

ET 438b
PLC Addressing

- 1.) The figure below represents an output status file. In the column at the far right, list the address if there were output modules in the following slots on the PLC chassis: 2, 5, 6.

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Addr.
1	0	1	1	0	0	0	1	0	1	1	1	1	1	0	0	
1	0	1	0	0	1	0	0	0	0	1	1	1	0	1	1	
1	1	0	1	0	0	1	1	0	0	1	0	0	0	1	0	
0	1	0	1	1	0	0	0	1	0	0	1	0	0	0	1	

- 2.) The figure below represents a input status file for a PLC. In the column on the far right enter the address if there were input modules in the following slots of the PLC chassis: 1, 3, 4, 5

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Addr.
1	0	1	1	0	0	0	1	0	1	1	1	1	1	0	0	
1	0	1	0	0	1	0	0	0	0	1	1	1	0	1	1	
1	1	0	1	0	0	1	1	0	0	1	0	0	0	1	0	
0	1	0	1	1	0	0	0	1	0	0	1	0	0	0	1	

3.)The following memory map shows a bit file for a typical PLC. Determine the value of the bit contained in the given addresses

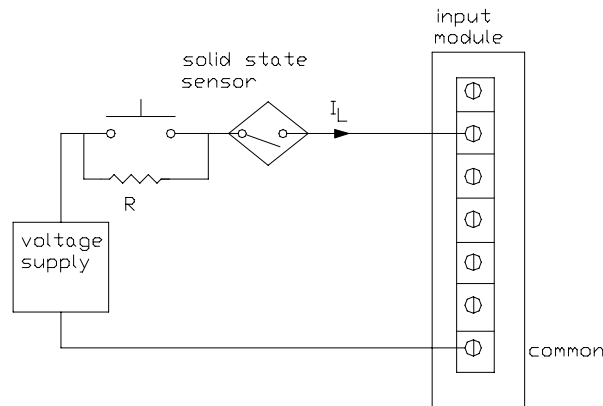
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	element
1	0	1	1	0	0	0	1	0	1	1	1	1	1	0	0	B3:156
1	0	1	0	0	1	0	0	0	0	1	1	1	0	1	1	B3:157
1	1	0	1	0	0	1	1	0	0	1	0	0	0	1	0	B3:158
0	1	0	1	1	0	0	0	1	0	0	1	0	0	0	1	B3:159
0	1	1	0	1	0	1	1	1	0	0	1	1	0	0	1	B3:160
1	0	0	1	1	1	0	0	0	1	0	0	0	1	1	0	B3:161
1	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	B3:162

- a.) B3:156/12 _____
- b.) B3:156/9 _____
- c.) B3:158/15 _____
- d.) B3:159/0 _____
- e.) B3:160/2 _____
- f.) Bit 14 element 157 _____
- g.) Bit 3 element 156 _____

4.) The data type identifier for integer values in Allen-Bradley PLCs is _____

5.) For the circuit shown below, a sourcing 24 Vdc input module is used with a sinking solid state sensor. The sensor must draw 2.7 mA to be in the on state. The maximum off state current of the input card is 4.5 mA.

- a.) Indicate the correct polarity for the dc supply.
- b.) Size the resistor shown to keep the sensor energized even when contracts are open.



- 6.) In the figure shown below, the maximum off current of the ac input card is 2.5 mA when energized by the rated value of 120 V ac. An ac solid state sensor is to be connected to the ac input card and must pass 4.5 mA to be in the active state.
- find the equivalent resistance of the ac input point when the card is in the off state.
 - determine the resistance of a bleeder resistor that will keep the sensor energized but will not activate the input card.

