A GSV (Get System Value) instruction can be used to determine if a device on the Ethernet IP network is communicating with the PLC. The device is communicating if the value in the DEST address is equal to zero. The device is not communicating if the value in the DEST address is equal to something other than zero.

0

GSV
Get System Value
Class Name Module
Instance Name AMCI_ANA2E
Attribute Name FaultCode
Dest GSV_result
0

The data from the ANA2E is updated asynchronously to the program scan. The following rung ensures that the data from the module does not change in the middle of the ladder logic program by using a CPS (Synchronous Copy) instruction to copy it to the internal tag array ANA2E_buffered_data[0] through ANA2E_buffered_data[9].

It is these buffered registers that your ladder logic program should use when referencing the ANA2E's input data.

1

CPS
Synchronous Copy File
Source AMCI_ANA2E:I.Data[0]
Dest ANA2E_buffered_data[0]
Length 10

The following rung uses two BTD (Bit Distribute) instructions to combine the two 16 bit channel 1 resolver position data into one DINT register. The LSW, input word 3, becomes the lower 16 bits of the DINT value, and the MSW, input word 2, becomes the upper 16 bits of the DINT value.

This rung works for all single and dual resolver transducers, and while not necessary, will still function correctly even if your maximum channel 1 position is less than 32767.

2

BTD
Bit Field Distribute
Source ANA2E_buffered_data[3]
0
Source Bit 0
Dest ANA2E_combined_ch1_position
0
Dest Bit 0
Length 16

BTD
Bit Field Distribute
Source ANA2E_buffered_data[2]
0
Source Bit 0
Dest ANA2E_combined_ch1_position
0
Dest Bit 16
Length 8

The following rung uses two BTD (Bit Distribute) instructions to combine the two 16 bit channel 2 resolver position data into one DINT register. The LSW, input word 7, becomes the lower 16 bits of the DINT value, and the MSW, input word 6, becomes the upper 16 bits of the DINT value.

This rung works for all single resolver transducers, and while not necessary, will still function correctly even if your maximum channel 2 position is less than 32767.

The ANA2E_combined_ch2_position value will always be zero if you have configured the ANA2E to interface to a dual resolver transducer.

3

BTD
Bit Field Distribute
Source ANA2E_buffered_data[7]
0
Source Bit 0
Dest ANA2E_combined_ch2_position
0
Dest Bit 0
Length 16

BTD
Bit Field Distribute
Source ANA2E_buffered_data[6]
0
Source Bit 0
Dest ANA2E_combined_ch2_position
0
Dest Bit 16
Length 8

Set tag ANA2E_Program to 1 to program the ANA2E with its configuration data. This data will automatically be saved in the units memory so will only need to be programmed during setup or calibration.

The Add On Instructions ER bit will be set if any of the parameters are outside of their ranges. Check bits 0 to 3 of input word 0, the ANA2E's Module Status word, for the exact error code.

The AOI's DN bit will be set after the configuration operation has run to completion.

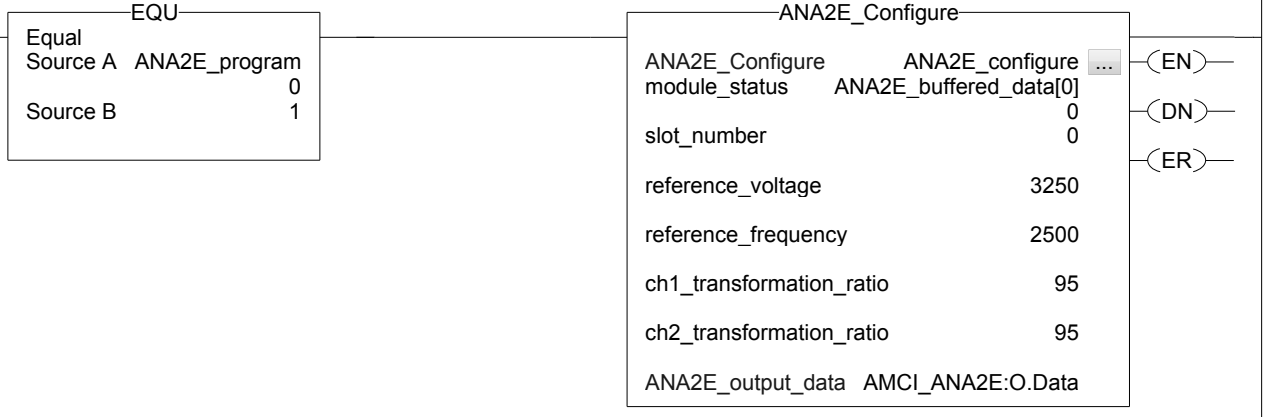
The rung must go from false to true before another programming operation can be performed.

