

# **Technical Note**

# MVI56(E)-MCM & MCMXT Add-On Instruction Installation Guide

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# Add Modbus RTU/ASCII Serial Communication to ControlLogix with an Add-On Instruction for RSLogix® 5000 Version 16

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# Introduction

Beginning with version 16 of RSLogix<sup>™</sup> 5000 software, Rockwell Automation added an extremely helpful feature to make it easier that ever to set up third party modules, custom code, or proprietary code. They called this new feature an "Add-On Instruction" (AOI). This AOI feature allows third party vendors, panel builders, and system integrators to create ladder logic code that can be protected for safety or security reasons and can be locked to ensure that the code remains unchanged.

ProSoft Technology®'s inRAx® Modbus RTU/ASCII Serial Communication Module for ControlLogix®, the MVI56(E)-MCM, is provided with an Add-On Instruction to allow easy integration of the module into new or existing RSLogix 5000 Version 16 and newer projects.

ProSoft Technology® has enhanced the MVI56(E)-MCM module's Add-On Instruction in a way that will significantly simplify installation.



Now users can integrate the module into a new or existing project by importing a single ladder logic import file, as opposed to importing multiple User Defined Data Types and ladder logic rungs, one-by-one.

The entire ladder logic required by the MVI56(E)-MCM is encapsulated in one, single Add-On Instruction. And, when the ladder logic .L5X file is imported, it automatically creates all the required User-Defined Data Types, Controller Tags, and the Add-On Instruction logic, all while adding the preconfigured AOI instruction to the ladder rung.

This new way of importing an AOI as a completed ladder rung enables quicker and easier integration of the MVI56(E)-MCM with fewer chances for human typographical errors and ladder coding or setup errors.



# Instructions

1 Open the **FILE** menu, and then choose **NEW**...

<b>8</b> F	SLogi	x 50	00				
<u>F</u> ile	<u>E</u> dit	<u>V</u> iew	<u>S</u> earch	<u>L</u> ogic	<u>Communications</u>	<u>T</u> ools	W
Ē	<u>N</u> ew					Ctrl+N	
2	Open.					Ctrl+O	
	<u>C</u> lose						
	<u>Save</u>	Ac				Ctrl+S	
	Save i	<u>H</u> S					_

- 2 Select your ControlLogix controller model.
- 3 Select Revision 16.
- 4 Enter a name for your controller, such as "My\_Controller".
- 5 Select your ControlLogix chassis type.
- 6 Select **SLOT 0** for the controller.

New Controlle	ſ	×
Vendor:	Allen-Bradley	
<u>T</u> ype:	1756-L63 ControlLogix5563 Controller	OK
Re <u>v</u> ision:	16 🗸	Cancel
	Eedundancy Enabled	Help
Na <u>m</u> e:	My_Controller	
Descri <u>p</u> tion:		
	~	
<u>C</u> hassis Type:	1756-A4 4-Slot ControlLogix Chassis	
Sl <u>o</u> t:	0 Safety Partner Slot:	
Cr <u>e</u> ate In:	C:\RSLogix 5000\Projects	Browse

7 Add the MVI56(E)-MCM module to the project.

In the **CONTROLLER ORGANIZATION** window, select **I/O CONFIGURATION** and click the right mouse button to open a shortcut menu. On the shortcut menu, choose **New Module...** 

	1		
[] [0] 1756-L63 My_Cor	1	New Module	
	ß	Paste	Ctrl+V

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This action opens the **SELECT MODULE** dialog box.

Select Module		
Module P: Analog Communications Controllers Digital Drives Motion Dother	Description	Vendor
In 1756-MODULE ⊡ Specialty	Generic 1756 Module	Allen-Bradley
By Category By V	endor Favorites OK	<u>Find</u> <u>A</u> dd Favorite

8 Select the **1756-MODULE (GENERIC 1756 MODULE)** from the list and click **OK.** This action opens the **New MODULE** dialog box.

New Module						×
Type: Parent:	1756-MODULE Generic 1756 Module Local	– Connection Pa	irameters Assembly			
Na <u>m</u> e:		<u>I</u> nput:	Instance:	Size:	(16-bit)	
Descri <u>p</u> tion:		O <u>u</u> tput:	2	· ·	(16-bit)	
	✓	Configuration:	4	÷	(8-bit)	
Comm <u>F</u> ormat:	Data - INT	<u>S</u> tatus Input:				
Sl <u>o</u> t:	1 -	Status Output				
🔽 Open Modu	le Properties	ОК	Cano	el	Help	_

9 In the **New Module** dialog box, enter the following values.

Parameter	Value
Nаме	Modbus RTU/ASCII Serial
DESCRIPTION	Enter a description for the module. Example: Modbus RTU/ASCII Serial Communication Module
COMM FORMAT	Select DATA-INT
SLOT	Enter the slot number in the rack where the MVI56(E)-MCM module is located
INPUT ASSEMBLY INSTANCE	1
INPUT SIZE	250
OUTPUT ASSEMBLY INSTANCE	2
OUTPUT SIZE	248
CONFIGURATION ASSEMBLY INSTANCE	4
CONFIGURATION SIZE	0



Important: You must select the COMM FORMAT as DATA - INT in the dialog box, otherwise the module will not communicate over the backplane of the ControlLogix rack.

