



**BusWorks® Series 9xxEN w/Ethernet/IP
BusWorks® Series XT1xx2 w/Ethernet/IP
10/100MB Industrial Ethernet I/O Modules**

Application Note – Ethernet/IP

**Communicating With Acromag Series
9xxEN-60xx and XTxxx2-xxx Ethernet/IP
Modules From a Compact Logix PLC Device**

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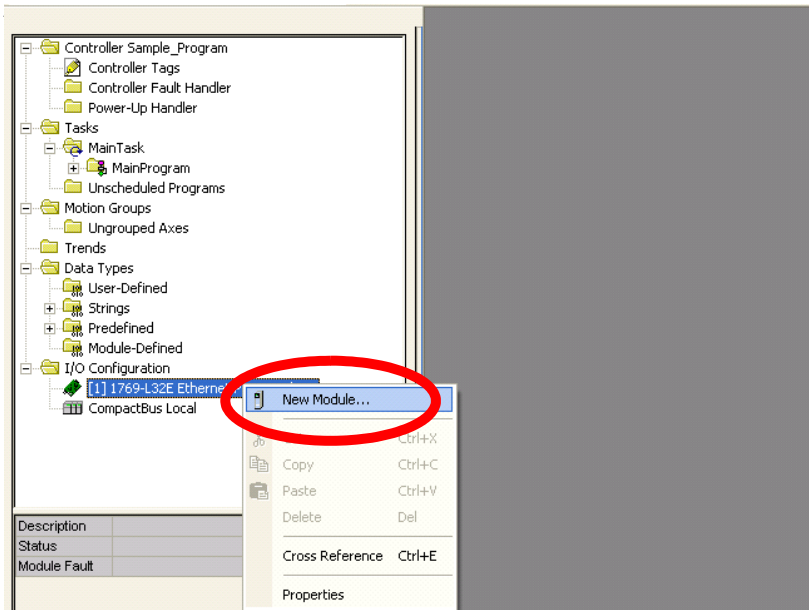
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This document illustrates a procedure for configuring message commands to Acromag Busworks® Ethernet/IP modules using ladder logic programming software and a Compact Logix Programmable Controller. Acromag assumes no responsibility for any errors that may occur in this document, and makes no commitment to update, or keep this information current. Be sure to visit Acromag on the web at www.acromag.com.

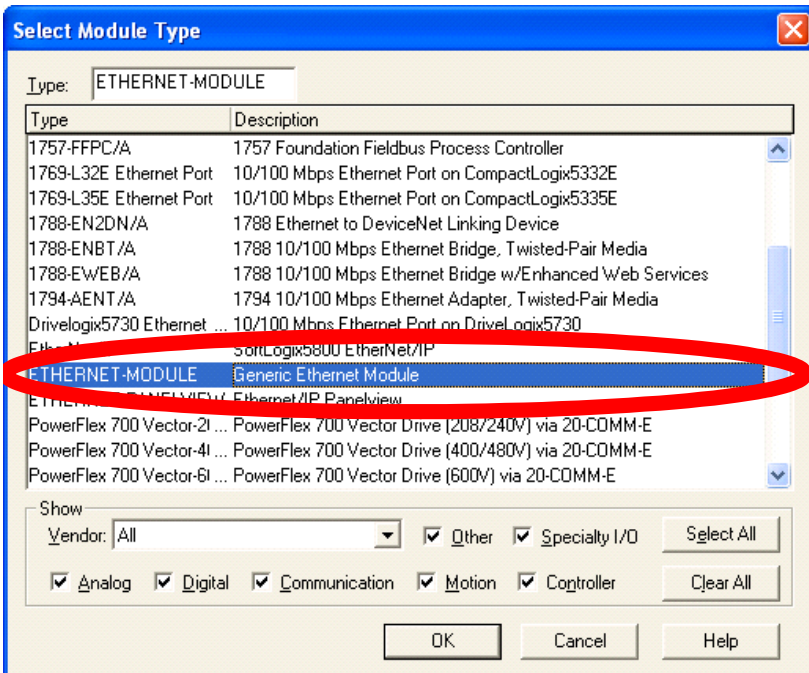
COMMUNICATING WITH COMPACT LOGIX CONTROLLERS

This document illustrates a procedure for configuring message commands intended for Acromag Busworks® Series Ethernet/IP modules using ladder logic programming software and a Compact Logix Programmable Controller. It is assumed that the user has a working knowledge of ladder logic programming, the RSLogix5000 software, and the Compact Logix hardware.

