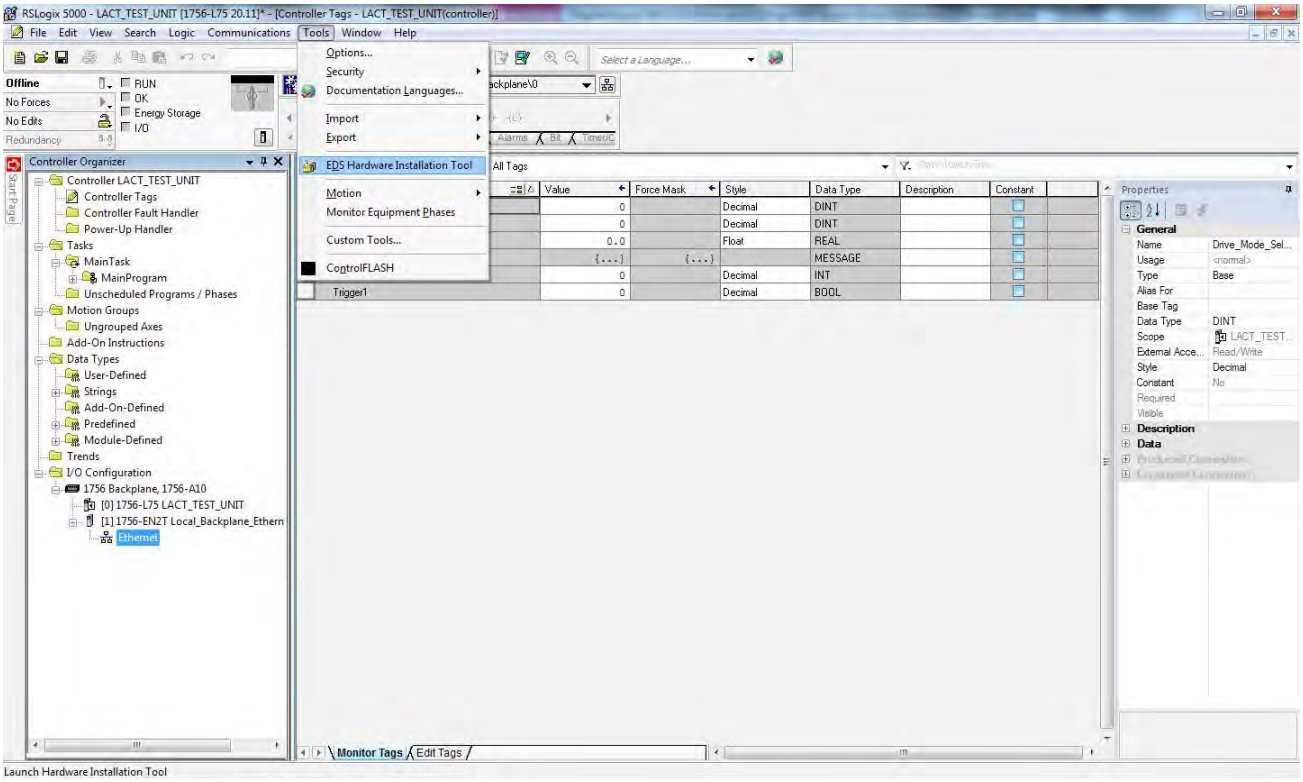
Registering and Configuring a Lenze SMVector EDS File in RSLogix™ 5000

This application note applies to RSLogix™ 5000 version 20 and higher which allows users to register EDS files into the software for simplified configuration of Ethernet IP-equipped third party devices. The following instructions outline the process to register the EDS file for the Lenze ESVZAE0 SMVector Ethernet IP adapter module.

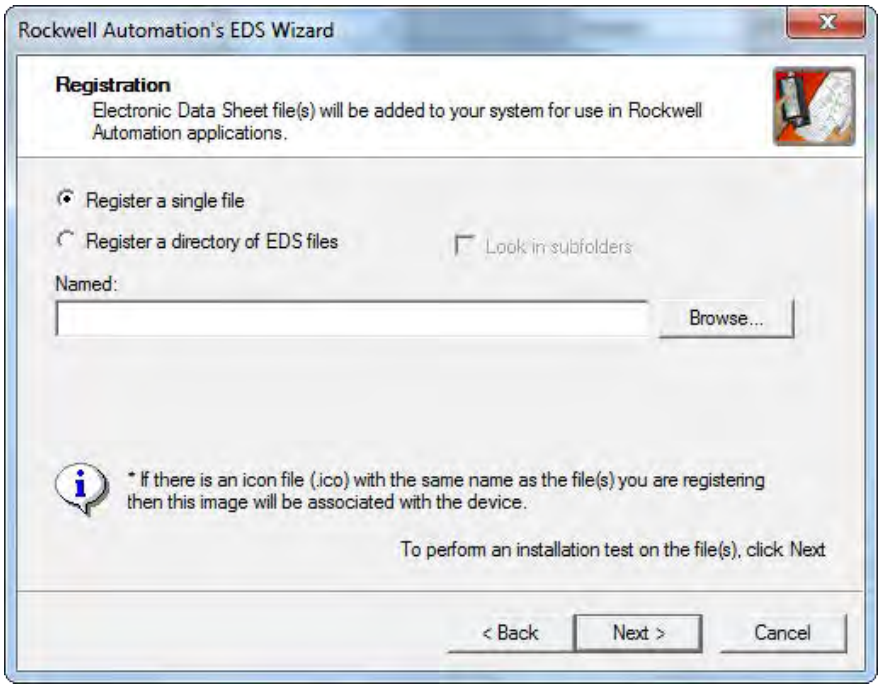
Start by clicking on “Tools” from the top menu and then select “EDS Hardware Installation Tool”.



You will now see the startup screen for the EDS Registration Tool (or EDS Wizard). Click “Next”.

Select “Register an EDS file(s)” and then click “Next”.

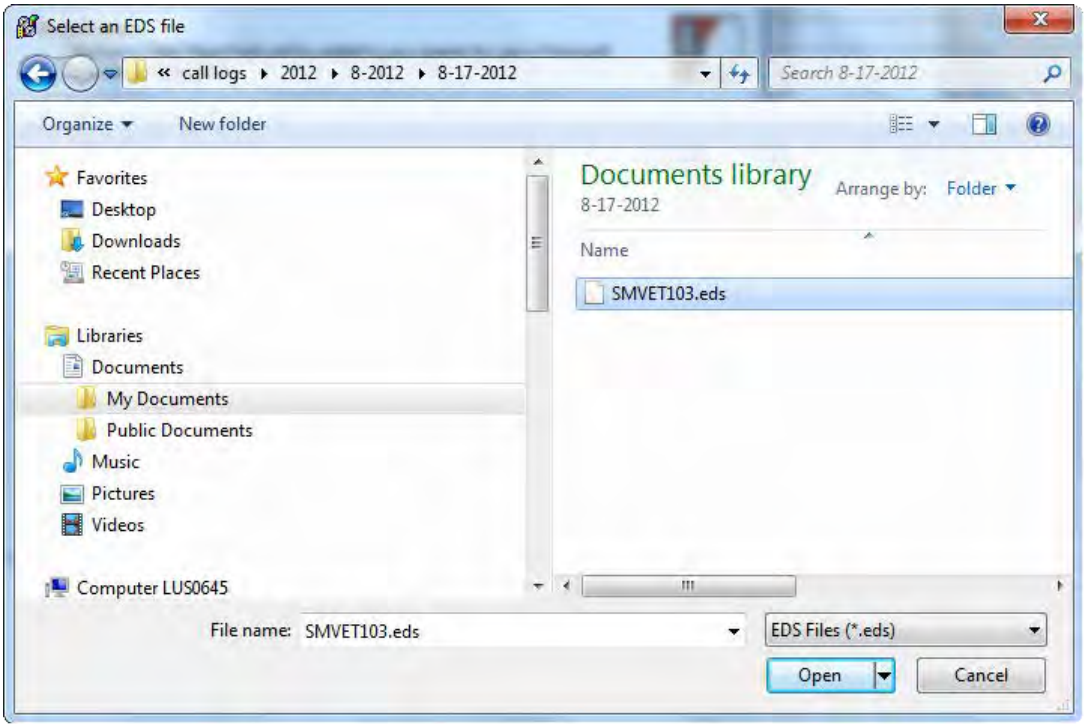
Select “Register a single file” then select “Browse”.



