



TR 582 Series Rotary Encoder Module and AOI Configuration Guide

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Introduction

This guide is intended to help install and use a TR 582 Series Ethernet IP encoder quickly and successfully. It goes through all of the critical implementation steps in detail including: EDS (Electronic Data Sheets) installation, RSLogix module configuration, and AOI (Add-On-Instruction) implementation.

It is important to note that this guide does not need to be followed to have success with a TR 582 Series encoder. There are plenty of ways to successfully integrate the device into an automation environment. However, this guide is recommended as an efficient way to ensure the encoder is configured as expected, and position values are properly understood.

Prerequisites

Before beginning this guide, it is recommended you have the following files downloaded and stored in a known location:

- Required:
 - Device user manual: “Absolute Encoder C__-582”.
 - <http://www.tr-electronic.com/service/downloads/operating-manuals/encoder-and-linear-transducer.html#c17692>
 - Device EDS file: “04710022_TR_C_SERIES_INC_1_3.eds” and icon “04710022_TR_C_SERIES_INC.ico”.
 - <http://www.tr-electronic.com/service/downloads/file-download.html>
- Required if you plan on using the AOI:
 - AOI file: “TR_582_Series_AOI.L5X”

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Add Module and Import AOI

The first step to successfully using the AOI is adding the TR_582_Series module and corresponding AOI to your project RSLogix project.

Add module

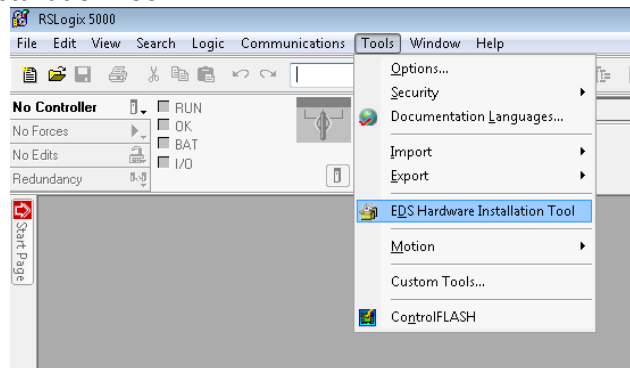
Ethernet IP communications require that a module for the encoder is added to the IO tree in your RSLogix project. There are two possible modules that could be used: TR C-582 Encoder or a Generic Ethernet Module. If you plan on using the AOI provided, the TR C-582 Encoder must be used. It is still recommended to use the TR C-582 Encoder even if you do not plan to use the AOI, but if you'd like to use the Generic Ethernet Module then this document will not be helpful. Please refer to "Absolute Encoder C__-582" for the IO and Configuration Assembly Object information.

The AOI was designed to work with EDS version 1.3 of the TR C-582 Encoder module. If you've already installed version 1.3 of the TR C-582 Encoders, this step can be skipped.

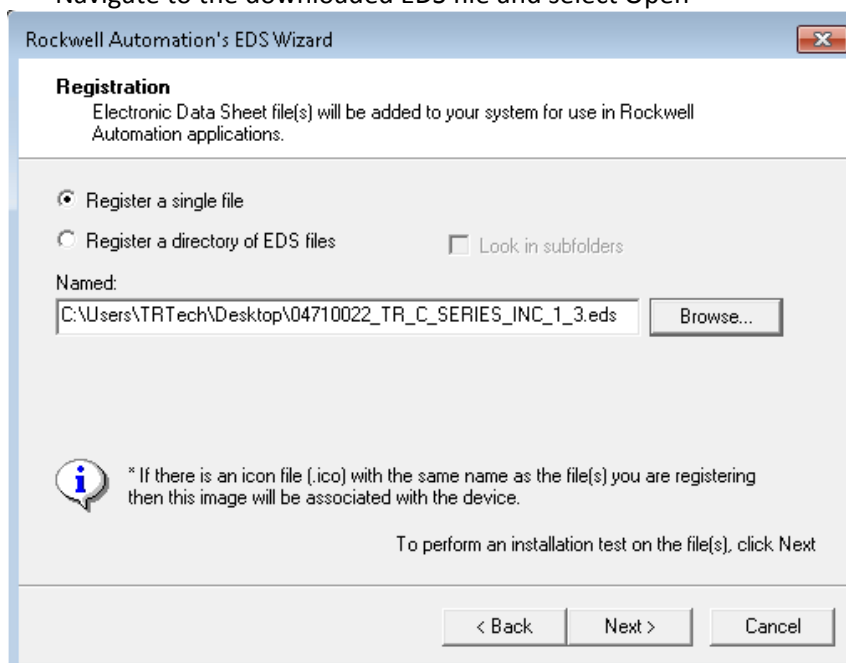
Install EDS

To install the EDS file, open RSLogix and select:

- Tools
 - EDS Hardware Installation Tool



- Within the Rockwell Automation's EDS Wizard select:
 - Next
 - Next – with Register and EDS file(s) selected
 - Browse:
 - Navigate to the downloaded EDS file and select Open