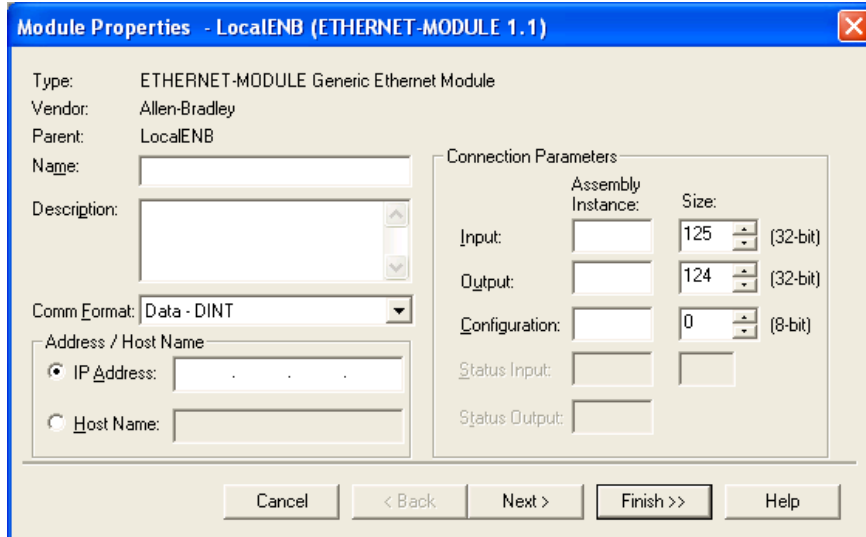
Configuring I/O Connection in RSLogix 5000



1. From a new or existing project, right click on the Compact Logix Ethernet controller (shown as 1769-L32E in this example) and select **New Module**.



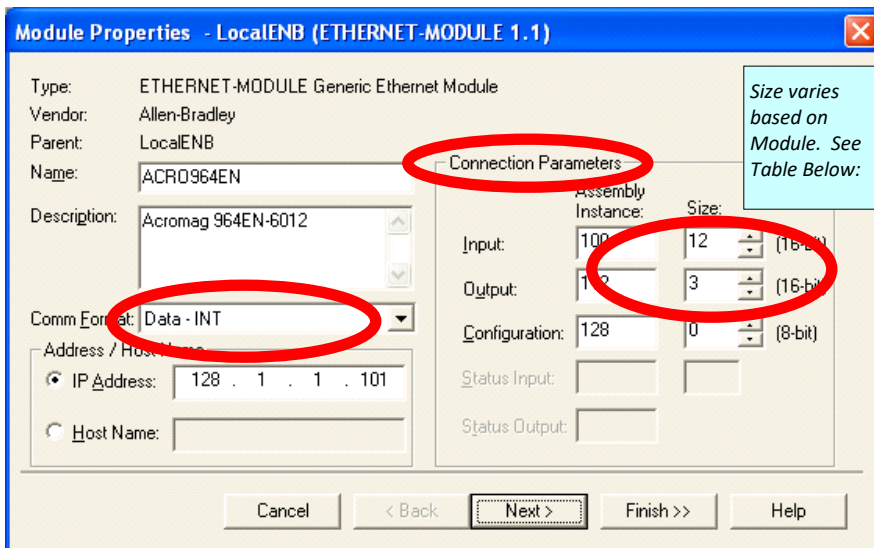
2. In the **Select Module Type** box, select **Ethernet-Module** as shown in the example, and click **[OK]**.