The Slot_Number input parameter has a range of 0 to 5 and defines where in the AnyNet I/O stack the ANA2E is located. A value of 0 indicates that all of the switches of the ANA2E are off and that it is handling the communication. A value of 1 indicates that switch 1 is on and switches 2 through 5 are off, up to a value of 5 indicating that switch 5 is on and switches 1 to 4 are off.

Tag ANA2E_Program is only an internal tag used to illustrate how the rung must go from false to true to send data to the ANA2E, and is set by either manually typing the number into the register or having your ladder logic move a value into the register. IT IS NOT NECESSASRY TO USE THIS TAG OR AN EQUAL INSTRUCTION TO SEND COMMANDS TO THE AMCI ANA2E. You can replace it with any other condition that makes the rung true, such as a push button on a HMI terminal.

1=program config data
2=program ch1 single resolver setup
3=program ch2 single resolver setup
4=program AMCI dual resolver setup
5=manual measurement mode
6=allow automatic measurement mode

4



Set tag ANA2E_Program to 2 to program the channel 1 single resolver setup data. This data will automatically be saved in the units memory so will only need to be programmed during setup or calibration.

The Add On Instructions ER bit will be set if any of the parameters are outside of their ranges. Check bits 0 to 3 of input word 0, the ANA2E's Module Status word, for the exact error code.

The AOI's DN bit will be set after the setup operation has run to completion.

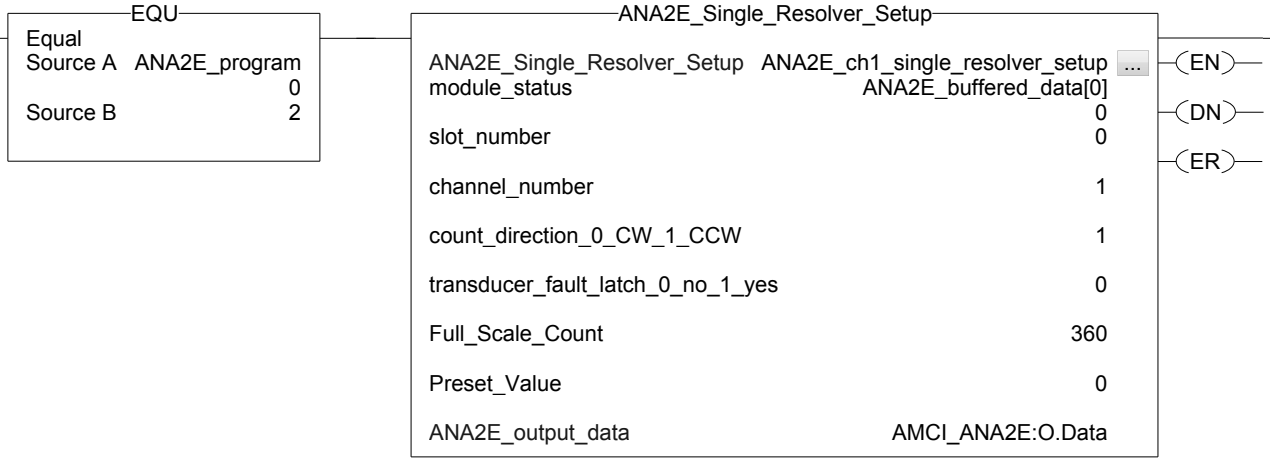
The rung must go from false to true before another programming operation can be performed.

The Slot_Number input parameter has a range of 0 to 5 and defines where in the AnyNet I/O stack the ANA2E is located. A value of 0 indicates that all of the switches of the ANA2E are off and that it is handling the communication. A value of 1 indicates that switch 1 is on and switches 2 through 5 are off, up to a value of 5 indicating that switch 5 is on and switches 1 to 4 are off.

Tag ANA2E_Program is only an internal tag used to illustrate how the rung must go from false to true to send data to the ANA2E, and is set by either manually typing the number into the register or having your ladder logic move a value into the register. IT IS NOT NECESSASRY TO USE THIS TAG OR AN EQUAL INSTRUCTION TO SEND COMMANDS TO THE AMCI ANA2E. You can replace it with any other condition that makes the rung true, such as a push button on a HMI terminal.

