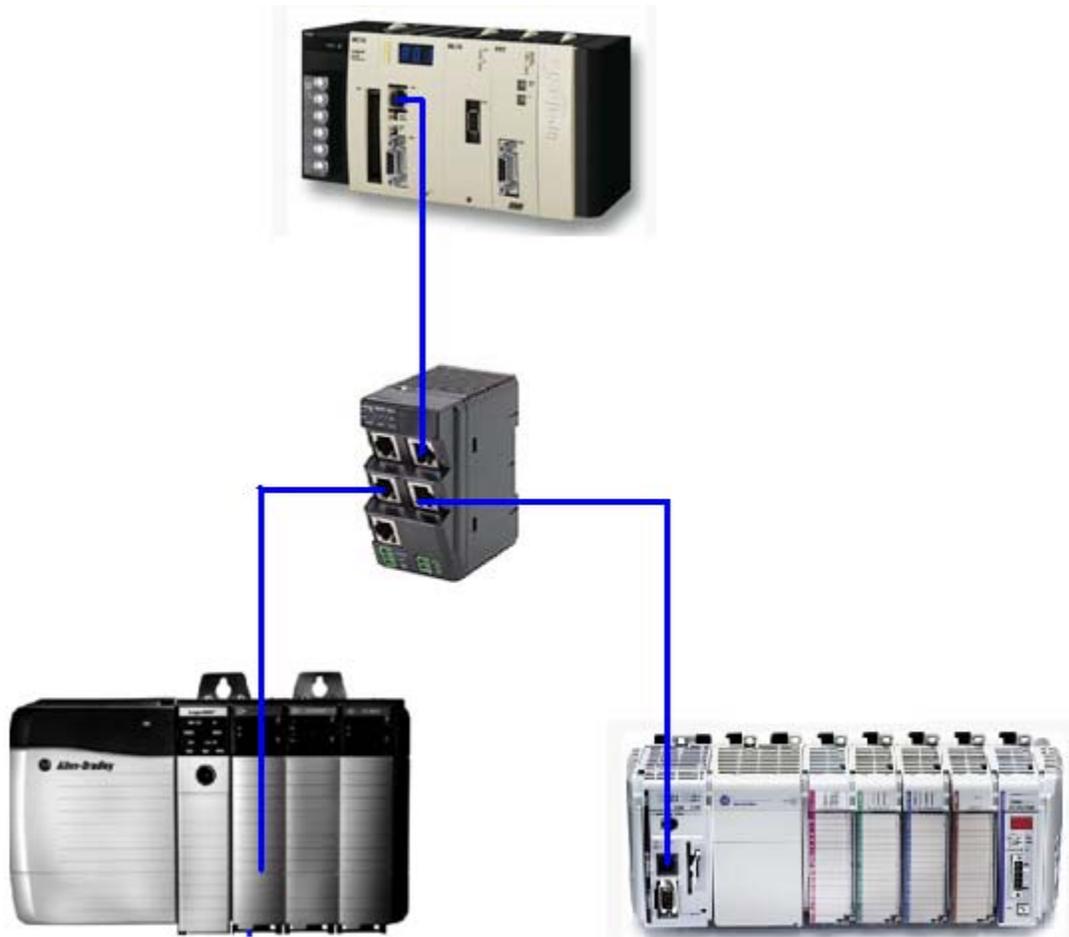# Connecting a Rockwell Automation PLC to an Omron Trajexia TJ2-MC64 using EtherNet/IP

Version 1.0

4/18/2011

Section 1: Introduction: This document explains how to connect Rockwell Automation CompactLogix or ControlLogix PLC with EtherNet/IP communications to an Omron Trajexia TJ2-MC64 motion controller with built in EtherNet/IP.

The Trajexia TJ2-MC64 motion controller contains the EtherNet/IP protocol as part of the suite of protocols supported by the built in Ethernet port. This protocol is not supported by the Trajexia TJ1-MC04 or TJ1-MC16 motion controller.