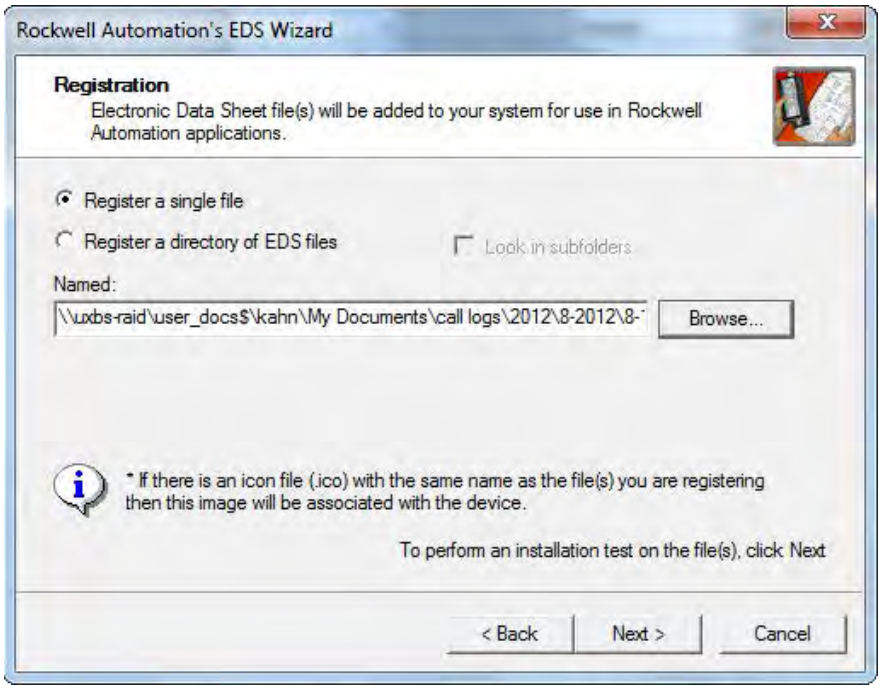
Browse to the folder location where you have stored the EDS file for the Lenze Ethernet IP adapter and select that file. Then select “Open”.

NOTE:

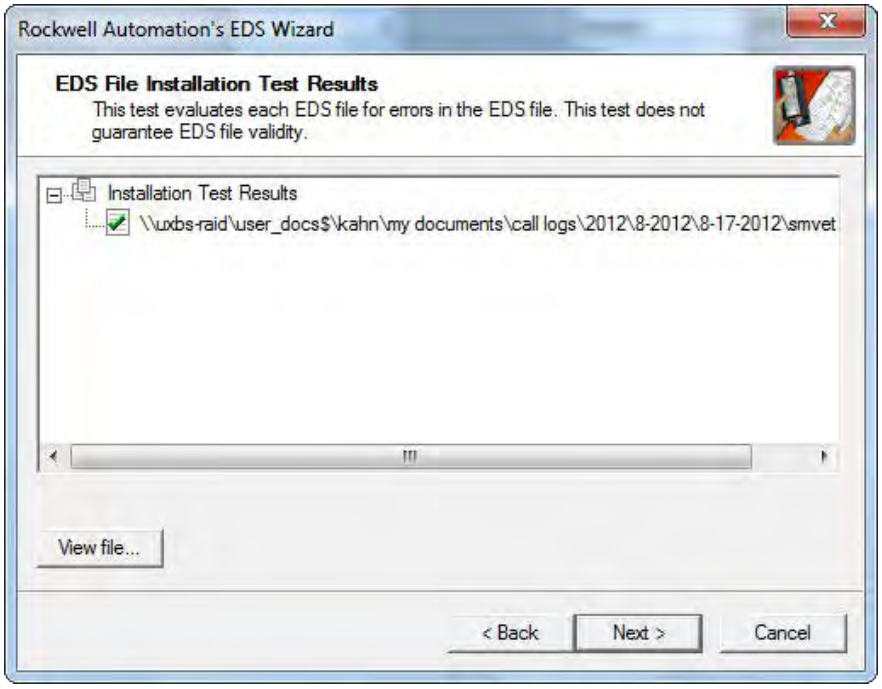
The icon (.ico) file must be saved to the same folder on your PC so it can also be registered.



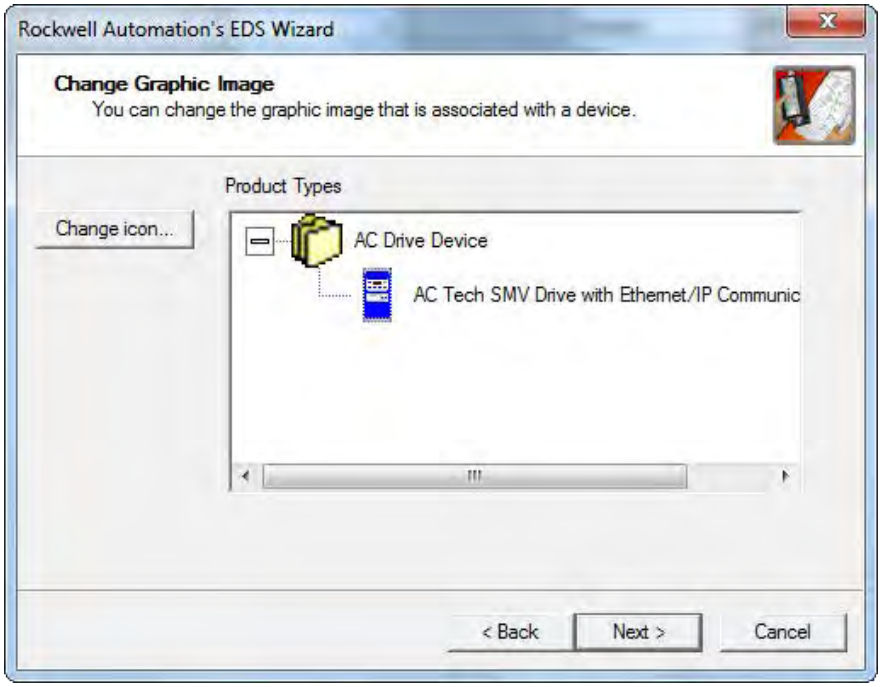
The path to the EDS file will now appear in the “Named” field. Select “Next”.



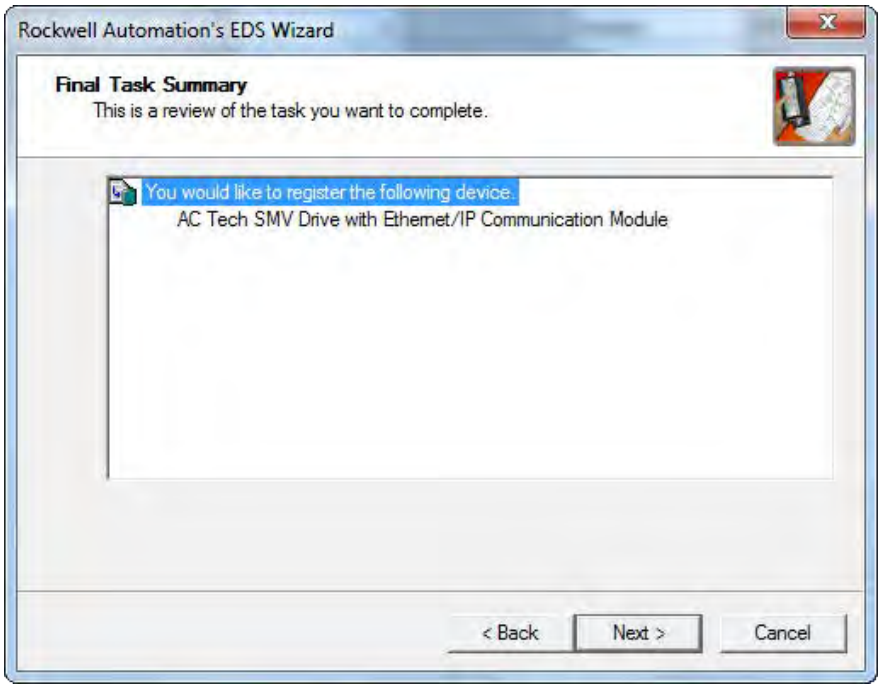
Select “Next”. The EDS file will be checked for errors by the tool.