1=program config data
2=program ch1 single resolver setup
3=program ch2 single resolver setup
4=program AMCI dual resolver setup
5=manual measurement mode
6=allow automatic measurement mode

5



Set tag ANA2E_Program to 3 to program the channel 2 single resolver setup data. This data will automatically be saved in the units memory so will only need to be programmed during setup or calibration.

The Add On Instructions ER bit will be set if any of the parameters are outside of their ranges. Check bits 0 to 3 of input word 0, the ANA2E's Module Status word, for the exact error code.

The AOI's DN bit will be set after the setup operation has run to completion.

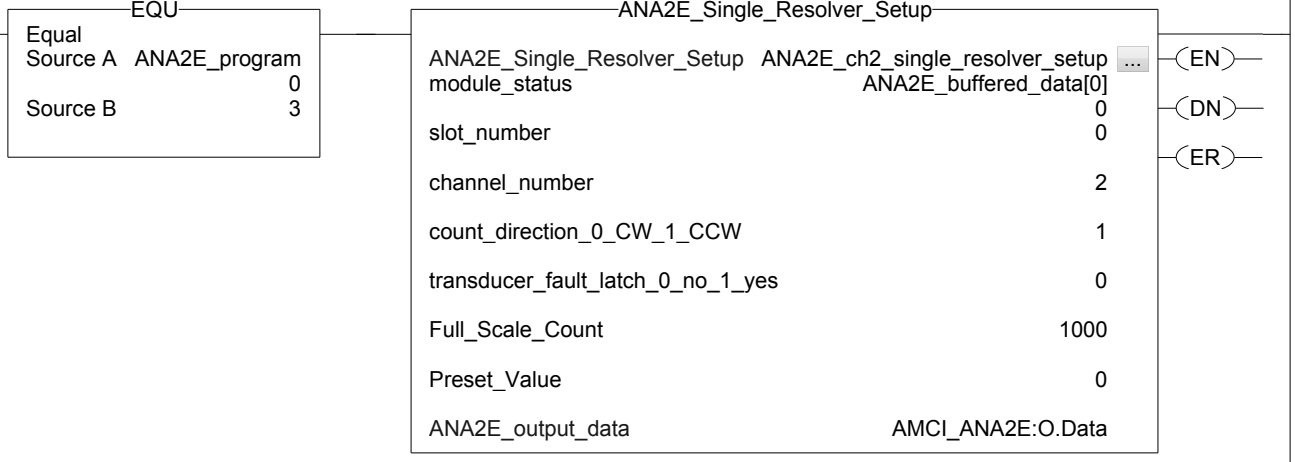
The rung must go from false to true before another programming operation can be performed.

The Slot_Number input parameter has a range of 0 to 5 and defines where in the AnyNet I/O stack the ANA2E is located. A value of 0 indicates that all of the switches of the ANA2E are off and that it is handling the communication. A value of 1 indicates that switch 1 is on and switches 2 through 5 are off, up to a value of 5 indicating that switch 5 is on and switches 1 to 4 are off.

Tag ANA2E_Program is only an internal tag used to illustrate how the rung must go from false to true to send data to the ANA2E, and is set by either manually typing the number into the register or having your ladder logic move a value into the register. IT IS NOT NECESSASRY TO USE THIS TAG OR AN EQUAL INSTRUCTION TO SEND COMMANDS TO THE AMCI ANA2E. You can replace it with any other condition that makes the rung true, such as a push button on a HMI terminal.

1=program config data
2=program ch1 single resolver setup
3=program ch2 single resolver setup
4=program AMCI dual resolver setup
5=manual measurement mode
6=allow automatic measurement mode

6



Set tag ANA2E_Program to 4 to program the ANA2E with the setup data for one AMCI dual resolver transducer. This data will automatically be saved in the units memory so will only need to be programmed during setup or calibration.

The Add On Instructions ER bit will be set if any of the parameters are outside of their ranges. Check bits 0 to 3 of input word 0, the ANA2E's Module Status word, for the exact error code.

The AOI's DN bit will be set after the setup operation has run to completion.