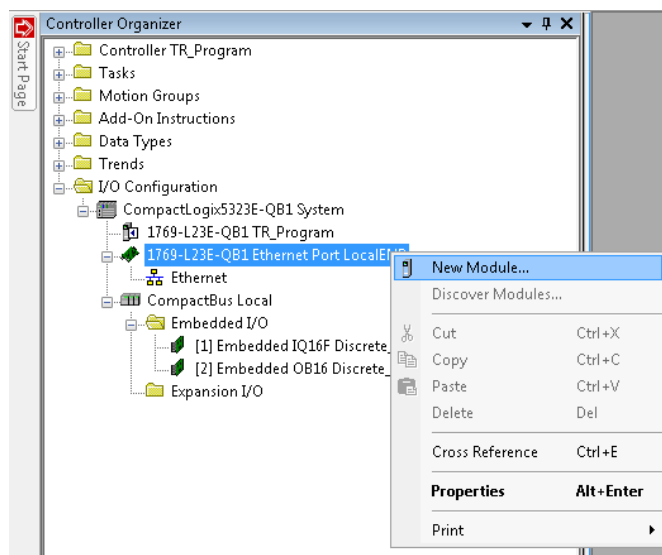
- Next, Next, Next, Next, Finish

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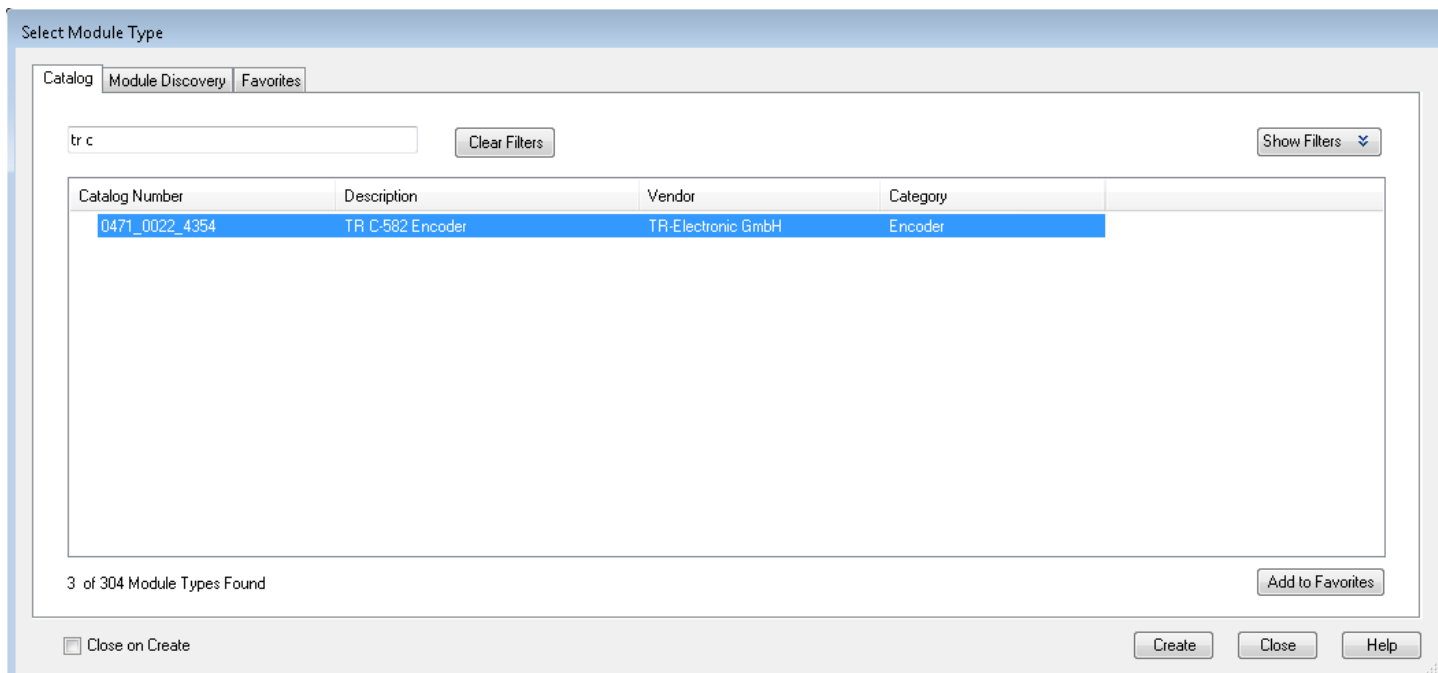
Add Module

Once the correct EDS file has been installed, a module needs to be added to the project. Start by opening your working project.

- Right click on your Ethernet module in the IO tree and select new module

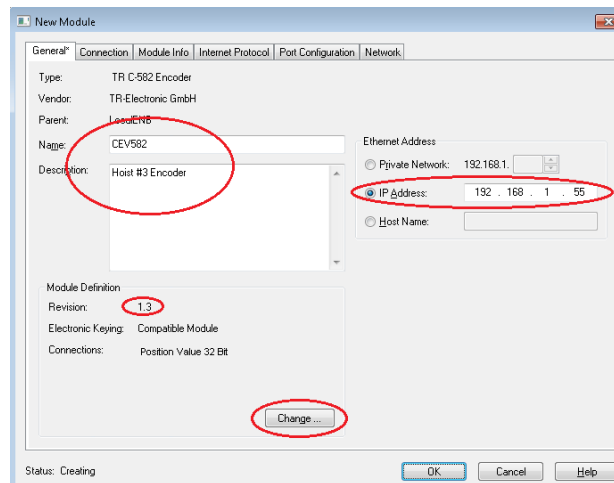


- Search for “tr c”, select TR C-Series Encoder and then select Create.

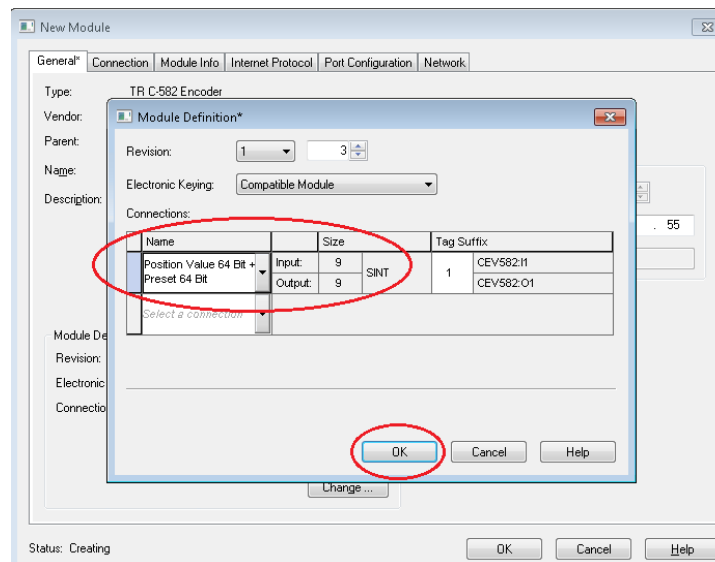


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- Give the module a name, description (optional) and IP address.
 - This guide will continue using the name CEV582. However you may choose a name of your preference. Whenever CEV582 is referenced in this document, replace it with your module name.
- Verify that the revision is 1.3. If not, ensure the latest EDS file was downloaded and try re-installing.
- Select Change



- Within the Module Definition ensure the Connections Name and Size match below. This is a requirement for the AOI to function.



If a popup appears, click Yes. Click OK again to exit Module Properties.

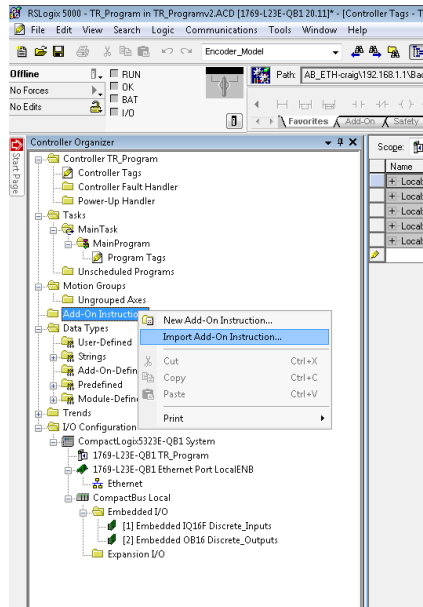
If you do not plan on using the AOI, then please skip to the “Configure Encoder” section. It is the final section of the manual that will be helpful for module configuration only.

