

Application Note: Motor Insight C441 Add-on Instructions

Overview

This document is a procedure on how to import an Add-On Instruction and use it in the Main Routine of an RSLogix5000 project.

Before you Start

Before importing the Add-On Instruction follow these steps

- Download EDS files for C441R or C441T at www.eaton.com/C441
- Add the C441R or C441T for the C441 Motor Insight to the Ethernet/IP network in RSLogix5000 using the EDS files
- Generic Ethernet Device may also be used to add the C441 to an Ethernet/IP network

Scale Factors

C441 has different Scale Factor assignments for Currents and Power (kW) depending on the size of the C441 and whether external CTs are used. These three scenarios are shown below.

- 9 amp units without external CTs
 - a. **Current Scale factor:** x 0.01 amps
 - b. **Power Scale factor:** x 0.01 kW
- 9 amp units with external CTs
 - a. **Current Scale factor:** x 0.1 amps
 - b. **Power Scale factor:** x 0.1 kW
- 90 amp units
 - a. **Current Scale factor:** x 0.1 amps
 - b. **Power Scale factor:** x 0.01 kW

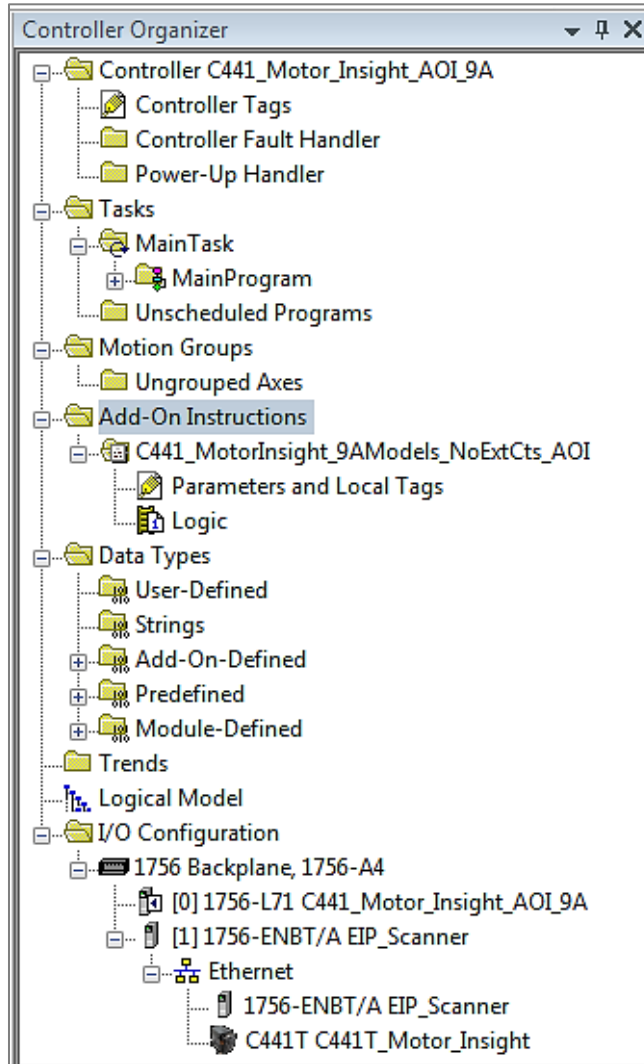
The C441 Add-On Instructions provide the currents and power (kW) in floating point format. These programs take care of the scaling. There are 3 Add-On Instructions for the C441 using Input Assembly 115 and Output Assembly 105.