3. The **Module Properties** window should automatically open. Under the **Name** box, type in the name of the module. In the example below left, the 964EN module is used.

The type of **Communication Format** used by all modules is **Data – INT**.

Note: Once the **[Finish]** button is pressed, the Comm format of the module cannot be changed.



Under the **Address / Host Name** box, the **IP Address** must be selected and the IP Address of the module typed in. In the example at left, the IP Address of the module is 128.1.1.101, but this will vary depending on the address of your Compact Logix controller. See chart on next page for **Comm Format** and **Connection Parameters**.

Module Type	Comm Format	Inp Assy Instance	Input Size	Outp Assy Instance	Output Size
981/2/3EN-6012	Data-INT	100	1	112	1
961/2EN-6006	Data-INT	100	6	112	3
963/4EN-6012	Data-INT	100	12	112	3
965EN-6004	Data-INT	100	4	112	5
965EN-6006	Data-INT	100	6	112	5
966EN-6004	Data-INT	100	4	112	3
966EN-6006	Data-INT	100	6	112	3
972/3EN-6004	Data-INT	100	1	112	7
972/3EN-6006	Data-INT	100	1	112	9
951/2EN-6012	Data-INT	100	5	112	9
XT11x2	Data-INT	101	5	100	4
XT1212/XT1222	Input Data-INT-Run/Program	101	9	100	NA
XT1232/XT1242	Input Data-INT-Run/Program	101	17	100	NA
XT1532	Data-INT	101	2	100	5
XT1542	Data-INT	101	2	100	9

Use the Chart at left or the Assembly Object in the manual to fill out the **Comm Format** and **Connection Parameters**.

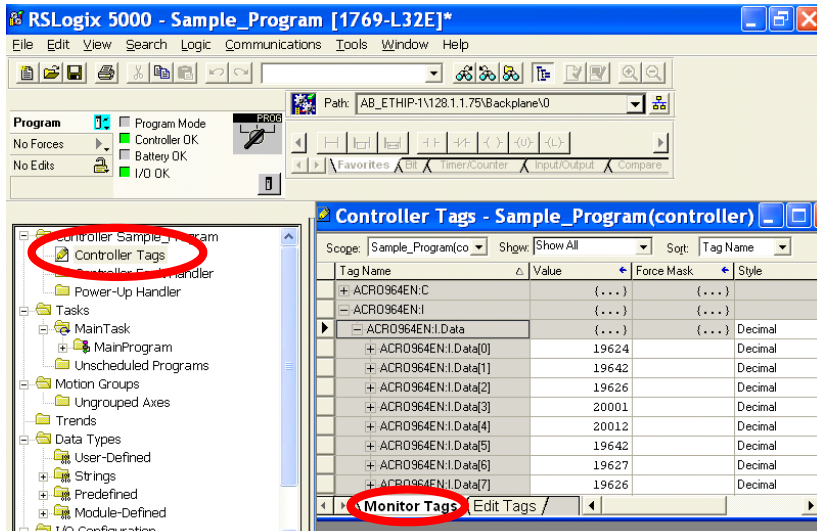
*Configuration Assemble Instance = 128 with Size = 0 for all modules.