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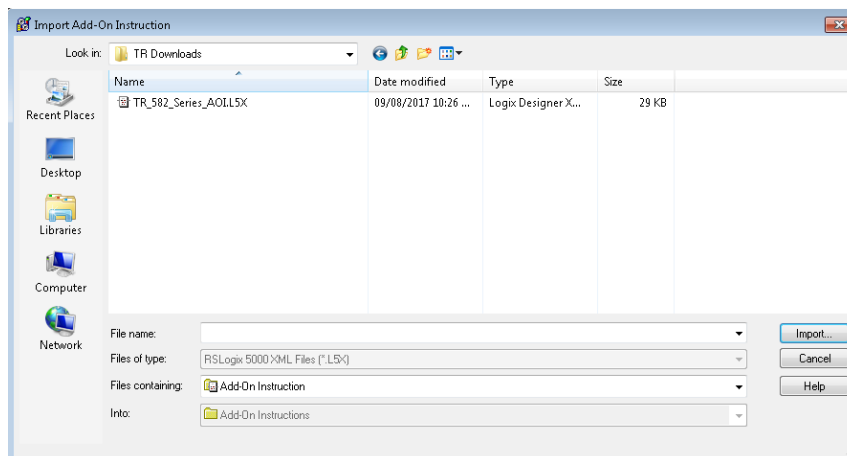
Import AOI

Now that a module has been added to the program, we need to add the logic that will interact with the module. This piece of logic is an AOI (Add-On Instruction) that must be imported into the project.

- Right click on Add-On Instructions in RSLogix under the Controller Organizer and select Import Add-On Instruction.



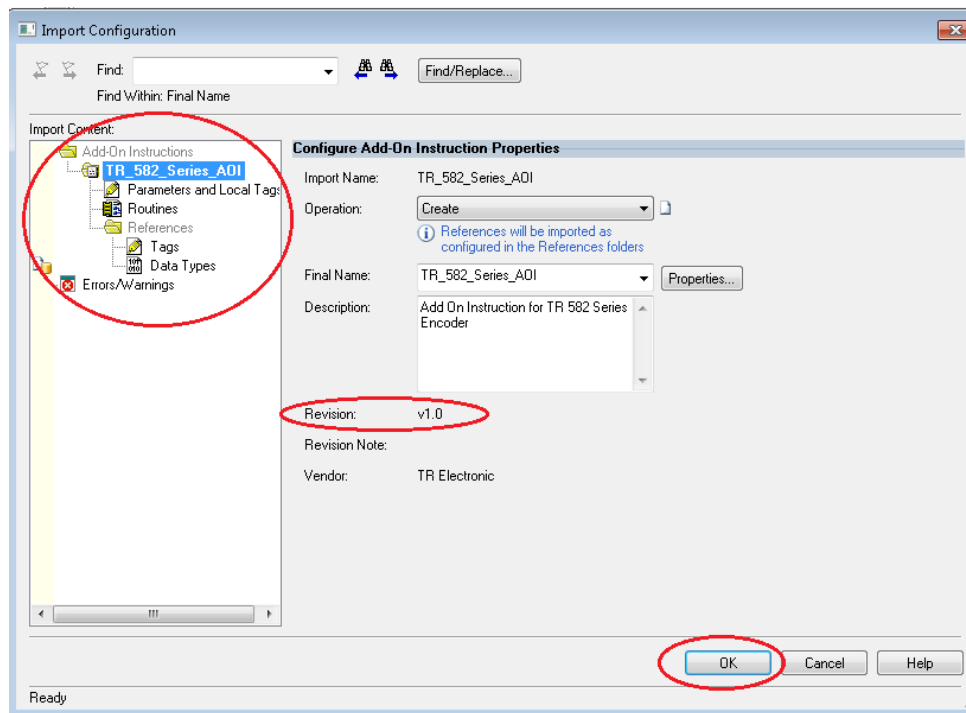
- Navigate to the AOI file that was downloaded and select Import:



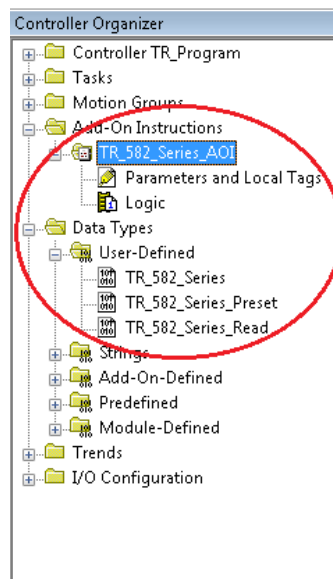
- An Import Configuration dialog box will open with information regarding changes that come along with importing this AOI (Routines, Tags, Data Types, etc). Navigate around this dialog box for more information, then select OK.

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- Note the revision. If you've previously installed and are using an earlier revision, please review the consequences of overwriting. It might be best to change the "final name" of the AOI and imported Data Types to something else, so the new AOIs and UDT can be installed without impacting the old one.



- When the AOI is imported, you'll see it under Add-On-Instruction in Controller Properties. In addition, under Data Types -> User Defined, you should see 3 new datatypes. These are the new datatypes introduced when the AOI was imported. They will be discussed in further detail in later sections.







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Configuring Encoder and AOI

Configure Encoder

After adding the module, you'll see three new tags in your tag database. The tag name will depend on what you named the new module, which was "CEV582" in this example.

Scope:  TR_Program		Show: All Tags		
	Name	Alias For	Base Tag	Data Type
	CEV582:C			_0471:0022_4354_17998952:C:0
	CEV582:I1			_0471:0022_4354_394D7E6A:I:0
	CEV582:O1			_0471:0022_4354_1627525E:O:0
				

CEV582:I1 and CEV582:O1 are the IO Assemblies. They contain the feedback/readings as well as the preset commands directly to and from the encoder. CEV582:C is the Configuration Assembly and is used to quickly configure the encoder upon successful connection with the PLC. Expanding the configuration assembly looks like below. The initial values have been populated as defined in the EDS file:

Scope: TR_Program	Show: All Tags	Name	Value	Force Mask	Style	Data Type
		- CEV582:C	{...}	{...}		_0471:0022_...
		- CEV582:C.Data	{...}	{...}		SINT[32]
		+ CEV582:C.Data[0]	0		Decimal	SINT
		+ CEV582:C.Data[1]	0		Decimal	SINT
		+ CEV582:C.Data[2]	16		Decimal	SINT
		+ CEV582:C.Data[3]	0		Decimal	SINT
		+ CEV582:C.Data[4]	0		Decimal	SINT
		+ CEV582:C.Data[5]	0		Decimal	SINT
		+ CEV582:C.Data[6]	0		Decimal	SINT
		+ CEV582:C.Data[7]	0		Decimal	SINT
		+ CEV582:C.Data[8]	1		Decimal	SINT
		+ CEV582:C.Data[9]	16		Decimal	SINT
		+ CEV582:C.Data[10]	31		Decimal	SINT
		+ CEV582:C.Data[11]	0		Decimal	SINT
		+ CEV582:C.Data[12]	0		Decimal	SINT
		+ CEV582:C.Data[13]	0		Decimal	SINT
		+ CEV582:C.Data[14]	1		Decimal	SINT
		+ CEV582:C.Data[15]	0		Decimal	SINT
		+ CEV582:C.Data[16]	0		Decimal	SINT
		+ CEV582:C.Data[17]	0		Decimal	SINT
		+ CEV582:C.Data[18]	0		Decimal	SINT
		+ CEV582:C.Data[19]	0		Decimal	SINT
		+ CEV582:C.Data[20]	16		Decimal	SINT
		+ CEV582:C.Data[21]	0		Decimal	SINT
		+ CEV582:C.Data[22]	0		Decimal	SINT
		+ CEV582:C.Data[23]	1		Decimal	SINT
		+ CEV582:C.Data[24]	0		Decimal	SINT
		+ CEV582:C.Data[25]	0		Decimal	SINT
		+ CEV582:C.Data[26]	0		Decimal	SINT
		+ CEV582:C.Data[27]	0		Decimal	SINT
		+ CEV582:C.Data[28]	0		Decimal	SINT
		+ CEV582:C.Data[29]	0		Decimal	SINT
		+ CEV582:C.Data[30]	0		Decimal	SINT
		+ CEV582:O1	{...}	{...}		_0471:0022_...
		+ CEV582:I1	{...}	{...}		_0471:0022_...

Refer to Appendix Configuration Assembly to edit these values as required.

It is important to note that the configuration assembly values must be populated byte by byte. Recommended procedure for updated these values is:

- Set CEV582:C.Data style to Hex.

Name	Value	Force Mask	Style	Data Type
- CEV582:C	{...}	{...}		_0471:0022_...
- CEV582:C.Data	{...}	{...}	Decimal	SINT[32]
+ CEV582:C.Data[0]	0		Binary	SINT
+ CEV582:C.Data[1]	0		Octal	SINT
+ CEV582:C.Data[2]	16		Decimal	SINT
+ CEV582:C.Data[3]	0		Hex	SINT
			ASCII	SINT

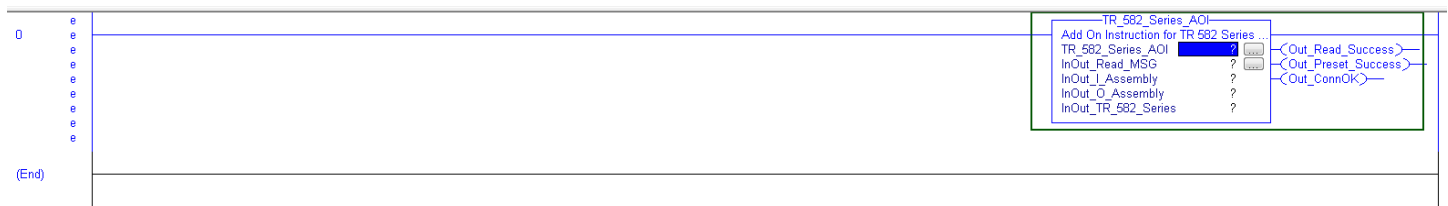
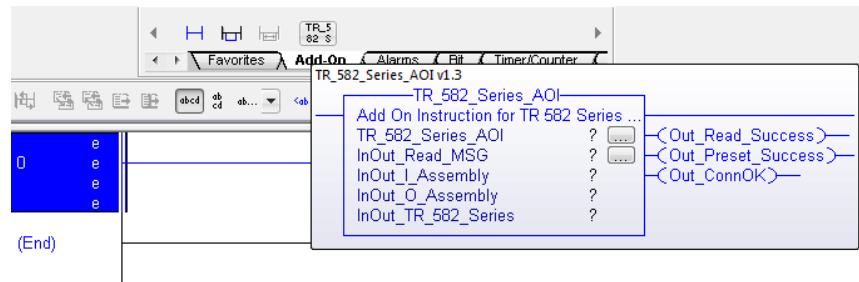
- Convert desired value into Hex
- Break converted Hex number into bytes (2 Hex digits)
- Enter value byte by byte into CEV582:C.Data array.

Refer to Appendix Configuration Assembly Mapping Example for a conversion example.

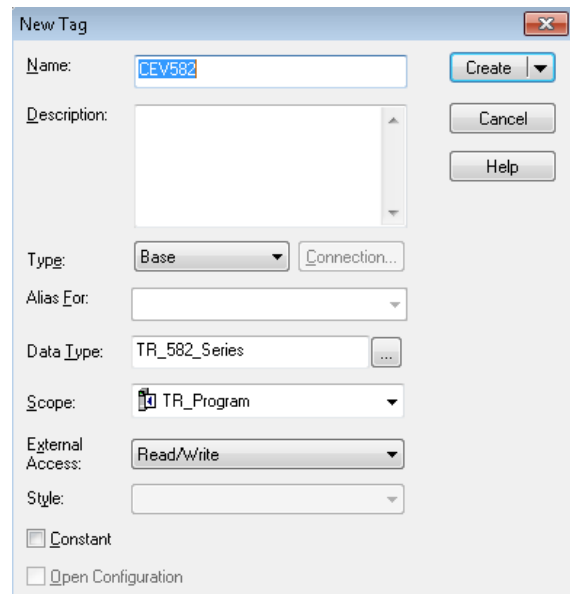
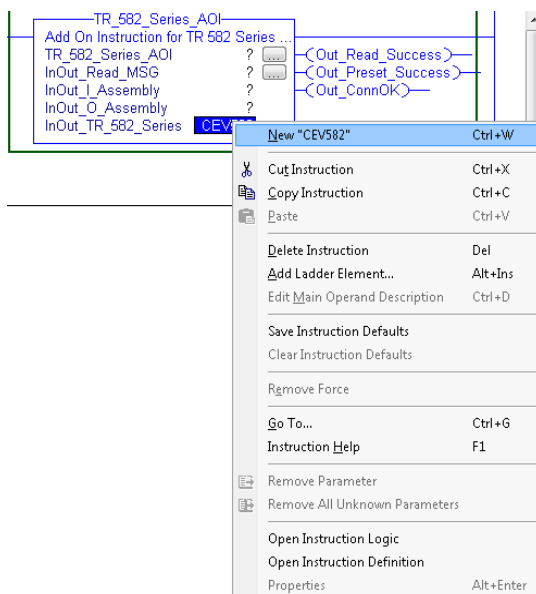
Configure the AOI

Now that the AOI has been imported, it has to be implemented in ladder logic.