Instructions

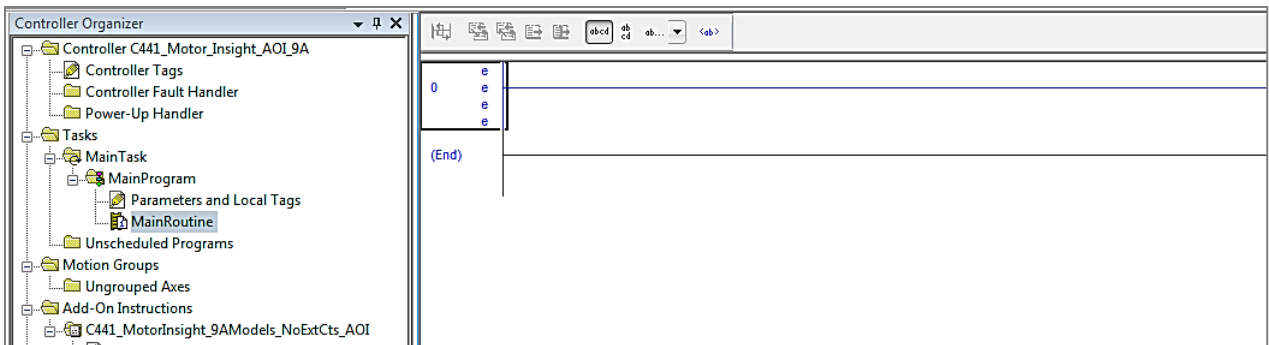
To use one of the C441 Add-On Instructions for I/O assemblies 105/115, follow these steps.

- Open the RSLogix5000 project where it will be used
- Create an Ethernet/IP network and add the C441R or C441T module
- Select the *105/115* I/O assembly pair
- The SINT data type must be used because the Output assembly is 1 byte in length. The AOI takes care of putting the 2 byte values back together and performs the scaling for these values where necessary
- Right click on *Add-On Instructions* on the tree on the left of the screen and select *Import Add-On Instruction*

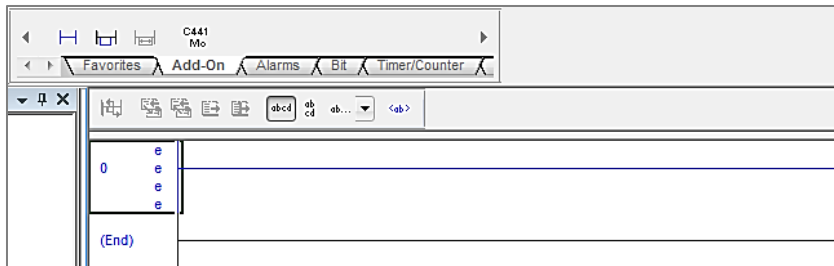
- Locate the Add-On Instruction on your computer and select Open. The tree in RSLogix5000 should look like the following:



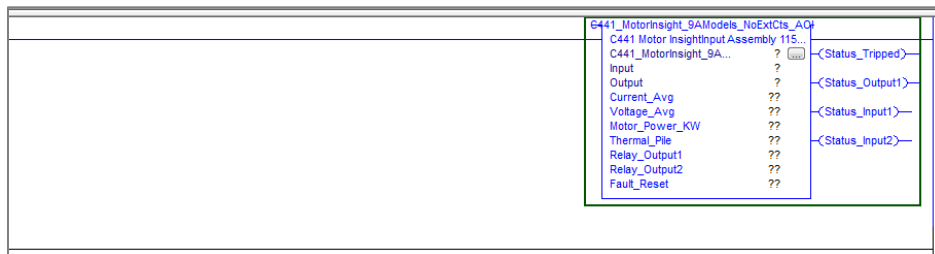
- The parameters, tags and logic for this Add-On Instruction are available to view under *C441_MotorInsight_9AModels_NoExtCts_AOI*