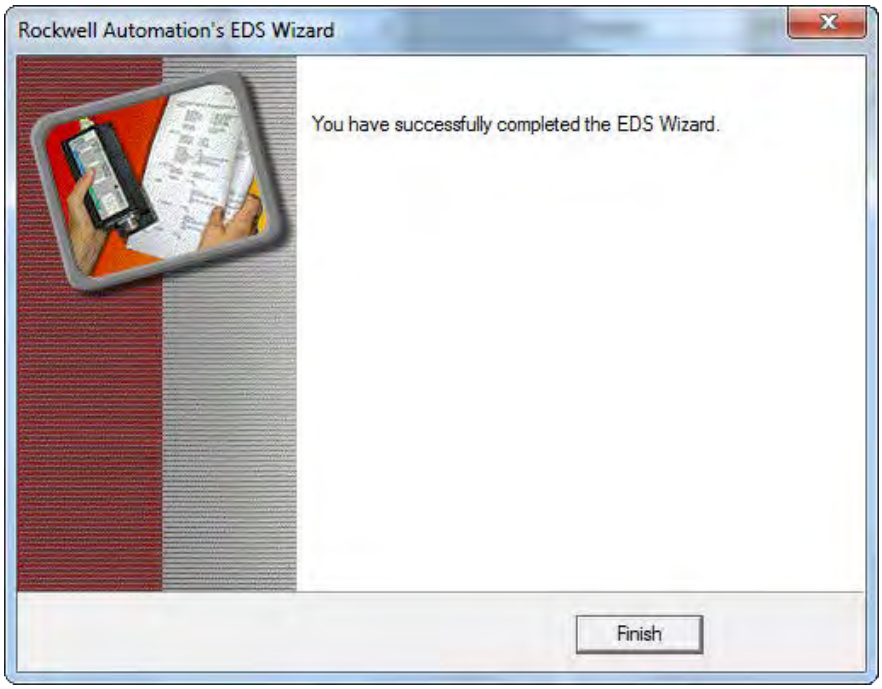
If the icon (.ico) file was saved to the same directory as the EDS file you browsed to, that icon will now be displayed. Select “Next” to accept the icon.



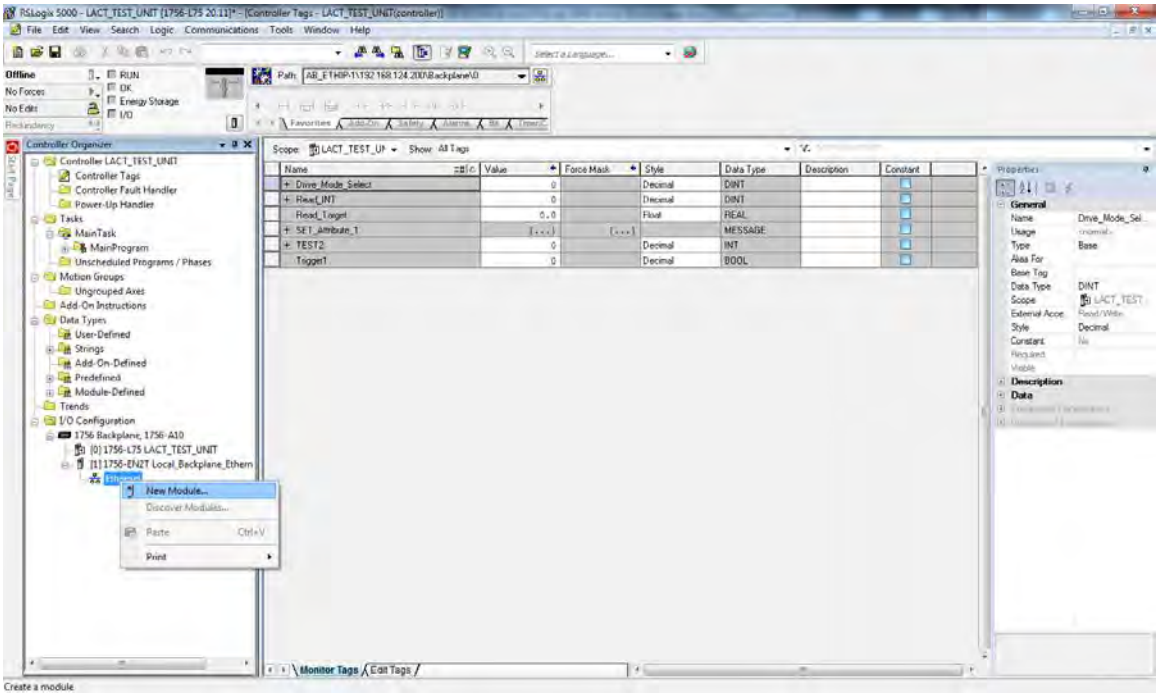
Select “Next” to register the Lenze Ethernet IP adapter.



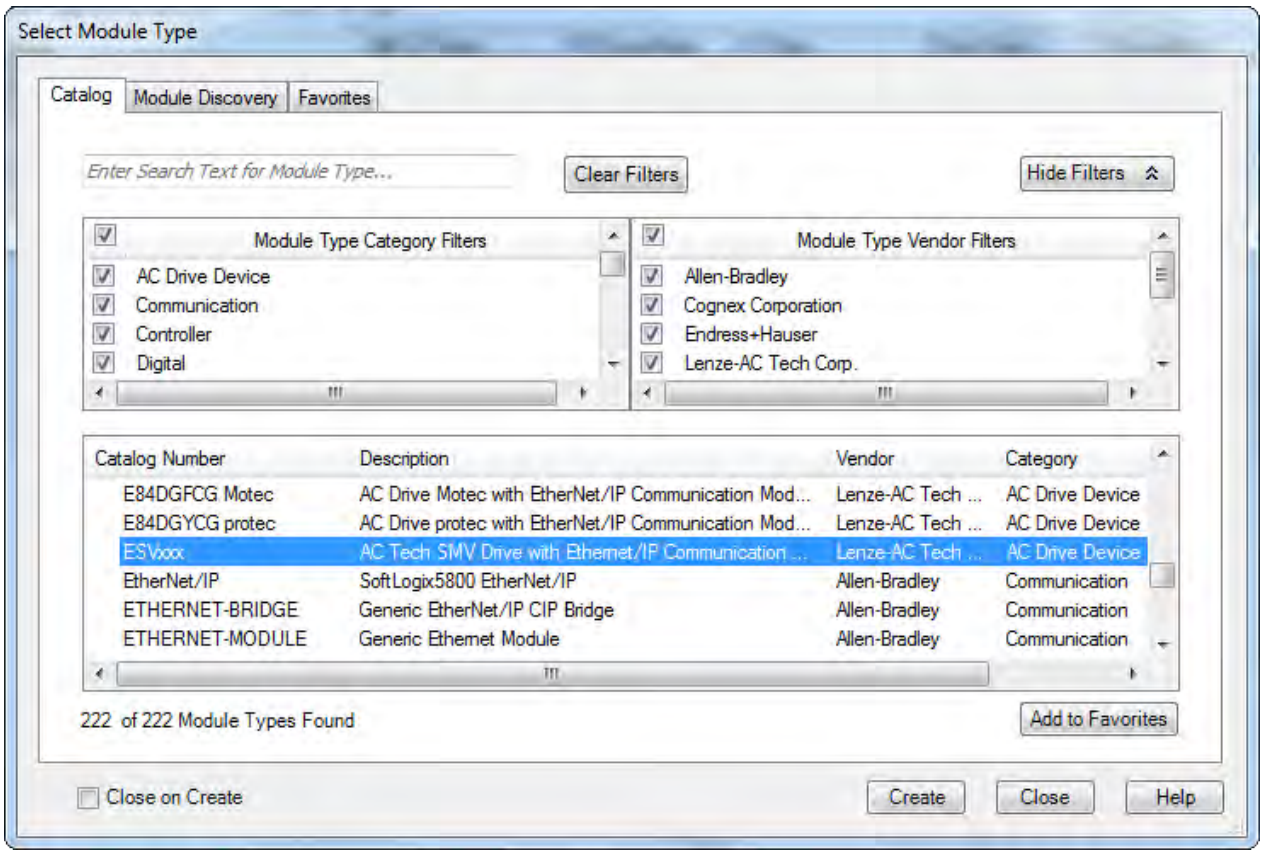
Select “Finish” to complete the process.



