling** enter 1.0 **Position Units per 1.0 Motor Rev**.
 - In **Travel**, for **Mode** select **Unlimited**.
6. Click **Apply**.

See also

[Motion Coordinate System](#)

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