- The new instruction can be called by navigating to the desired routine and rung by selecting it on the standard instruction toolbar:



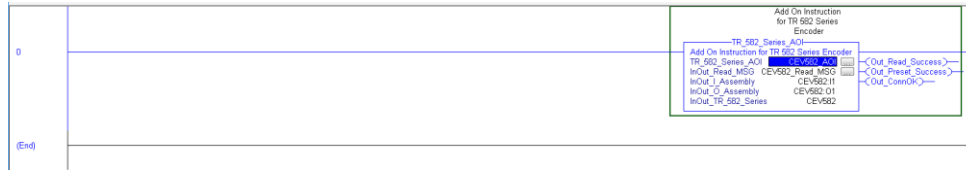
- Now we have “called” the AOI. However in it requires certain variables to be passed to it to function properly. Variable fields can be edited by double clicking.
 - InOut_TR_582_Series field:
 - Enter desired encoder name, you can re-use the module name as I have done here. You’ll have to create a new variable (of type TR_582_Series) to use the AOI as discussed later. Note the scope (adjust if necessary) and add a description to the tag if you wish.



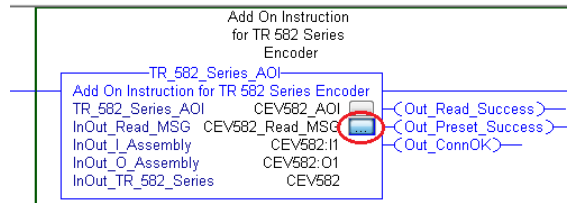
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- InOut_I_Assembly field:
 - Enter CEV582:I1
 - NOTE: The AOI requires this variable to be of a certain type as defined in the module properties (Position Value 64 Bit + Preset 64 Bit, SINTs). If you'd like to change the module properties to something else, you'll have to change the AOI parameters accordingly.
 - InOut_O_Assembly field:
 - Enter CEV582:O1 – see not above.
 - TR_582_Series_AOI field:
 - Enter CEV582_AOI and create a new tag.
 - InOut_Read_MSG field:
 - Enter CEV582_Read_MSG and create a new tag.
- The rung should now look something like this:



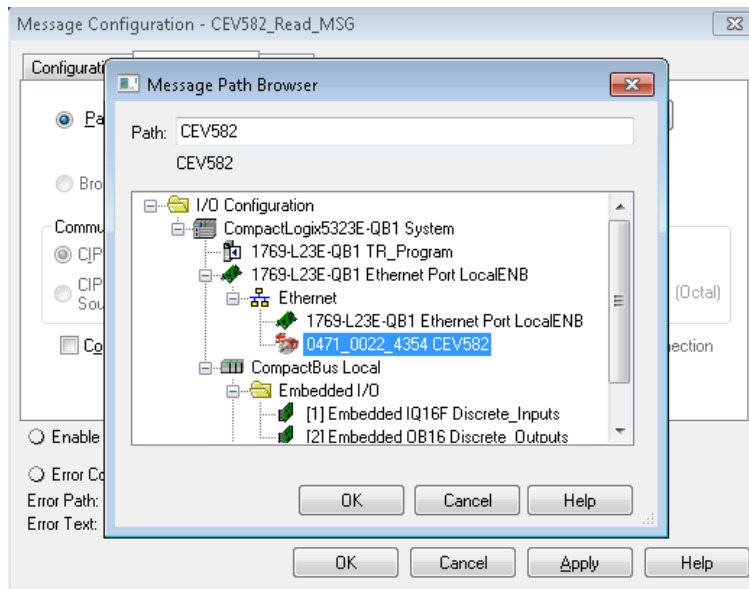
- Now the MSG instruction must be configured. Select the “...” button:



- Enter the following information (Destination Element reads CEV582.Read.ReadData[0])
 - Destination element is critical. If a different value is entered the MSG instruction may still yield a successful result, which will set the AOI's success output even though data could be misallocated.

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- Then select the Communication tab to configure the path. Click Browse and navigate to the new module:



- Select OK on the Message Path Browser to close the dialog box.
- Select OK to close the Message Configuration dialog box.

The module and AOI are now configured and ready to use. The program can be downloaded to the controller and set to run mode if appropriate.

Using the AOI

Importing the AOI also introduced a new UDT (User-Defined Data Type) called TR_582_Series. Refer to Appendix TR_582_Series UDT for detailed information about the data types. The UDT and AOI work together to perform 3 main tasks:

1. Parse encoder feedback into an understandable and usable format. This parsing takes place every scan.
 - a. Position feedback: CEV582.Position, _LSW and _MSW.
2. Read important encoder parameters: CEV582.Read.XXXXXXXX. **This is done so that a user can validate the settings read from the encoder against their intended configuration.**
 - a. Automatic:
 - i. Two seconds after a successful re-connection between PLC and encoder.
 - b. On Demand: CEV582.Read.Command
 - i. Read begins upon positive transition of trigger bit. This bit will be automatically cleared when the read is successful or a read failure is detected.
 - c. Outputs: CEV582_AOI.Out_Read_Success
 - i. Cleared when read initiated or connection between encoder and PLC is lost.
 - ii. Set upon successful read.
 - iii. Once the AOI has been setup and a successful read has occurred, there should be no read failures in the future (assuming the encoder is powered and connected). However if you want to monitor explicitly for read failures you may use CEV582_Read_MSG.ER.
3. Perform a preset: CEV582.Preset.Preset, _LSW and _MSW
 - a. On Demand: CEV582.Preset.Command
 - i. Preset operation begins upon positive transition of trigger bit, so it is recommended that this bit is set using a one-shot (ONS instruction). This bit will be automatically cleared when the preset operation is successful or an error is detected.
 - ii. Once the AOI has been setup and a successful preset has occurred, there should be no preset failures in the future (assuming the encoder is powered and connected). However if you want to monitor explicitly for preset failures watch for CEV582.PresetStatus equalling -128.
 - b. Outputs: CEV582_AOI.Out_Preset_Success
 - i. Cleared on first scan or when preset operation is initiated.
 - ii. Set upon successful preset operation.

The AOI has an additional output called CEV582_AOI.ConnOK. This bit is set to true when the PLC and encoder have been connected successfully for two seconds. It is cleared when a communication fault is detected.

AOI output usage is at the programmer discretion. They can be used for in logic, but do not need to be.