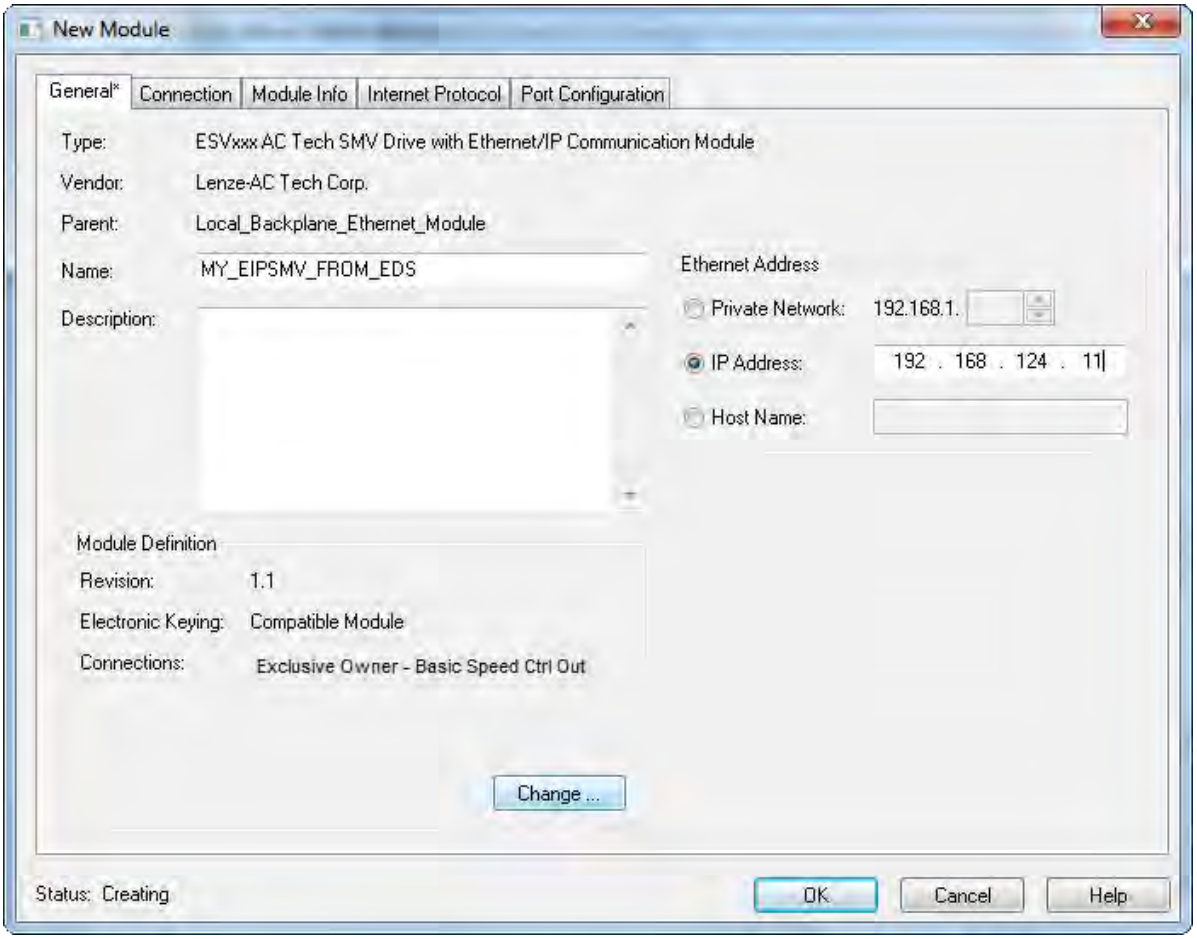
Right click on your Ethernet network in the RSLogix™ 5000 project you want to add the Lenze drive to and select “New Module”.



Scrolling through the alphabetized list you will find the Lenze Ethernet IP adapter is available to be selected. Select the module and then click “Create”.



Enter a name for the drive and the drive's IP address. In this example the name used is "MY_EIPSMV_FROM_EDS". The IP address in this example is "192.168.124.11". Next, a connection must be created to map the assemblies to the implicit messaging. Click the "Change…" button under Module Definition.



In this example (as with most applications) the PLC will be both controlling and also receiving status from the drive. We will allow access to both speed and the on board drive I/O. Set the "Name" to "Exclusive Owner – Speed Hz Custom Ctrl out". This uses assemblies 101 for status and 100 for commands to the drive.

NOTE:

"Input" and "Output" are from the PLC's perspective.
"Drive Input" assemblies are status polled FROM the drive.
"Drive Output" assemblies are commands sent TO the drive.

The following drive parameter settings must first be programmed via the drive's keypad:

P400 = 5 (Ethernet)

P410 - P413 = the required IP address. (192.168.124.11)

P414 - P417 = the required subnet mask. (The default is 255.255.255.0)

P418 - P421 = the required Gateway address. (The default address is 192.168.124.1)

P426 = the required TTL (The default TTL value is 1)

P100 = 3 (Network only)

P101 = 6 (Network)

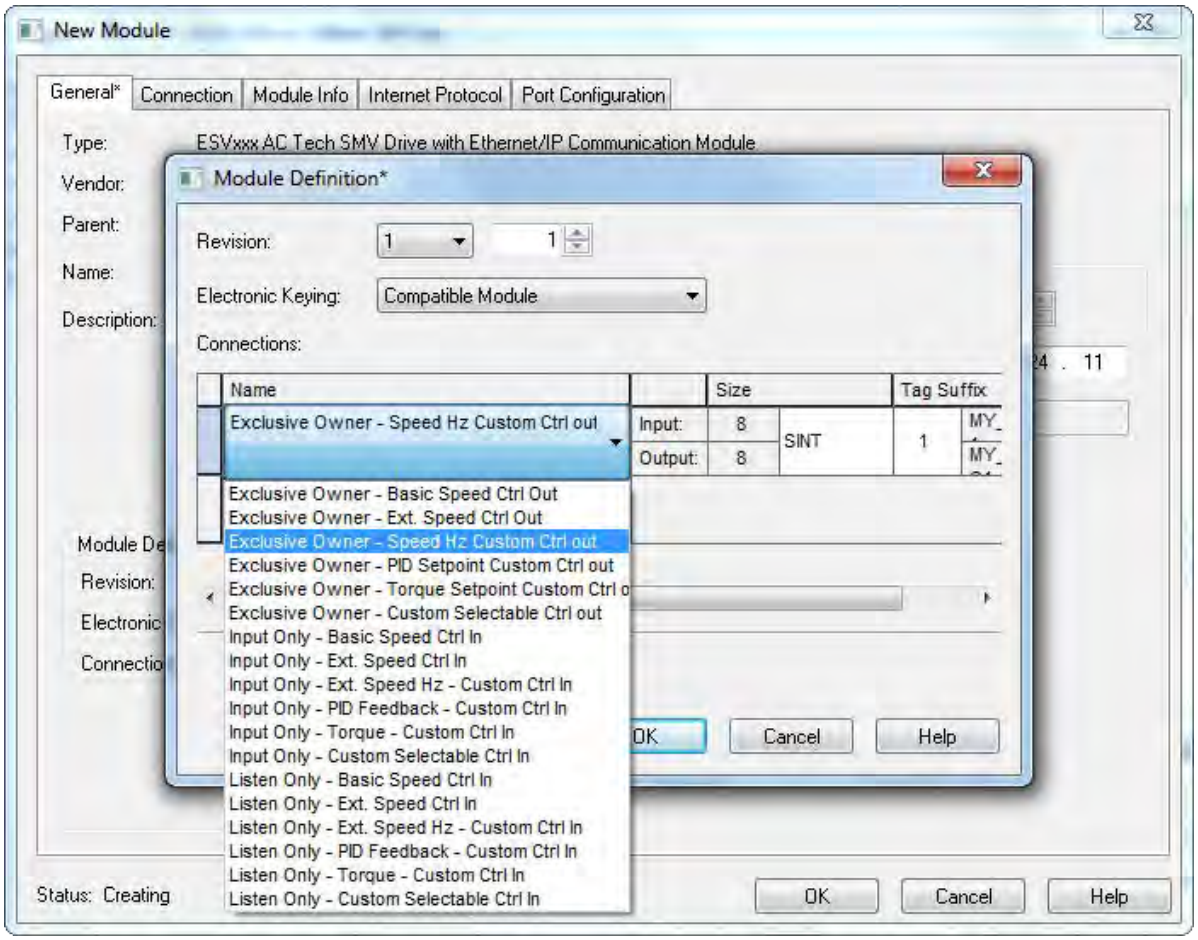
P112 = 1 Rotation (Used to enable bi direction rotation of the motor).