When all data is entered and correct, click on the **[Finish]** button

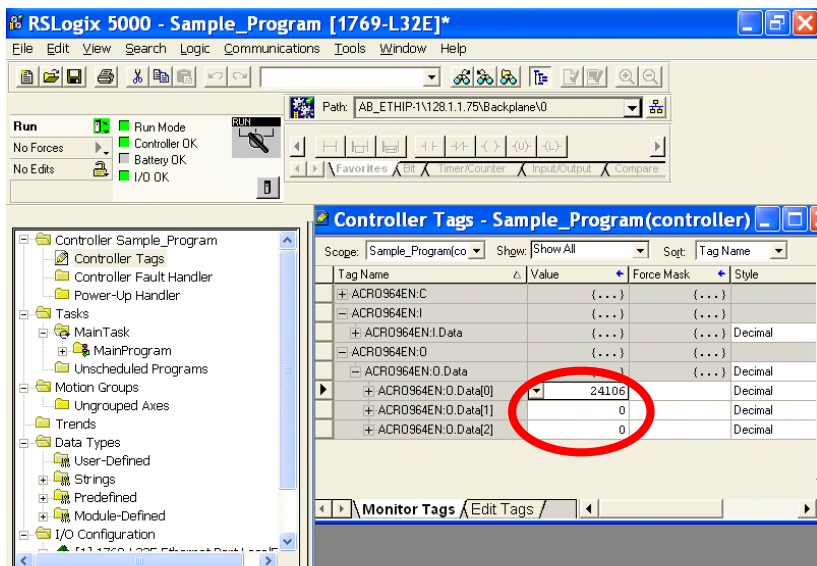
Note: If you have frequent communication errors or dropouts, consult the BusWorks Manual for the Input Conversion Rate or Output Update Rate, and adjust your PLC RPI rate. Some units, particularly Temperature Modules, take up to 480ms to process the inputs and periodically, another 240ms for Cold Junction Compensation before RPI's can be accommodated. In this case, an RPI of 1,000ms is recommended to solve the problem.



I/O Commands Using the Assembly Object



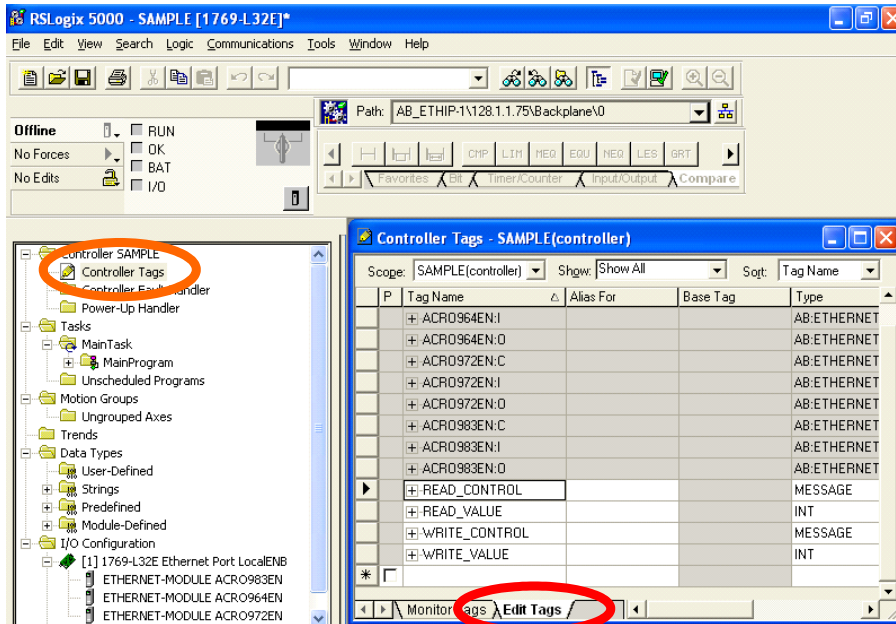
1. Download the project to the Compact Logix Controller.
2. Double-click on **Controller Tags**. On the bottom of the Controller Tags window, click on the tab labeled **Monitor Tags**.