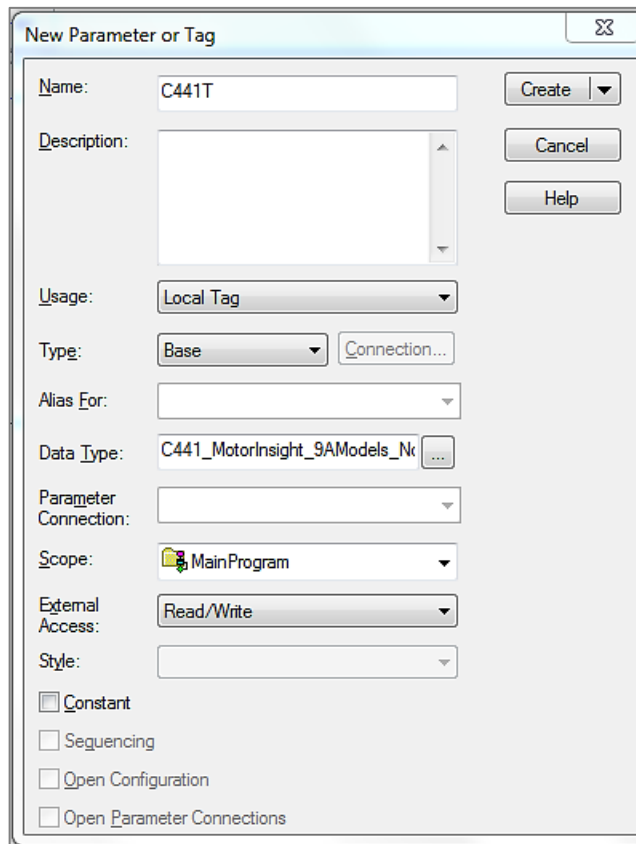
- To add this Add-On Instruction to the Main Routine, open the *MainRoutine* as shown below:
- In the area above where logic is entered are all of the available instructions. Select the category called “Add-On” and the C441 Add-On Instruction will be displayed above it, as shown below:



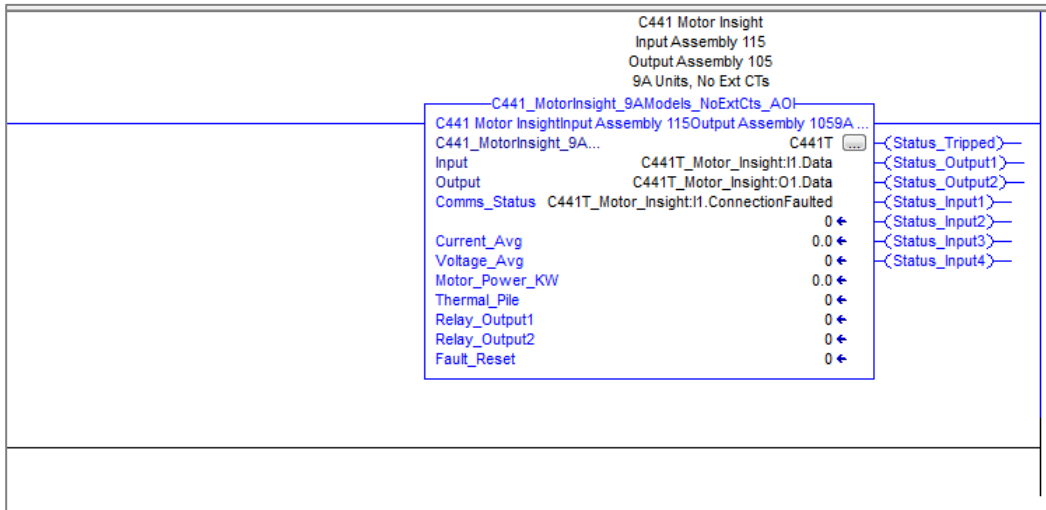
- Select the C441 AOI to add it to your program as shown below:



- Double click the “?” to the left of the ellipses and enter a name for this AOI block. For this example, C441T is used, but any name can be used. Right click on C441T and choose New “C441T” and the following window will open:



- Be sure all fields have the selections shown above, then select “Create”
- Add the Input and Output addresses by selecting the “?” next to each one and select the addresses as shown below
- Note: Under the Input tag category is *C441T_Motor_Insight:I1.ConnectionFaulted*. This is a BOOL tag that is a 1 if the connection is lost to the Motor Insight and a 0 if the connection is good. Monitor this bit for connection status for the Motor Insight by assigning it to the “Comm_Status” tag shown below the I/O tags



Complete!