P121= 9 (This configures digital input 13A as "Network Control". TB13A must be closed to enable write access to the drive parameters and to perform any network control of the unit.)

P140 = 25 (This allows the network to control the on board relay)

P142 = 25 (This allows the network to control the TB-14 output)

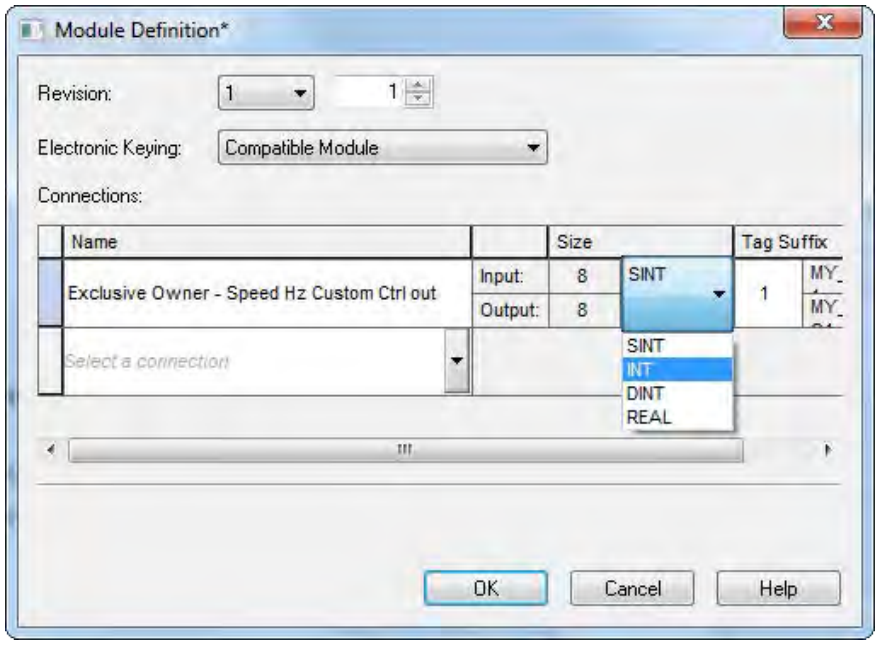
P150 = 9 (This allows the network to control the 0-10VDC analog output)



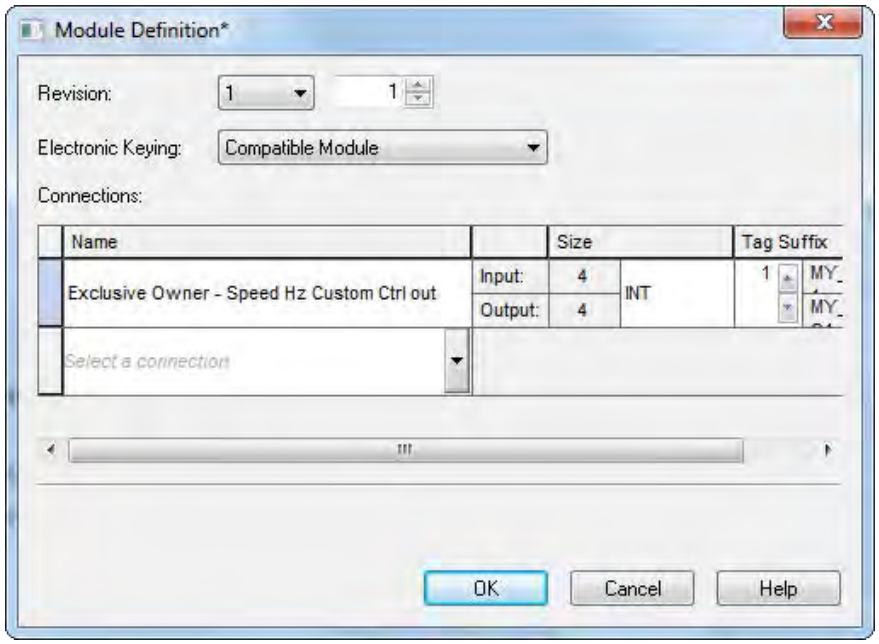
Next you need to select the data format of the assemblies you are using. Select the “INT” format as it is the easiest to work with in the Rockwell PLC for use with the SMV.

NOTE:

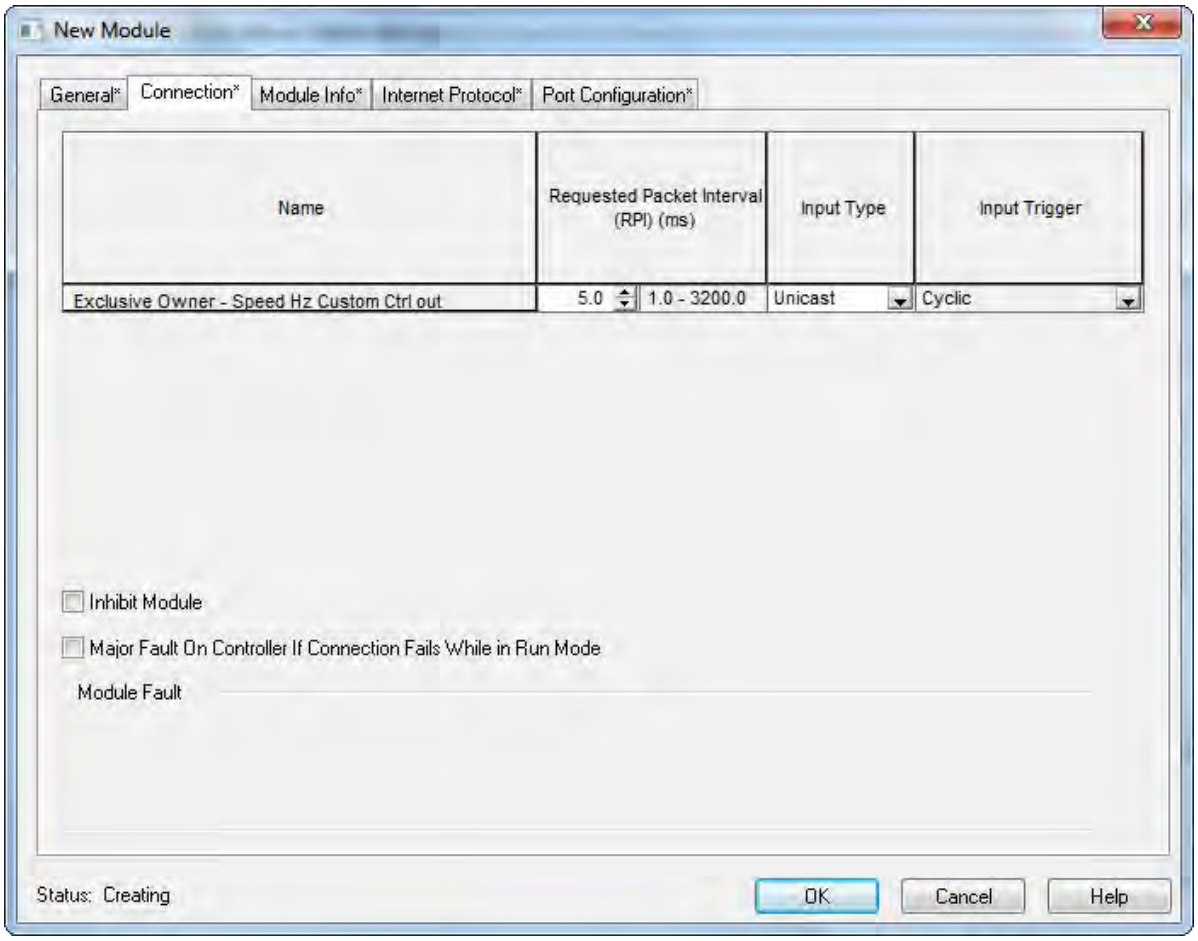
Data in a given assembly is natively all in the same type data type.