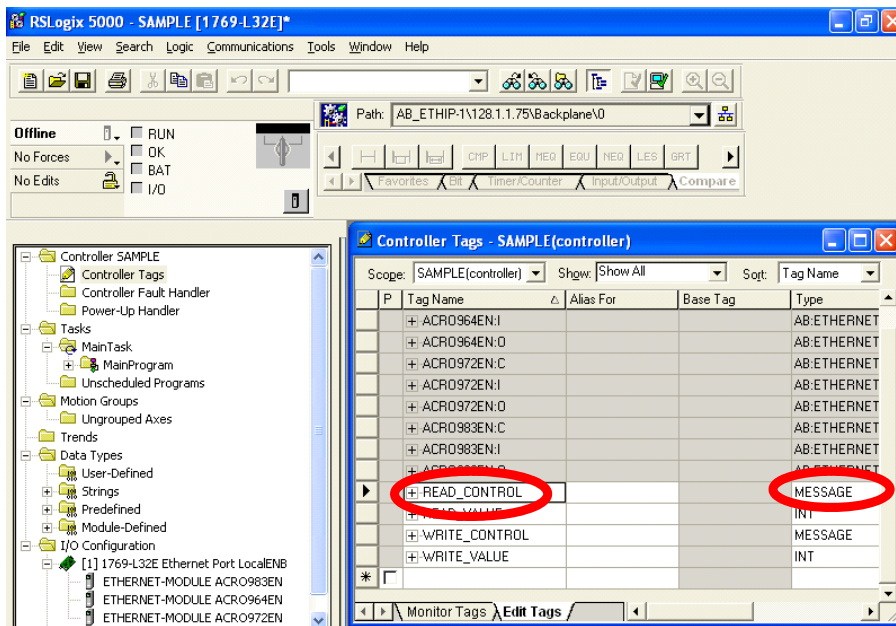
3. To read the Discrete and Analog Input Data (where applicable), expand the **ACRO9xx:I** tag, and then the **ACRO9xx:I.data** tag. The input data will be continuously updated.
4. To write to the Discrete and Analog output data, (where applicable) expand the **ACRO9xx:O** tag, and then the **ACRO9xxO.data** tag. Enter the data value in the corresponding data value box. When the data is entered, turn the CPU key to **Run Mode**.

Note: When the CPU is in run mode, Discrete/Analog Output Data is being continuously written to the module.

Configuring Explicit Message Commands



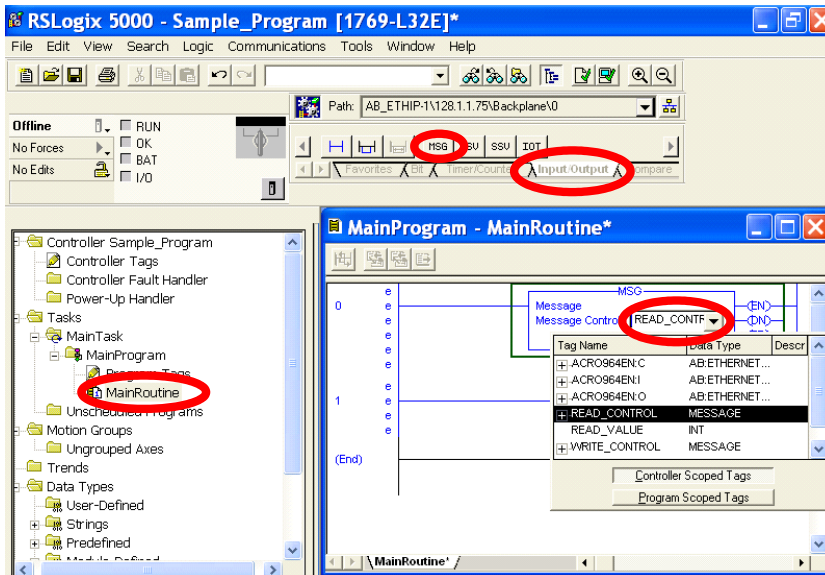
1. Double-click on **Controller Tags** in the **Controller Organizer** box. At the bottom of the **Control Tags** window, select the **Edit Tags** tab.



