PLC210 Lab 6: Data Types in ControlLogix

Upon completion of this lab, the student should be able to:

1. Determine the number of bits in various data types
2. Explain how the MOV instruction moves data between different data types
3. Monitor the bits within a data Tag
4. Explain how ControlLogix rounds off the data from a REAL data type
5. Explain the rounding of a X.5 value to the nearest even number

Download the project Compact_Module_4_Ex1_Atomic.ACD, go Online and put the CompactLogix into the Run mode to do the following lab.

The I/O tag names in this lab may need to be changed to match the addresses on your hardware trainer.

Figure 1. Different data types within the ladder logic.
1. On rung 0:
   What is the Data Type for the Source Tag? ______________
   How many bits comprise the Source Tag? ______________

   What is the Data Type for the Dest Tag? ______________
   How many bits comprise the Dest Tag? ______________
   On rung 0, change the Source tag value from 0 to 32.
   What value appears in the Dest tag? ____________

   Change the Source tag value to 300.
   What value appears in the Dest tag? ____________
   Explain the problem:

2. On rung 1:
   What is the Data Type for the Source Tag? ______________
   How many bits comprise the Source Tag? ______________

   What is the Data Type for the Dest Tag? ______________
   How many bits comprise the Dest Tag? ______________

   On rung 1, change the Source tag value from 0 to 300
   What value appears in the Dest tag? ______________

   Change the Source tag value to 40,000
   What value appears in the Dest tag? ____________
   Explain:
3. On rung 2:
   What is the Data Type for the Source Tag? ______________
   How many bits comprise the Source Tag? ______________

   What is the Data Type for the Dest Tag? ______________
   How many bits comprise the Dest Tag? ______________

   On rung 2, change the Source tag value from 0 to 255.
   What value appears in the Dest tag? ______________
   Explain:

4. On rung 3:
   What is the Data Type for the Source Tag? ______________
   How many bits comprise the Source Tag? ______________

   What is the Data Type for the Dest Tag? ______________
   How many bits comprise the Dest Tag? ______________

   On rung 3, change the Source tag value from 0 to 6.5.
   What value appears in the Dest tag? ______________

   On rung 3, change the Source tag value to 7.5.
   What value appears in the Dest tag? ______________
   Explain:

5. On rung 4:
What is the Data Type for the Source Tag? ____________
How many bits comprise the Source Tag? ____________

What is the Data Type for the Dest Tag? ____________
How many bits comprise the Dest Tag? ____________

On rung 4, change the Source tag value from 0 to 23.
What value appears in the Dest tag? ____________

On rung 4, change the Source tag value to 2,147,000,000.
What value appears in the Dest tag? ____________
Explain:

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