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Appendix

TR_582_Series UDT

Member Variable		Data Type	Usage	Description
Position_LSW		DINT (32 bits)	Read Only (CEV582.Position_LSW)	IO Assembly from Device - Position value least significant word
Position_MSW		DINT (32 bits)	Read Only (CEV582.Position_MSW)	IO Assembly from Device - Position value most significant word
Position		LINT (64 bits)*	Read Only (CEV582.Position)	IO Assembly from Device - Position value
Velocity		DINT (32 bits)	Read Only (CEV582.Velocity)	IO Assembly from Device - Velocity value
Read	PositionSensorType	SINT (8 bits)	Read Only (CEV582.Read.PositionSensorType)	Read From Device - Attribute: 11
	Direction	BOOL (1 bit)	Read Only (CEV582.Read.Direction)	Read From Device - Attribute: 12
	MeasuringUnitsPerSpan	DINT (32 bits)	Read Only (CEV582.Read.MeasuringUnitsPerSpan)	Read From Device - Attribute: 16
	VelocityFormat	DINT (32 bits)	Read Only (CEV582.Read.VelocityFormat)	Read From Device - Attribute: 25
	TotalMeasuringRange_LSW	DINT (32 bits)	Read Only (CEV582.Read.TotalMeasuringRange_LSW)	Read From Device - Attribute: 101 -LSW
	TotalMeasuringRange_MSW	DINT (32 bits)	Read Only (CEV582.Read.TotalMeasuringRange_MSW)	Read From Device - Attribute: 101 -MSW
	TotalMeasuringRange	LINT (64 bits)*	Read Only (CEV582.Read.TotalMeasuringRange)	Read From Device - Attribute: 101
	NumberOfRevolutionsNumerator	DINT (32 bits)	Read Only (CEV582.Read.NumberOfRevolutionsNumerator)	Read From Device - Attribute: 102
	NumberOfRevolutionsDivisor	DINT (32 bits)	Read Only (CEV582.Read.NumberOfRevolutionsDivisor)	Read From Device - Attribute: 103
	TRParameter	BOOL (1 bit)	Read Only (CEV582.Read.TRParameter)	Read From Device - Attribute: 105
	Alarms	INT (16 bits)	Read Only (CEV582.Read.Alarms)	Read From Device - Attribute: 44
	Warnings	INT (16 bits)	Read Only (CEV582.Read.Warnings)	Read From Device - Attribute: 47
	EncoderFirmwareNumber	STRING	Read Only (CEV582.Read.EncoderFirmwareNumber)	Read From Device - Attribute: 113
	EncoderFirmwareVersion	STRING	Read Only (CEV582.Read.EncoderFirmwareVersion)	Read From Device - Attribute: 114
	PresetProcessDataAvailable	BOOL (1 bit)	Read Only (CEV582.Read.PresetProcessDataAvailable)	Read From Device - Attribute: 205
	ReadData	SINT[8] (8x8 bits)	N/A	Internal working variables - do not use.
	Command	BOOL (1 bit)	Read/Write (CEV582.Read.Command)	Read Params Trigger
Preset	Preset_LSW	DINT (32 bits)	Write Only (CEV582.Preset.Preset_LSW)	Write To Device - Attribute: 104 - LSW
	Preset_MSW	DINT (32 bits)	Write Only (CEV582.Preset.Preset_MSW)	Write To Device - Attribute: 104 - MSW
	Preset	LINT (64 bits)*	Read Only (CEV582.Preset.Preset)	Write To Device - Attribute: 104
	PresetData	SINT[8] (8x8 bits)	N/A	Internal working variables - do not use.
	Command	BOOL (1 bit)	Read/Write (CEV582.Preset.Command)	Preset Operation Trigger

Note: If TotalMeasuringRange value is less than 32 bits, then only the _LSW variables need to be considered in logic.

Note: Attribute numbers refer to Object 0x23 Position Sensor Object. Definitions can be found in the "Absolute Encoder C__-582".

***Note:** All of the LINT datatypes above can be found broken into two (LSW and MSW) DINTs. This is because the built in RSLogix instructions compatible with LINTs are extremely limited. The LINTs have been provided for visual aid, but all mathematic operations and comparisons must be performed on the DINTs without a special library installed. The LINTs are all READ ONLY and will be overwritten by corresponding LINTs.

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Configuration Assembly

	Default (Hex)	Default (Decimal)	Default (Decimal)	Possibilities	Description	When TR Parameter = 0	When TR Parameter = 1
CEV582:C.Data[0]	00	0	0	0 or 1	Direction Toggle – Attribute: 12		
CEV582:C.Data[1]	00	0	4096	CMX-582 (1-8 192) CEX-582 (1-32 768) COX-582 (1-262 144)	Measuring Units Per Span Attribute: 16	Used For Configuration	Configuration Value Ignored - Leave As Default Attribute Value is Calculated
CEV582:C.Data[2]	10	16					
CEV582:C.Data[3]	00	0					
CEV582:C.Data[4]	00	0					
CEV582:C.Data[5]	00	0	16777216	16 - 4294967295	Total Measuring Range (<32 Bit) Attribute: 17	Used For Configuration	Configuration Value Ignored - Leave As Default Attribute Value is Calculated
CEV582:C.Data[6]	00	0					
CEV582:C.Data[7]	00	0					
CEV582:C.Data[8]	01	1					
CEV582:C.Data[9]	0F	15	7951	7940 (steps/s), 7941 (steps/ms), 7950 (rev/s), 7951 (rev/min)	Velocity Format Attribute: 25		
CEV582:C.Data[10]	1F	31					
CEV582:C.Data[11]	00	0	16777216	CMX-582 (16-33 554 432) CEX-582 (1-8 388 608 000) COX-582 (1-67 108 864 000)	Total Measuring Range (<64 Bit) Attribute: 101	Configuration Value Ignored - Leave As Default Attribute Value is Calculated	Used For Configuration
CEV582:C.Data[12]	00	0					
CEV582:C.Data[13]	00	0					
CEV582:C.Data[14]	01	1					
CEV582:C.Data[15]	00	0					
CEV582:C.Data[16]	00	0					
CEV582:C.Data[17]	00	0					
CEV582:C.Data[18]	00	0					
CEV582:C.Data[19]	00	0	4096	1-256000	Number Of Revolutions – Numerator Attribute: 102	Configuration Value Ignored - Leave As Default Attribute Value is Calculated	Used For Configuration
CEV582:C.Data[20]	10	16					
CEV582:C.Data[21]	00	0					
CEV582:C.Data[22]	00	0					
CEV582:C.Data[23]	01	1	1	1-16384	Number Of Revolutions – Divisor Attribute: 103	Configuration Value Ignored - Leave As Default Attribute Value is Calculated	Used For Configuration - Recommend to leave at 1
CEV582:C.Data[24]	00	0					
CEV582:C.Data[25]	00	0					
CEV582:C.Data[26]	00	0					
CEV582:C.Data[27]	00	0	0	0 or 1 - Recommended to set to 1	TR – Parameter - Attribute: 105		
CEV582:C.Data[28]	00	0	0	0	Reserved		
CEV582:C.Data[29]	00	0					
CEV582:C.Data[30]	00	0					
CEV582:C.Data[31]	00	0					

NOTE: The offline PLC file should be updated with the new values to ensure old values aren't re-loaded upon re-download. This can be done by updating the offline file (recommended) or uploading tag values upon saving the program.