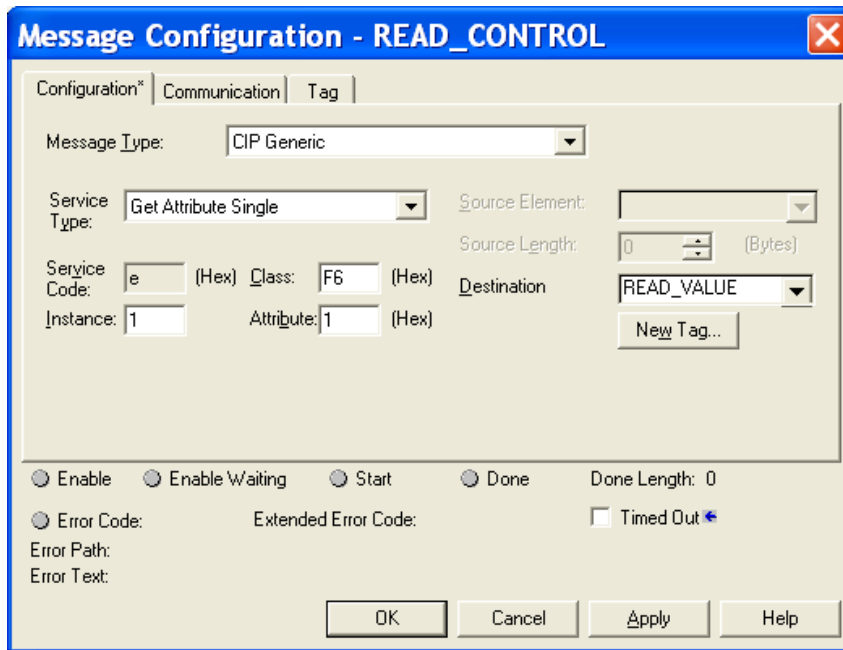
2. In an empty Tag Name box, add two names for either a read or a write. For **Type**, select one of the tag names to be a **Message** (the controller), and the other set as an **Int** (data values). In the given example, there are four tags. Two are for module reads, and the other two are for writes.

To enter data for the write tag, click on the **Monitor Tags** tab, and click on the desired data box under the column **Value**.

Configuring Explicit Message Commands...



3. In the **Controller Organizer** box, expand the **Maintask** and **Mainprogram** folders. Double-click **MainRoutine**.
4. To add a **MSG** command, click on the **Input/Output** tab on the **Language Element** toolbar, and click **MSG**.
5. In the **MSG** box, click on the **Message Control** box and select the **Message Tag**. In this example, the **Read_Control** tag was selected. The Tag chosen for a **Message Control** must be a **Message Datatype**.

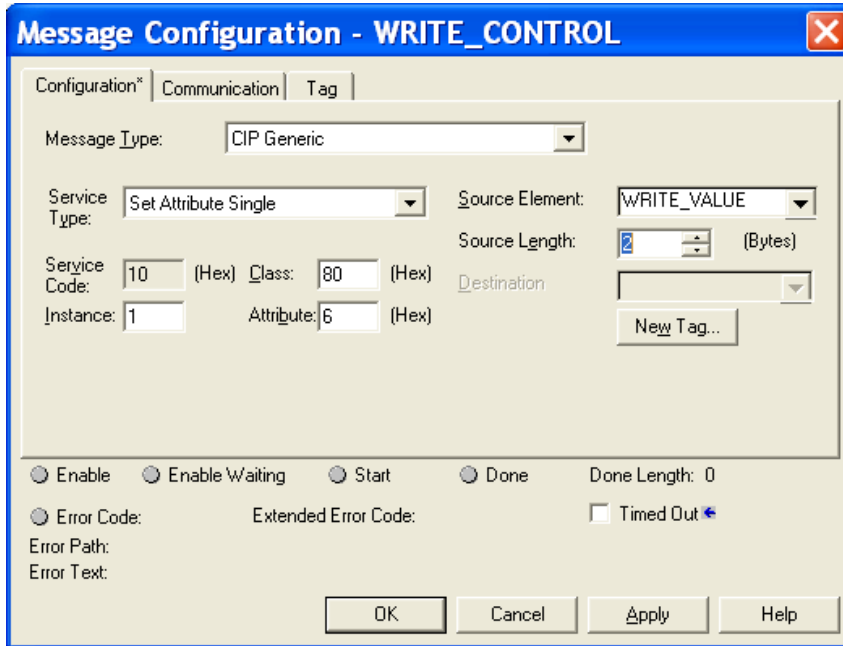


6. Click the "..." button to the right of **Message Control**.
7. In the **Message Configuration** box, set the **Message Type** to **CIP Generic**. The **Service Type** can be set to either **Set Attribute Single** for a write, or **Get Attribute Single** for a read. The example shown is setup to read **Object/Class F6, Instance 1 & Attribute 1**.