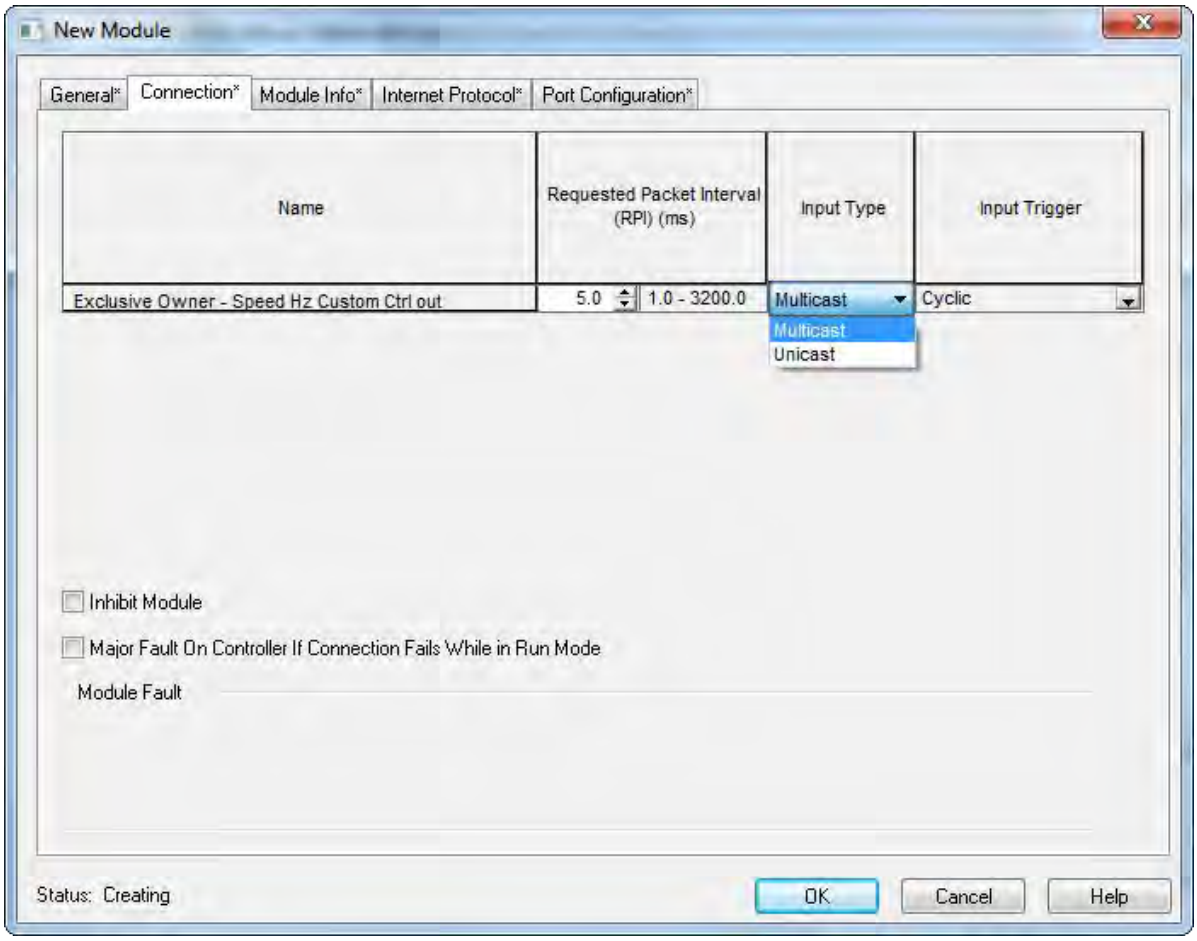
A tag suffix is used to formulate module-defined tag names. Leave this value set to the default value of “1” and click “OK”.



You need to define the Request Packet Interval (RPI). This is how often the PLC will poll the drive. The minimum value which can be supported by the SMV Ethernet IP adapters is 5 msec.

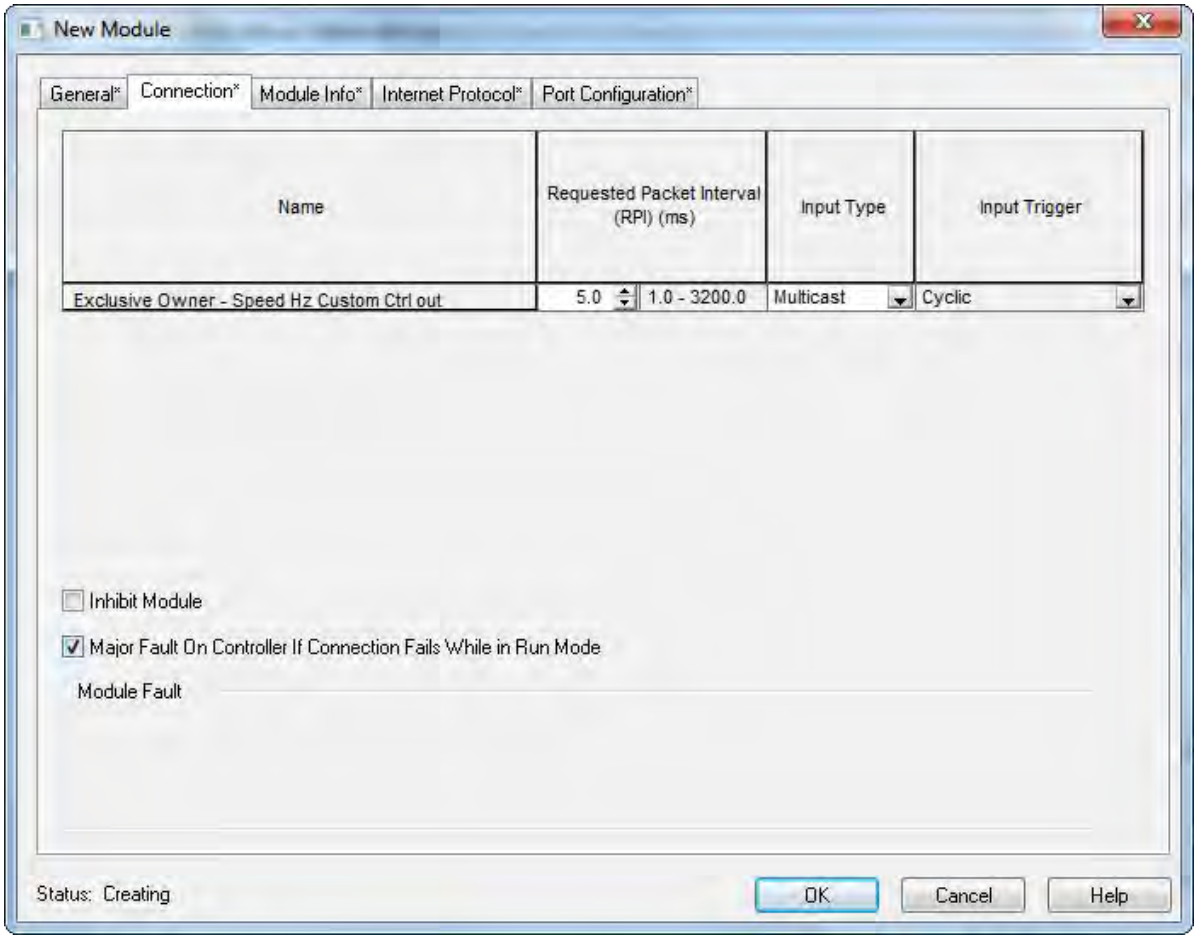


Next, set the Input Type to multicast.