The TJ2-MC64 is capable of producing up to 500 bytes of data and consuming up to 500 bytes of data from another device, such as a PLC. Only 1 PLC can be connected to a TJ2-MC64, as the EtherNet/IP implementation supports a single connection only.

Shown below are the recommended maximum Produced and Consumed assembly sizes at 100 ms RPI and 20 ms RPI. Values higher than those shown below could affect system performance.

RPI	Input bytes (max)	Output bytes (max)
100	376	376
20	250	250

In the following example, the connection show below will be configured.   A CompactLogix PLC will be used in this example, but a ControlLogix PLC would be nearly identical.
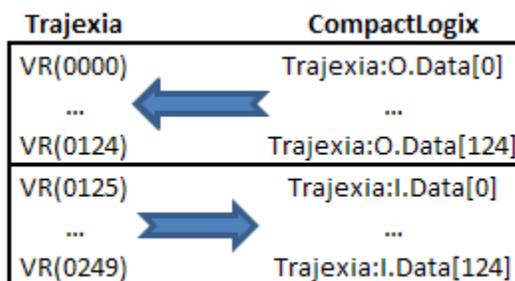
Section 2: TJ2-MC64 Configuration:

1. In CX Motion Pro or Trajexia Studio, double click on the Trajexia TJ2-MC64 to edit the Device Configuration.


2. Click on the Ethernet/IP tab, and enter the TJ2-MC64 data area, starting address, Format, and Total Number of Items for Input (Consumed data) and Output (Produced data). In the following example, 125 INT16 data types (250 Bytes) are transferred to / from the TJ2-MC64.
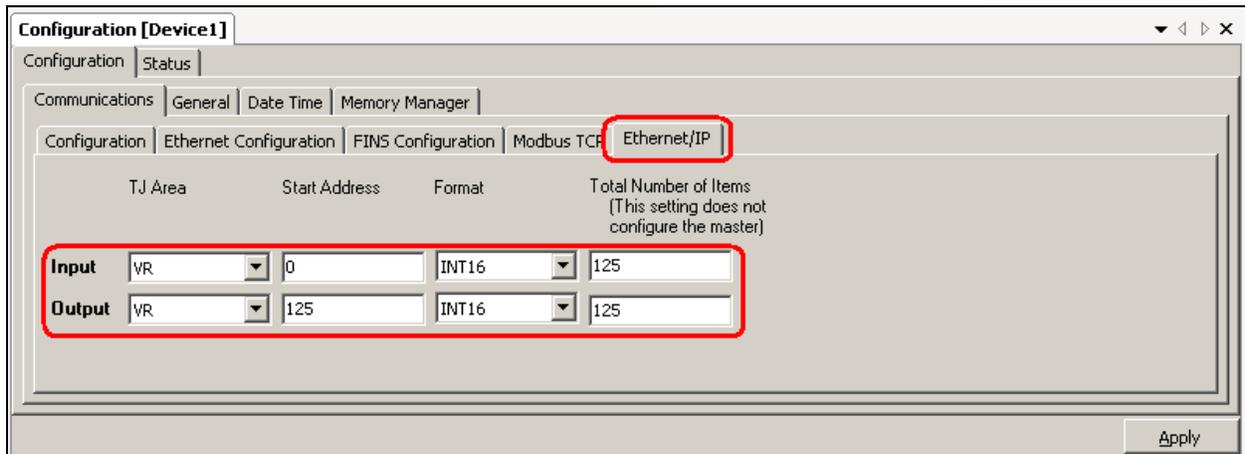
3. Click **Apply.**
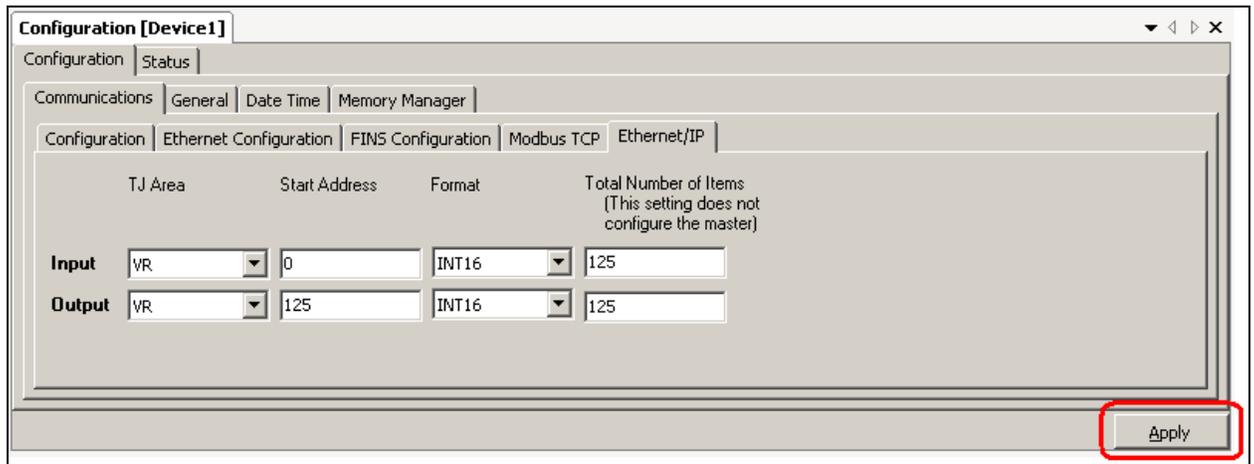
4. Build the Solution from the **Build** / **Build Solution menus.** The process of Building the Solution automatically adds the code to the Shell program to configure the EtherNet/IP communications on startup.