The **Destination** box is the data tag where data read from the module will be stored. In the example, tag **READ_VALUE** was chosen.

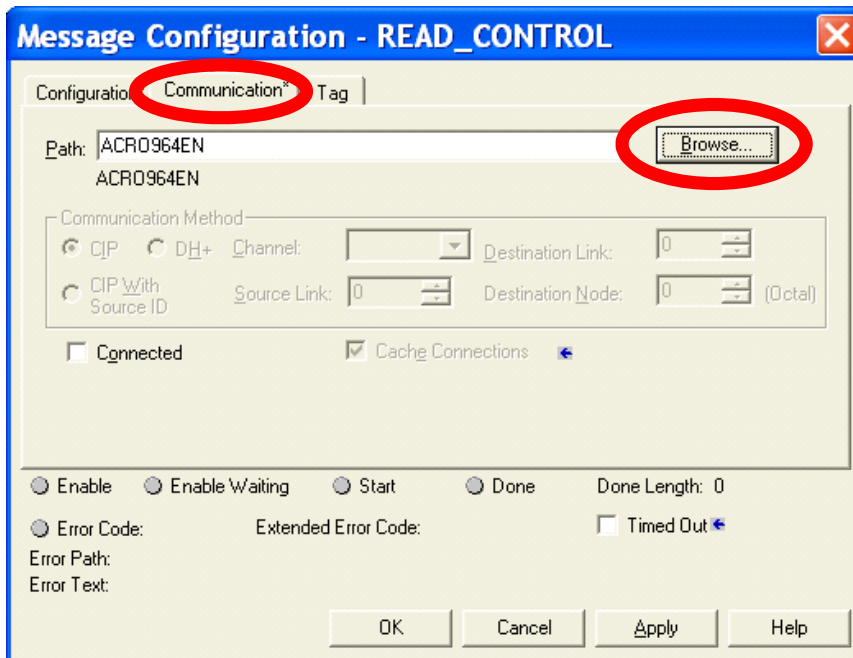
Note: The locations for the attributes are found in the User's Manual under the Ethernet/IP section.

Configuring Explicit Message Commands...



8. For an attribute write, the **Service Type** must be changed to **Set Attribute Single**. The **Class**, **Instance**, and **Attribute** are located in the User's manual. The **Source Element** is a data tag that will contain the value(s) to be written to the attribute. The **Source Length** is the number of Bytes to be sent to the attribute. This information is found in the User's manual under the **Data Type** column.

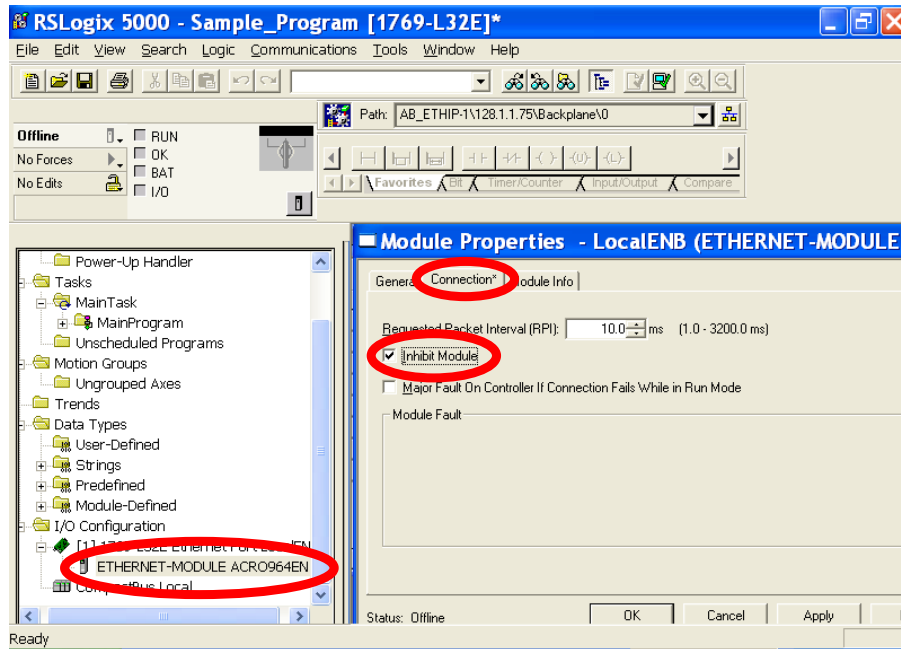
NOTE: To avoid communication errors for multiple Set/Get commands, validate the previous MSG command before sending the next command.