NOTE: Detailed information regarding TR Parameter can be found in Appendix TR Parameter

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Configuration Assembly Mapping Example

	Desired Value (Decimal)	Desired Value (Hex)	Desired Value (Hex)	Desired Value (Signed Decimal)*
CEV58:C.Data[0]	0	0	00	0
CEV58:C.Data[1]	Left as default - 4096	Left as default – 10 00	00	0
CEV58:C.Data[2]			10	16
CEV58:C.Data[3]			00	0
CEV58:C.Data[4]			00	0
CEV58:C.Data[5]	Left as default - 16777216	Left as default – 1 00 00 00	00	0
CEV58:C.Data[6]			00	0
CEV58:C.Data[7]			01	1
CEV58:C.Data[8]			00	0
CEV58:C.Data[9]	7940	1F04	04	4
CEV58:C.Data[10]			1F	31
CEV58:C.Data[11]	18 000 000 000	4 30E2 3400	00	0
CEV58:C.Data[12]			34	52
CEV58:C.Data[13]			E2	-30 (2's complement of 226)**
CEV58:C.Data[14]			30	48
CEV58:C.Data[15]			04	4
CEV58:C.Data[16]			00	0
CEV58:C.Data[17]			00	0
CEV58:C.Data[18]			00	0
CEV58:C.Data[19]	8192	20 00	00	0
CEV58:C.Data[20]			20	32
CEV58:C.Data[21]			00	0
CEV58:C.Data[22]			00	0
CEV58:C.Data[23]	1	01	01	1
CEV58:C.Data[24]			00	0
CEV58:C.Data[25]			00	0
CEV58:C.Data[26]			00	0
CEV58:C.Data[27]	1	01	01	1
CEV58:C.Data[28]	0	00	00	0
CEV58:C.Data[29]			00	0
CEV58:C.Data[30]			00	0
CEV58:C.Data[31]			00	0

***Note:** Conversion from Hex bytes to decimal bytes is not required if the style was changed to Hex, as recommended.

****Note:** If decimal is still selected as the style, then the 2's complement must be taken for values over 127.

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Unsigned Vs Signed

RSLogix uses signed integers (SINTs, DINTs) which can catch some users off guard. This is general RSLogix behaviour and can't be influenced by an AOI, so this appendix has been included to help the user's understanding.

When the most significant bit of the integer is high, RSLogix will interpret and display this number as a negative. Using SINT as an example:

Binary	RSLogix Value
00000001	1
00000011	3
01111111	127
10000000	-128 (2's complement of 128)
10000001	-127 (2's complement of 129)
10000011	-125 (2's complement of 131)
11111111	-1 (2's complement of 255)

In the example in Appendix Configuration Assembly Mapping Example, the intended value is Hex E2 which translates using a calculator to 226. RSLogix will not actually allow a user to enter 226 into that field, because it is too large to fit in an 8 bit **signed** field. 226 in binary is 11100010. The most significant bit is high. Therefore one would have to use the 2's complement of 226 which is -30 (2's complement help can be found online, and in the example below).

This also applies to DINTs which can be important to understand. For example, if your total measuring range is such that the most significant bit of the Position_LSW could go high (equal to or greater than 2, 147, 483, 648) then eventually your reading could go negative. At reading 2, 147, 483, 647 you'd expect the next reading (if increasing) to be 2, 147, 483, 648, but instead it would be -2, 147, 483, 648 (2's complement of 2, 147, 483, 648). The next reading you'd expect to be 2, 147, 483, 649 which would actually be -2 147 483 647. This is important if you have any logic which depends on readings over 2, 147, 483, 647.

An easy way to calculate the 2's complement of a number in RSLogix using an available tag:

Translate the number (2, 147, 483, 649) to Hex using a calculator.

- Change the Style of a DINT tag in RSLogix to Hex.
- Enter the number into the value column of that tag, in Hex (80 00 00 01).

○

- Then change the Style back to Decimal to reveal the 2's complement.

○

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TR Parameter

If TR = 0:

- Limited to 32 bits
- Configuration Parameter Inputs:
 - Total Measuring Range (<32 Bit)
 - Measuring Units Per Span
- Equation:
 - Number of Revolutions – Numerator (Attr.-ID 102) and Number of Revolutions – Divisor (Attr.-ID 103) will be overwritten in the encoder with a ratio that most closely satisfies:

$$\left(\frac{\text{Number Of Revolutions} - \text{Numerator}}{\text{Number Of Revolutions} - \text{Divisor}} \right) = \text{Measuring Units Per Span} * \text{Total Measuring Range} (< 32 \text{ Bit})$$

- Configuration Parameters Ignored:
 - Total Measuring Range (<64 Bit)
 - Number Of Revolutions – Numerator
 - Number Of Revolutions – Divisor

If TR = 1:

- Limited to 64 bits
- Configuration Parameter Inputs:
 - Total Measuring Range (<64 Bit)
 - Number Of Revolutions – Numerator
 - Number Of Revolutions – Divisor
- Equation:
 - Measuring Units Per Span attribute (Attr.-ID 16) will be overwritten in the encoder:

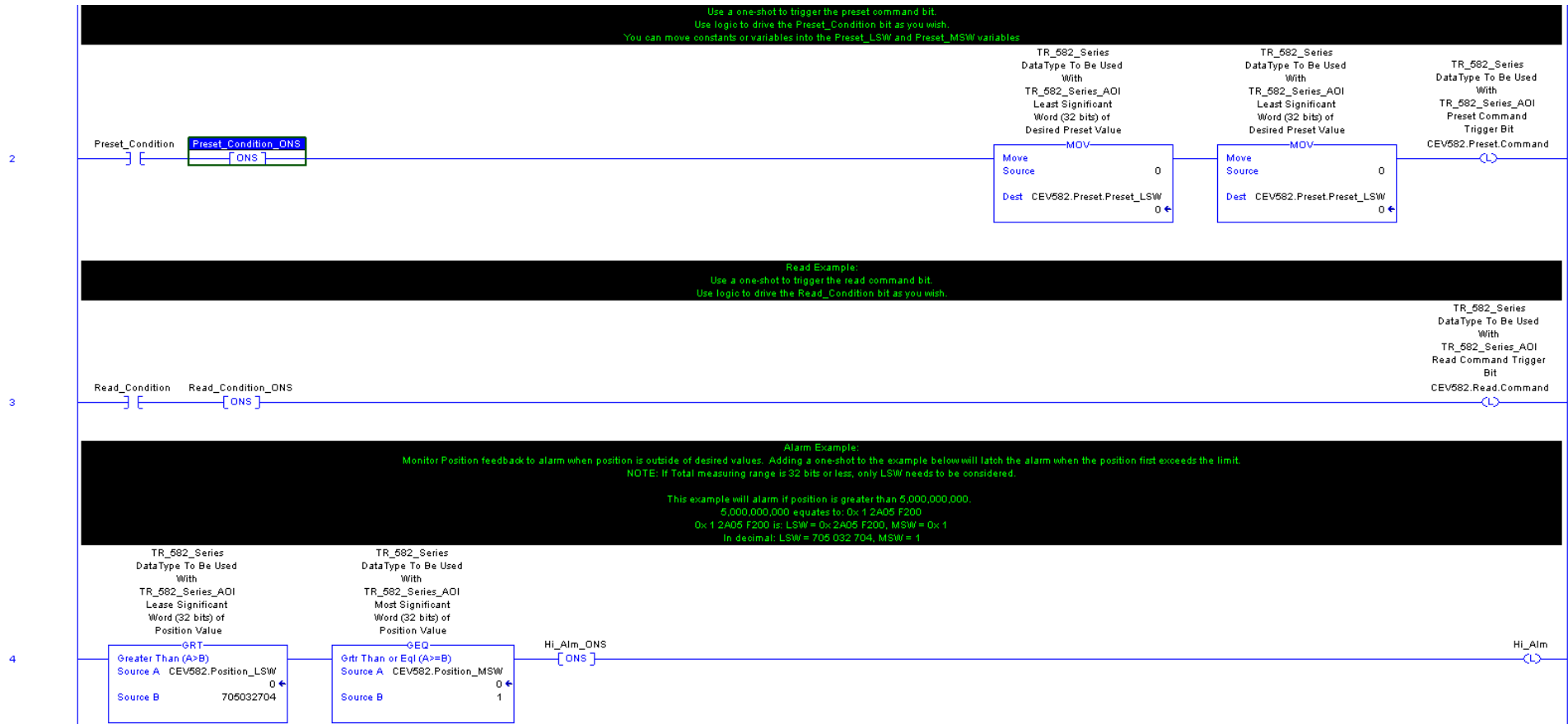
$$\text{Measuring Units Per Span} = \left(\frac{\text{Number Of Revolutions} - \text{Numerator}}{\text{Number Of Revolutions} - \text{Divisor}} \right) * \text{Total Measuring Range} (< 64 \text{ Bit})$$

- Configuration Parameters Ignored:
 - Total Measuring Range (<32 Bit)
 - Measuring Units Per Span

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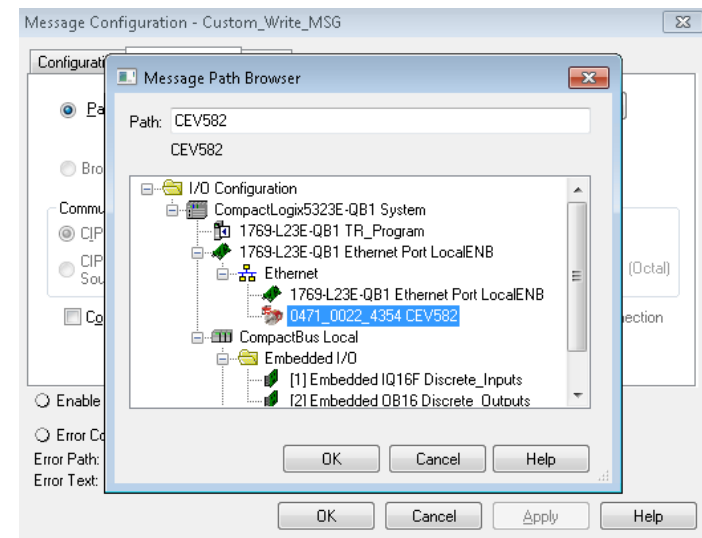
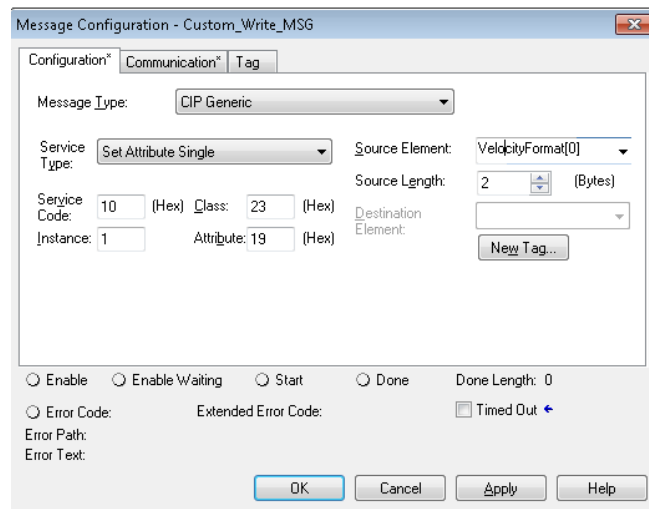
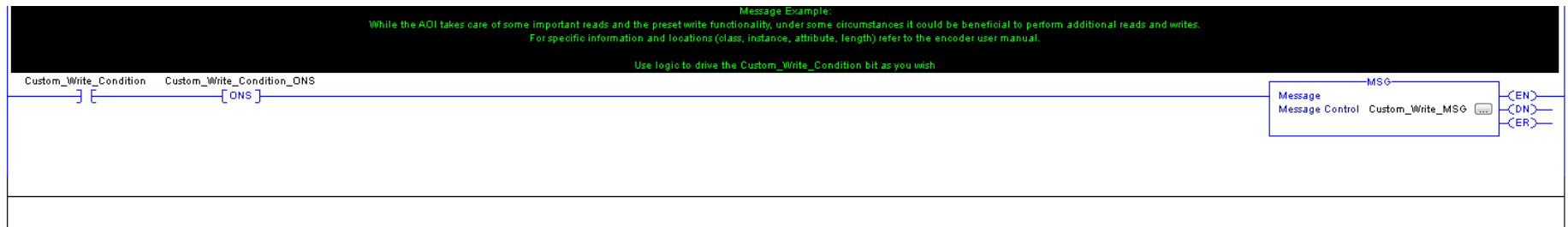
Logic Examples



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5

(End)



Scope: TR_Program Show: All Tags

	Name	Value	Force Ma	Style	Data Type	De
	+ VelocityFormat	{ ... }	{ ... }	Decimal	SINT[2]	

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