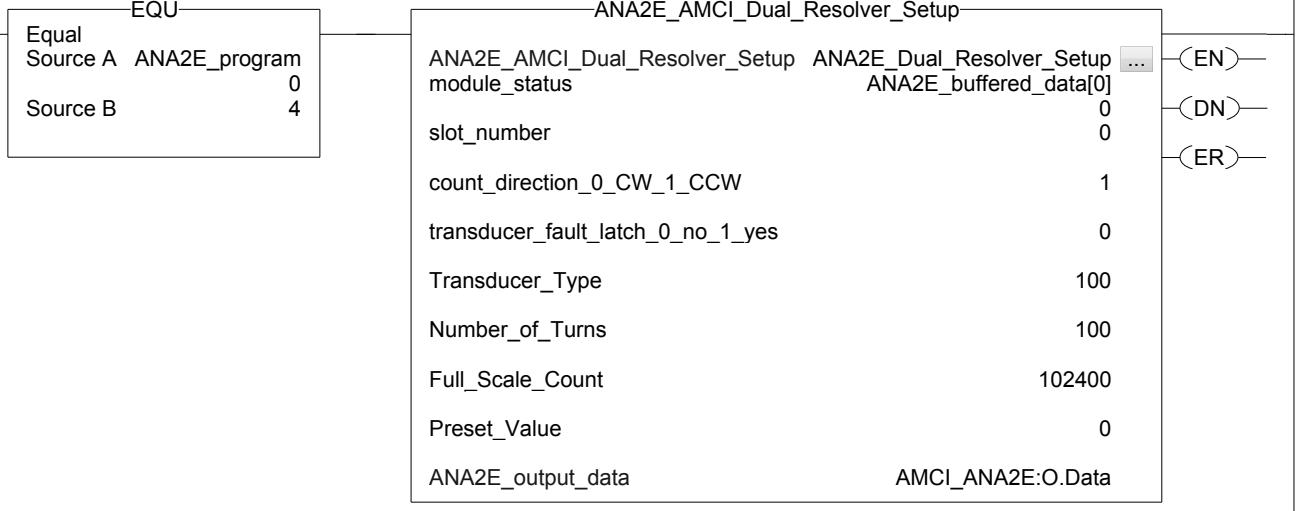
The rung must go from false to true before another programming operation can be performed.

The Slot_Number input parameter has a range of 0 to 5 and defines where in the AnyNet I/O stack the ANA2E is located. A value of 0 indicates that all of the switches of the ANA2E are off and that it is handling the communication. A value of 1 indicates that switch 1 is on and switches 2 through 5 are off, up to a value of 5 indicating that switch 5 is on and switches 1 to 4 are off.

Tag ANA2E_Program is only an internal tag used to illustrate how the rung must go from false to true to send data to the ANA2E, and is set by either manually typing the number into the register or having your ladder logic move a value into the register. IT IS NOT NECESSASRY TO USE THIS TAG OR AN EQUAL INSTRUCTION TO SEND COMMANDS TO THE AMCI ANA2E. You can replace it with any other condition that makes the rung true, such as a push button on a HMI terminal.

1=program config data
2=program ch1 single resolver setup
3=program ch2 single resolver setup
4=program AMCI dual resolver setup
5=manual measurement mode
6=allow automatic measurement mode

7



Set tag ANA2E_Program to 5 to perform one or more of the following functions.

1. Enable Measurement Mode on channel 1 and or channel 2.
2. Disable Measurement Mode on channel 1 and or channel 2.
3. Enable or Disable the channel LEDs.
4. Apply the Preset of channel 1 or channel 2.
5. Store position offsets, generated by setting one of the Apply Preset bits, in flash memory.
6. Clear latched Transducer Faults.

The Add On Instruction's ER bit will be set by an invalid command. Check bits 0 to 3 of input word 0, the ANA2E's Module Status word, for the exact error code.

The AOI's DN bit will be set after the setup operation has run to completion.

The rung must go from false to true before another programming operation can be performed.

The Slot_Number input parameter has a range of 0 to 5 and defines where in the AnyNet I/O stack the ANA2E is located. A value of 0 indicates that all of the switches of the ANA2E are off and that it is handling the communication. A value of 1 indicates that switch 1 is on and switches 2 through 5 are off, up to a value of 5 indicating that switch 5 is on and switches 1 to 4 are off.

Tag ANA2E_Program is only an internal tag used to illustrate how the rung must go from false to true to send data to the ANA2E, and is set by either manually typing the number into the register or having your ladder logic move a value into the register. IT IS NOT NECESSASRY TO USE THIS TAG OR AN EQUAL INSTRUCTION TO SEND COMMANDS TO THE AMCI ANA2E. You can replace it with any other condition that makes the rung true, such as a push button on a HMI terminal.