- 10 Click OK to continue.
- 11 Edit the Module Properties.

Select the **Requested Packet Interval** value for scanning the I/O on the module. This value represents the minimum frequency at which the module will handle scheduled events. This value should not be set to less than 1 millisecond. The default value is 5 milliseconds. Values between 1 and 10 milliseconds should work with most applications.

Module Properties: Local:1 (1756-MODULE 1.1)	X
General Connection Module Info Backplane	
Bequested Packet Interval (RPI): 5.0 + ms (0.2 - 750.0 ms) Inhibit Module Major Fault On Controller If Connection Fails While in Run Mode	
Module Fault	
Status: Offline OK Cancel Apply Help	

#### 12 Save the module

Click OK to close the dialog box. Notice that the module now appears in the CONTROLLER ORGANIZATION window.



- 13 In the CONTROLLER ORGANIZATION window, expand the TASKS folder and subfolders until you reach the MAINPROGRAM folder.
- 14 In the MAINPROGRAM folder, double-click to open the MAINROUTINE ladder.

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**15** Select an empty rung in the routine, and then click the right mouse button to open a shortcut menu. On the shortcut menu, choose **IMPORT RUNG...** 



16 Navigate to the location on your PC where you saved the Add-On Instruction (for example, "My Documents" or "Desktop"). Select the MVI56(E)MODBUS RTU/ASCII SERIAL\_ADDON\_RUNG\_<VERSION #>.L5X file

Import Rung					
Look <u>i</u> n:	🞯 Desktop	•	<b>()</b>	r 📰	
My Recent Documents Desktop	Wy Computer My Documents My Network Pla	ices AddOn_Rung_v2_4.L5X			
My Documents					
My Computer					
<b>S</b>	File <u>n</u> ame:	MVI56(E)MCM_AddOn_Rung_v2_4	L5X	•	Import
My Network	Files of type:	RSLogix 5000 XML Files (*.L5X)		•	Cancel
FINCES					Help

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This action opens the IMPORT CONFIGURATION dialog box, showing the controller tags that will be created.

AUISBMLM     AUISBMLM       AUISBMLM     AUISBMLM       AUISBMLM     AUISBMLM       AUISBMLM     AB:1756_MOD       AUISBMLM     AB:1756_MOD	Use Existing
Ab I Local I: Ab I TS5_MOD	Use Existing
	Llee Existing
A PL Local 11 AB:1755 MUD	Use Existing
MCM MCMModuleD	Create New

- 17 If you are using the module in a different slot (or remote rack), select the correct connection input and output variables that define the path to the module. If your module is located in Slot 1 of the local rack, this step is not required.
- 18 Click **OK** to confirm the import. RSLogix will indicate that the import is in progress:

Importing
Creating routine: Prescan



When the import is completed, the new rung with the Add-On Instruction will be visible as shown in the following illustration.

🕷 RSLogix 5000 - My_Controller [1756-L63]* - [MainProgram - MainRoutine*]				
Eile Edit View Search Logic Communications To	ols <u>W</u> indow <u>H</u> elp		-	. 8 ×
		- &&& I I I I I I		
Offline RUN No Forces K No Edits BAT	Path: <non< th=""><th></th><th></th><th></th></non<>			
Pedundency Ped   Image: Controller Tags Image: Controller Tags   Image: Controller Tags Image: Controller   Image: Controller Controller Image: Controller	Rung: 0 In ASC	I Text		
	0		Add-On - MVI56-MCM & MVI56E-MCM modules. -AOI56MCM Add-On - MVI56-MCM & MVI56 AOI56MCM AOI56MCM Local_C Local:1:C.Data Local_Input Local:1:Data Local_Output Local:1:Data	
	(End)		MCM	
	MainRoutine			•
Ready			Rung 0 of 1 APP VER	

The procedure has also imported new User Defined Data Types, Controller Tags, and the Add-On instruction for your project.



Save the application and then download the sample ladder logic into the processor.

## **Benefits**

This process for importing the MVI56(E)-MCM Add-On Instruction into the RSLogix ladder logic file has replaced the practice of importing User Defined Data Types and multiple rungs of ladder in multiple ladder files.

This enhancement allows you to easily integrate the module into a new or existing RSLogix project without manually copying over each file. Doing so practically eliminates human typographical errors. Additionally, errors that do occur are significantly easier to correct.