The information for the Add-On Instruction will now be displayed and the instruction is now included in your logic. Specific tags were selected to be displayed in the instruction, but all I/O tags are now available to be used in the program

Tags correspond to the tag names documented in the Ethernet user manual (publication MN04200002E) in the C441 Motor Insight section, for Input assembly 115 and Output assembly 105. They are located in the Parameters and Local Tags area under “MainProgram” in the RSLogix5000 project. All Input and Output tags are shown below:

Name	Usage	Value	Force Mask	Style	Data Type	Description	Constant
C441T	Local	{...}	{...}		C441_Motorinsight_9AModels_NoExtCls_AOI	C441 Motor Insight Input Assembly 11...	<input type="checkbox"/>
-C441T.EnableIn		1		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	
-C441T.EnableOut		0		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	
-C441T.Status_Tripped		0		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	
-C441T.Status_Warning		0		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	
-C441T.Status_Output1		0		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	
-C441T.Status_Output2		0		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	
-C441T.Status_Input1		0		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	
-C441T.Status_Input2		0		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	
-C441T.Status_Input3		0		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	
-C441T.Status_Input4		0		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	
-C441T.Status_OL_Power_Lost		0		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	
-C441T.Status_Comm_Adapter_Low_...		0		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	
-C441T.Current_L1		0.0		Float	REAL	C441 Motor Insight Input Assembly 11...	
-C441T.Current_L2		0.0		Float	REAL	C441 Motor Insight Input Assembly 11...	
-C441T.Current_L3		0.0		Float	REAL	C441 Motor Insight Input Assembly 11...	
-C441T.Current_Avg		0.0		Float	REAL	C441 Motor Insight Input Assembly 11...	
+ C441T.Voltage_L1L2		0		Decimal	INT	C441 Motor Insight Input Assembly 11...	
+ C441T.Voltage_L2L3		0		Decimal	INT	C441 Motor Insight Input Assembly 11...	
+ C441T.Voltage_L3L1		0		Decimal	INT	C441 Motor Insight Input Assembly 11...	
+ C441T.Voltage_Avg		0		Decimal	INT	C441 Motor Insight Input Assembly 11...	
-C441T.Motor_Power_KW		0.0		Float	REAL	C441 Motor Insight Input Assembly 11...	
-C441T.Voltage_Unbalance		0.0		Float	REAL	C441 Motor Insight Input Assembly 11...	
-C441T.Current_Unbalance		0.0		Float	REAL	C441 Motor Insight Input Assembly 11...	
+ C441T.Apparent_Power_Factor		0		Decimal	INT	C441 Motor Insight Input Assembly 11...	
-C441T.Residual_Ground_Current		0.0		Float	REAL	C441 Motor Insight Input Assembly 11...	
-C441T.Line_Frequency_Hz		0.0		Float	REAL	C441 Motor Insight Input Assembly 11...	
-C441T.TR_Restart_Attempts_Exceed...		0		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	
-C441T.TR_Relay_Turned_Off		0		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	
-C441T.TR_Contactor_Failure		0		Decimal	BOOL	C441 Motor Insight Input Assembly 11...	

The Logic area for the Add-On Instruction associates the generic I/O tags RSLogix5000 creates with the descriptive tags shown above. These generic I/O tags are created when a device is added to the Ethernet network. The generic I/O tags can be found in the Controller Tags area.

The descriptive tags shown above may now be used to control and monitor the C441 Motor Insight.



Supporting Documentation

C441 Ethernet Module User Manual
 C441R/C441T Ethernet IP/Modbus TCP Installation Leaflet
www.eaton.com/C441

MN04200002E
 IL04209008E



Additional Help

In the event that additional help is needed, contact the Technical Resource Center at **1-877-ETN-CARE** Option 2, Sub Option 2