9. In the **Message Configuration** box, click the **Communication** tab, click **Browse**, and select the module to send the message. Click **OK** to save changes and close the box.

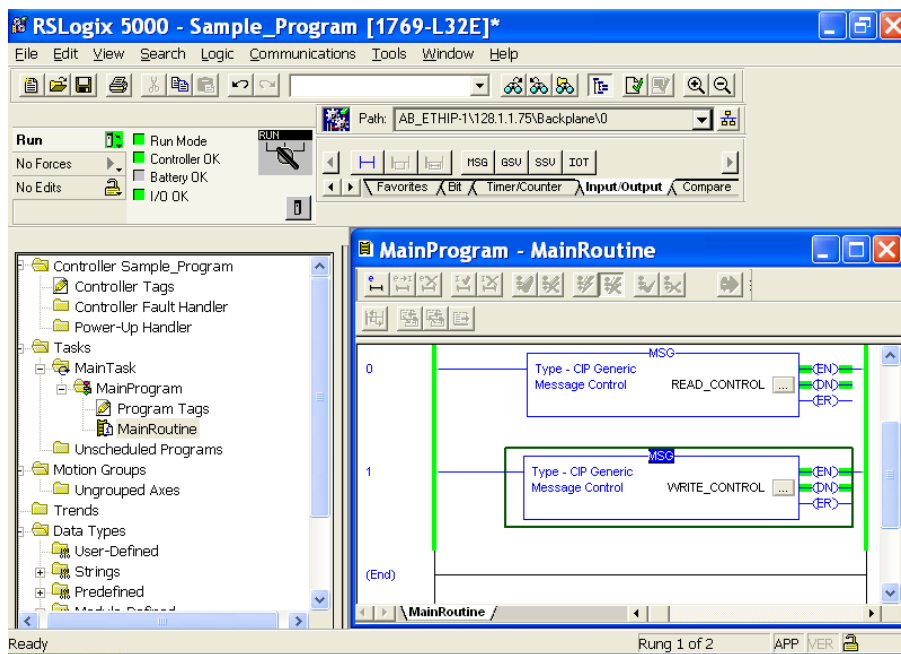
Configuring Explicit Message Commands...

This Step For Attribute Writes Only



- (Attribute Writes Only): To write to a module, in the **Controller Organization** box, right click on the module and click on properties. In the **Module Properties** window, click on the **Connection** tab and check the **Inhibit Module** box. Click **OK** to save changes.

Note: When the module is inhibited, I/O connection to the assembly object is locked.



- Download the program to the Compact Logix Controller and switch to run.

Notes:

The following table shows the revision history for this document:

Release Date	Version	EGR/DOC	Description of Revision
09-DEC-2004	A	RH/KLK	Initial Acromag release
	• • •		
28-AUG-2014	F	RH/ARP	Add XT15x models to parameter chart
19 APR 2021	G	HWW/AMM	Add note regarding communication errors or dropouts (Pg. 5).