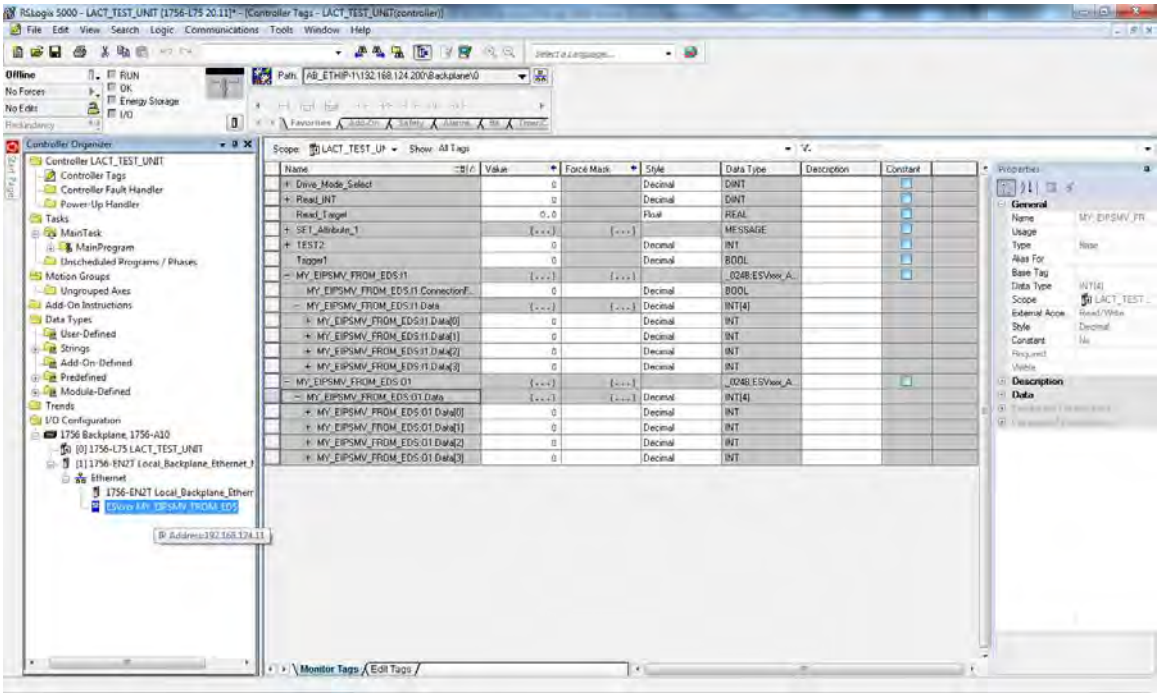


If you want the PLC to Fault if it loses communication to the SMV drive, select “Major Fault On Controller If Connection Fails While in Run Mode”.

Click “OK” to complete configuring the Ethernet IP connection to the SMV drive.



The SMV drive will now appear in the Ethernet network with its icon under the controller's configuration in the RSLogix™ 5000 navigation tree. The SMV drive's assembly data tags will appear under "Controller Tags". In this example the drives input assembly tags appear as "MY_EIPSMV_FROM_EDS:I1" and the output tags appear as "MY_EIPSMV_FROM_EDS:O1".



Click the "+" next to the assembly tag name to expand the menu to see the full data within each assembly. The user may then create alias tags to reference individual bits in the assembly as they would for any other alias tag in RSLogix™ 5000.

For example bit 0, byte 0 of Assembly 100 is RUN_FWD. We will associate that to a RUN FWD command for a Conveyor #1.

Output Assembly 100 - Speed (Hz) & Digital and Analog Output

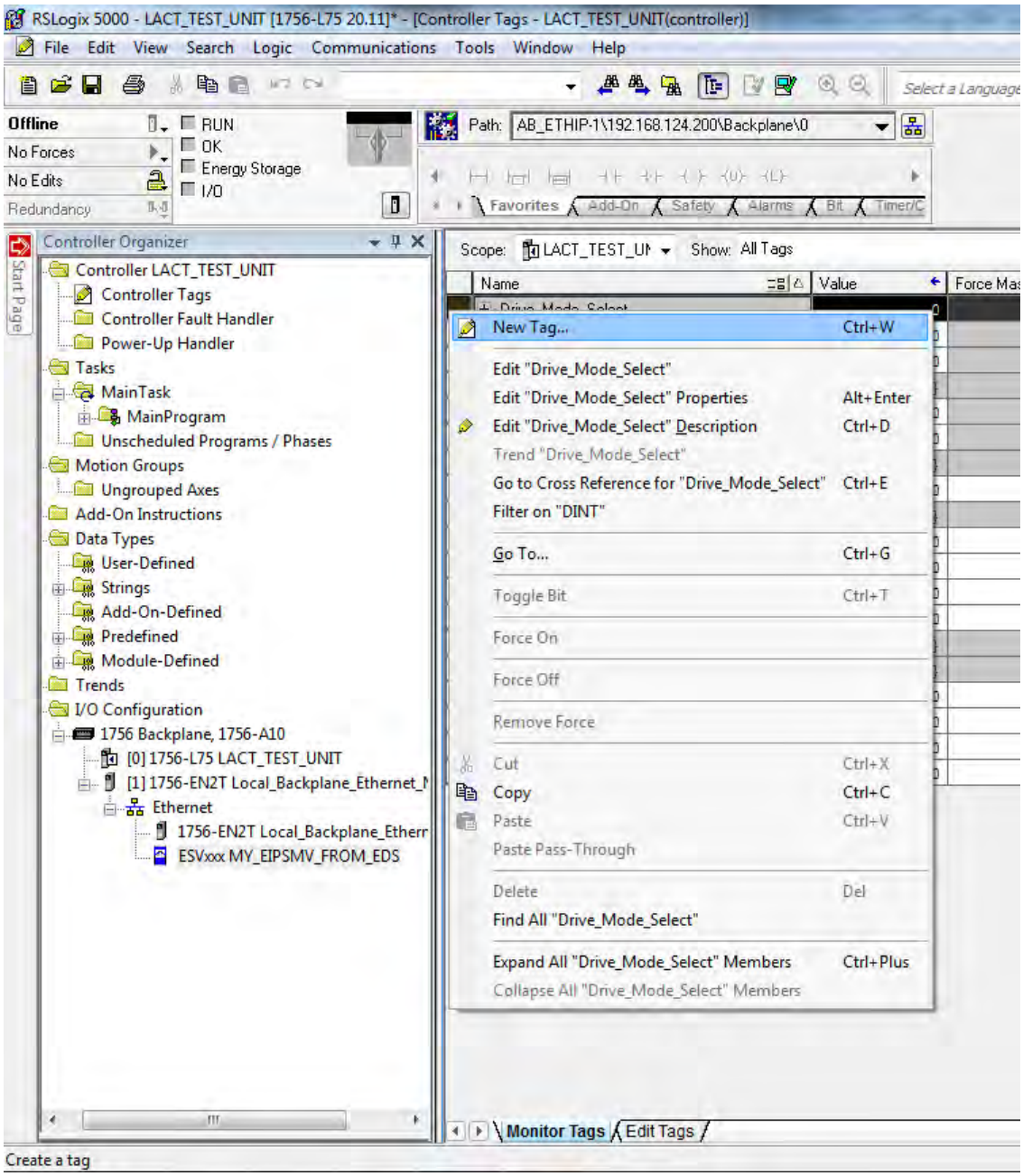
Word 0	Bit 0	0 = NOT Run Forward 1 = Run Forward			
	Bit 1	0 = NOT Run Reverse 1 = Run Reverse			
	Bit 2	Fault reset on transition from 0 to 1			
	Bit 3	Reserved			
	Bit 4	Reserved			
	Bit 5	0 = Local Control 1 = Network Control			
	Bit 6	0 = Local Speed reference 1 = Network Speed reference			
	Bit 7	Reserved			
	Bit 8 Bit 9 Bit 10 Bit 11	Network Speed reference (valid when bit 6 set) 0 – Network 1 – keypad 2 – 0-10VDC	3 – 4-20mA 4 – Preset #1 5 – Preset #2	6 – Preset #3 7 – Preset #4 8 – Preset #5	9 – Preset #6 10 – Preset #7 11 – MOP
	Bit 12	0 = No Action 1 = Inhibit (Coast to STOP)			
	Bit 13	0 = No Action 1 = Activate Quick STOP			
	Bit 14	0 = No Action 1 = Force Manual Mode (active only in Network Control, in PID mode will force open loop)			
	Bit 15	0 = DC brake active 1 = DC brake NOT active			
Word 1		Unsigned speed 0.1Hz resolution • received value = 0x01F0 = 49.6Hz			
Word 2		Digital Output + Relay – Active when parameter P140, P142 = 25 Network Control Bit 9 – Open Collector Bit 10 - Relay Others – reserved for future use			
Word 3		Analog Output [0.01VDC] – Active when parameter P150 = 9 Network Control • received value = 0x024B = 5.87[VDC]			

NOTE
In order to Start/Stop the drive via network control, bit 5 of Word 0 must be set in this assembly.
In order to control the speed via network communications, bit 6 of Word 0 must be set in this assembly.