1=program config data
2=program ch1 single resolver setup
3=program ch2 single resolver setup
4=program AMCI dual resolver setup
5=manual measurement mode
6=allow automatic measurement mode

8

EQU
Equal
Source A ANA2E_program
0
Source B 5

Manual_Measurement_Mode_Apply_Preset

Manual_Measurement_Mode_Apply_Pres...	ANA2E_manual_measurement_mode	...
module_status	ANA2E_buffered_data[0]	
	0	
slot_number	0	
enable_ch1_or_multiturn_0_no_1_yes	1	
disable_ch1_LED_0_no_1_yes	0	
enable_ch2_0_no_1_yes	1	
disable_ch2_LED_0_no_1_yes	0	
Apply_preset_ch1_0_no_1_yes	0	
Apply_preset_ch2_0_no_1_yes	0	
Save_Offset_in_flash_0_no_1_yes	0	
clear_tranducer_faults_0_no_1_yes	0	
ANA2E_output_data	AMCI_ANA2E:O.Data	

EN
DN
ER

The ANA2E does not power up reporting the resolver position data to the network. If enabled, the following rung will, based on status bits from the ANA2E unit, automatically enable the selected channel(s).

This rung must be false when any other programming operation is occurring.

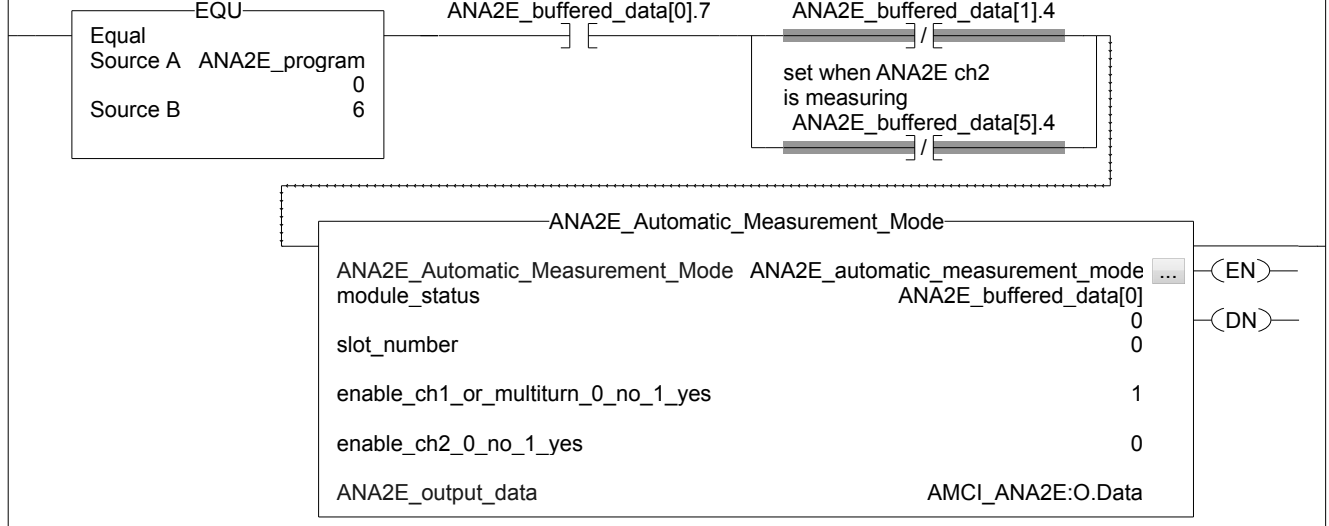
The rung must go from false to true before another enabling operation can be performed.

The Slot_Number input parameter has a range of 0 to 5 and defines where in the AnyNet I/O stack the ANA2E is located. A value of 0 indicates that all of the switches of the ANA2E are off and that it is handling the communication. A value of 1 indicates that switch 1 is on and switches 2 through 5 are off, up to a value of 5 indicating that switch 5 is on and switches 1 to 4 are off.

Tag ANA2E_Program is only an internal tag used to illustrate how the rung must go from false to true to send data to the ANA2E, and is set by either manually typing the number into the register or having your ladder logic move a value into the register. IT IS NOT NECESSASRY TO USE THIS TAG OR AN EQUAL INSTRUCTION TO SEND COMMANDS TO THE AMCI ANA2E. You can replace it with any other condition that makes the rung true, such as a push button on a HMI terminal.

1=program config data
2=program ch1 single resolver setup
3=program ch2 single resolver setup
4=program AMCI dual resolver setup
5=manual measurement mode
6=allow automatic measurement mode

9



Version 1 was released on 10/24/2014. Removed the transmit bit set in the programming data, and replaced it with Latch / Unlatch instructions in the logic. Also added details to the comments.

Version 2 was released on 6/10/2021. Replaced the configure and setup subroutines with Add On Instructions and removed the align routine. Also added logic to automatically enter measurement mode.

10

(End)