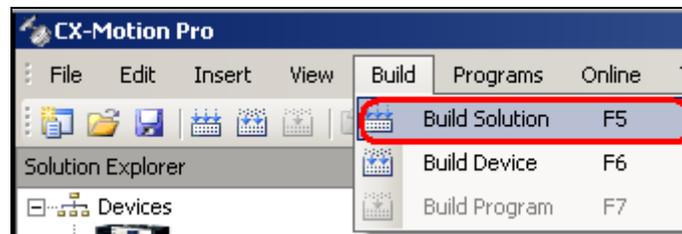


```
'Ethernet/IP Settings: Device --> Trajexia
ETHERNET(1,-1,14,1,0,0)  'Start Address
ETHERNET(1,-1,14,1,1,3)  'Data Type
ETHERNET(1,-1,14,1,2,0)  'Data Format
'ETHERNET(1,-1,14,1,3,125) Total Items

'Ethernet/IP Settings: Trajexia --> Device
ETHERNET(1,-1,14,2,0,125) 'Start Address
ETHERNET(1,-1,14,2,1,3)  'Data Type
ETHERNET(1,-1,14,2,2,0)  'Data Format
'ETHERNET(1,-1,14,2,3,125) Total Items
```
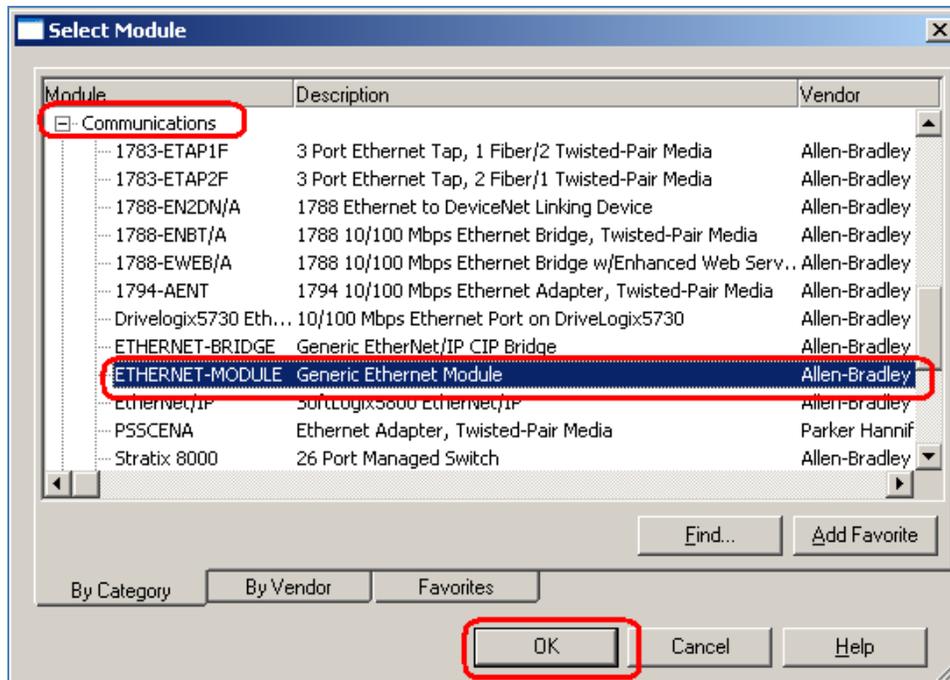
5. After Building the Solution, Synchronize the project with the TJ2-MC64.
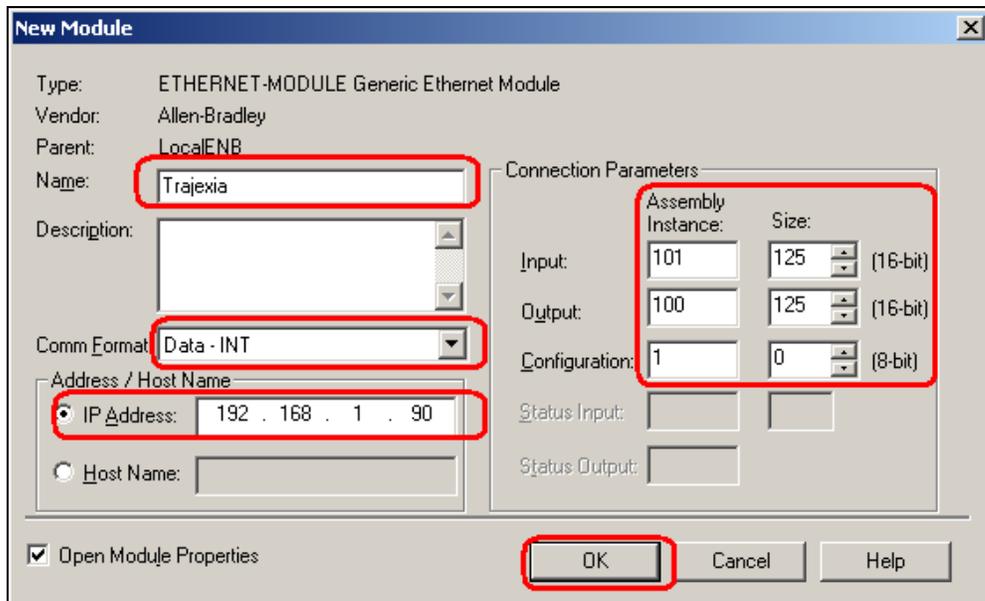
Section 3: CompactLogix Configuration:

1. Open an Existing RSLogix 5000 project, or create a new project.

2. Right click on the Ethernet module in the CompactLogix, and click **New Module**.
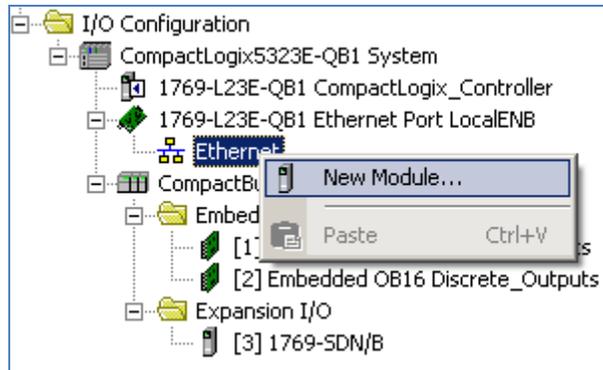
3. In the **Communications** group, select **ETHERNET-MODULE Generic Ethernet Module**, and click **OK**.

4. Enter the **Name**, **Comms Format**, **IP Address**, and **Connection Parameters** as show, then click **OK**.

5. Enter an RPI of 100ms. This is a recommended minimum to prevent possible negative effects on the motion control functionality of the Trajexia TJ2-MC64.
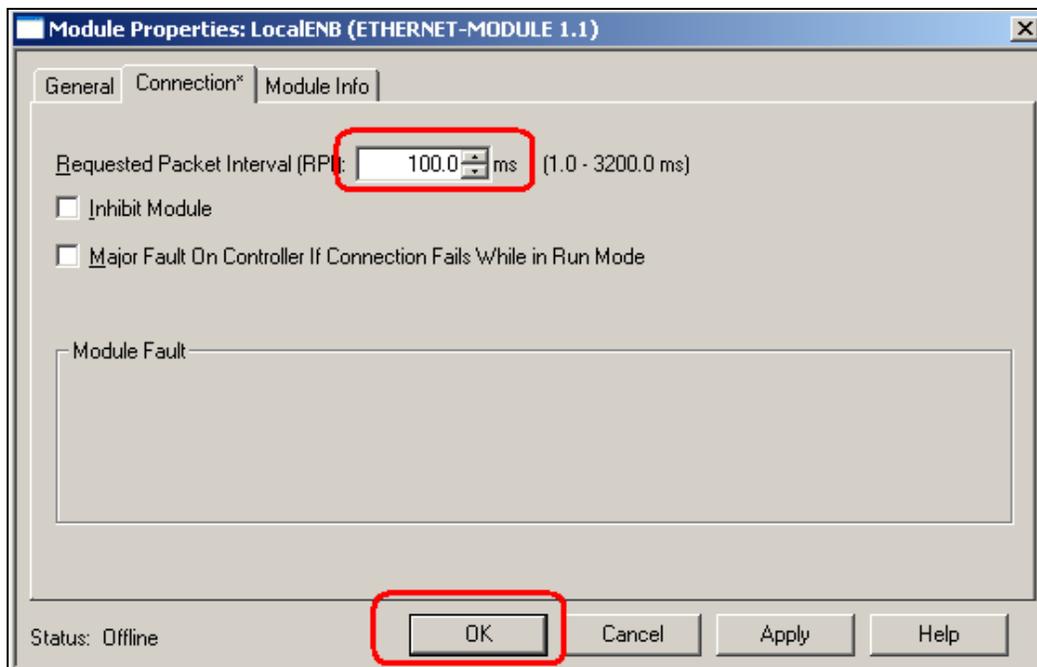
6. Download the project to the CompactLogix processor using RSLogix 5000.

7. Using RSLogix 5000 and CX Motion Pro (or Trajexia Studio), monitor the memory in the CompactLogix and Trajexia TJ2-MC64 to see the data exchange.

RSLogix 5000 Watch Window

Name	△	Scope	Value	←
⊞-Trajexia:O.Data[0]		Controller	1111	
⊞-Trajexia:O.Data[124]		Controller	2222	
⊞-Trajexia:I.Data[0]		Controller	3333	
⊞-Trajexia:I.Data[124]		Controller	4444	

CX-Motion Pro Watch Window

Watch

🖳 Add... ✕ Delete

Name	Value
VR(0)	1111
VR(124)	2222
VR(125)	3333
VR(249)	4444