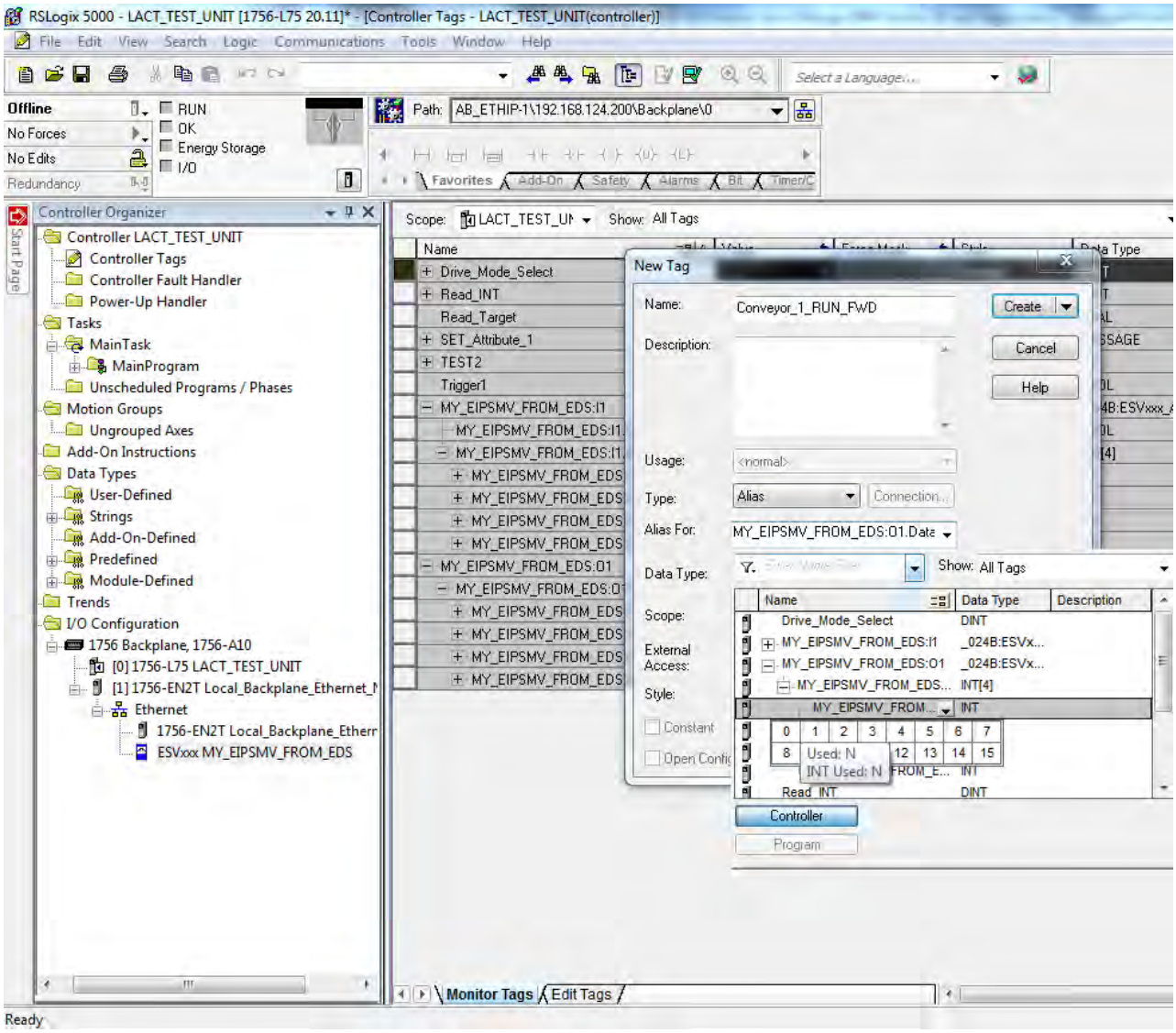
Input Assembly 101 - Speed (Hz) & Digital and Analog Input

Word 0	Bit 0	1 = Faulted			
	Bit 1	Reserved			
	Bit 2	1 = Running Forward			
	Bit 3	1= Running Reverse			
	Bit 4	1 = Ready			
	Bit 5	0 = Local Control 1 = Control from Network			
	Bit 6	0 = Local reference 1 = Reference from Network			
	Bit 7	1 = At reference			
	Bit 8 Bit 9 Bit 10 Bit 11	Actual set point source: 0 – keypad 1 – 0-10VDC 2 – 4-20mA	3 – Preset #1 4 – Preset #2 5 – Preset #3	6 – Preset #4 7 – Preset #5 8 – Preset #6	9 – Preset #7 10 – MOP 11 – Network
	Bit 12	1 = PID Active (closed loop)			
	Bit 13	1 = Torque mode active			
	Bit 14	1 = Current limit			
	Bit 15	1 = DC Braking			
Word 1		Unsigned actual frequency 0.1Hz resolution.			
Word 2		Digital Input/Output states (See Note 1 for details)			
Word 3		Analog Input 0-10V TB [0.01VDC] • received value = 0x024B = 5.87[VDC]			

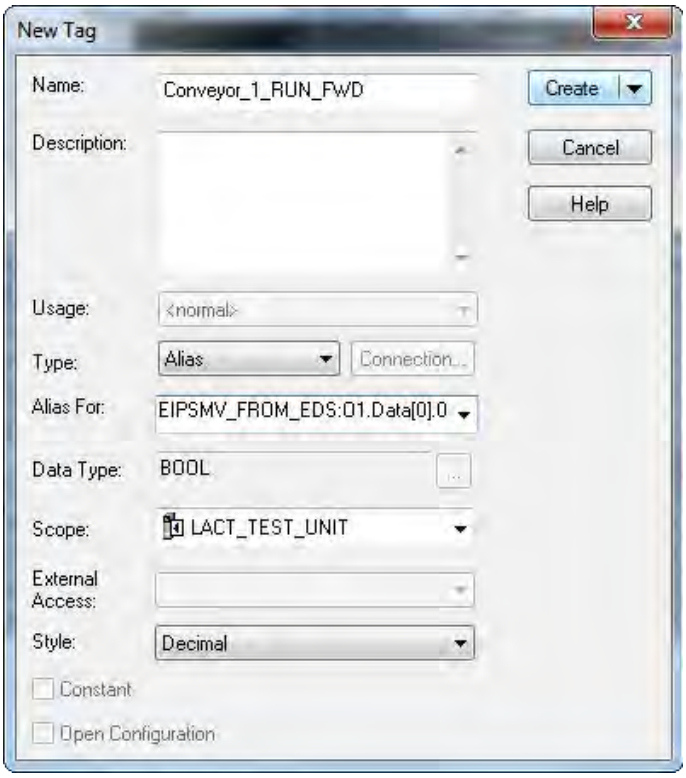
To begin creating an alias tag, right click on the box next to any controller tag and select “New Tag”.



Enter a name for the tag. In this example we use “Conveyor_1_RUN_FWD”. For the Type select “Alias”. Next, browse to the tag address you want to alias. In this example browse to MY_EIPSMV_FROM_EDS:O1.Data(0).0



Finally, click “Create” to add the alias tag to the project.



	[-] - MY_EIPSMV_FROM_EDS:01	{ ... }	{ ... }		_024B:ESVxxx_A...		☐	
	[-] MY_EIPSMV_FROM_EDS:01.Data	{ ... }	{ ... }	Decimal	INT [4]			
	[+] MY_EIPSMV_FROM_EDS:01.Data[0]	0		Decimal	INT			
	[+] MY_EIPSMV_FROM_EDS:01.Data[1]	0		Decimal	INT			
	[+] MY_EIPSMV_FROM_EDS:01.Data[2]	0		Decimal	INT			
	[+] MY_EIPSMV_FROM_EDS:01.Data[3]	0		Decimal	INT			
	Conveyor_1_RUN_FWD	0		Decimal	BOOL		☐	