

Cyber-Physical Industrial Systems

MODULE 2 SESSION 1

CHOOSE OR DESIGN THE NEEDED ELECTRONICS

LECTURER NOTES

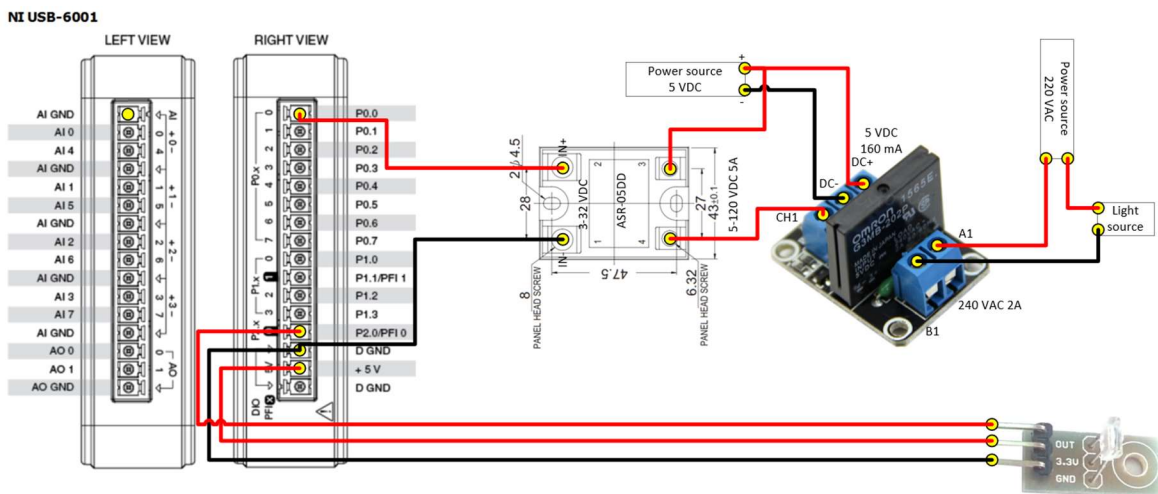
Based on the system's diagram and on the existing transducers' datasheets, ask the students to develop a general schematic of the whole electronic measurement circuit.

For drawing the general schematic, it is recommended to use Microsoft Visio, but also Microsoft PowerPoint or free online software like TinkerCAD can be used.

It is recommended to perform the following steps:

1. Place in the drawing a figure for each transducer;
2. On a transducer's figure, place dots representing the power and the signal terminals (use the same terminal colors for all the components in the schematics);
3. According to the voltage needed for powering each component:
 - a. Choose the appropriate power source and place its figure in the schematic;
 - b. Place dots on the power sources terminals;
 - c. Check if a power source can be used for supplying more transducers, checking the total needed current;
 - d. Use connectors to connect the power sources to the transducers;
4. Place a figure of the data acquisition (DAQ) board or of its terminals;
5. Decide which channels of the DAQ board are needed for measuring the transducers' signals;
6. Place dots on the DAQ board terminal and connect them to the transducers' signal terminals;
7. If higher voltages are needed for controlling certain components, choose the appropriate relays and place their figures in the schematic;

Example picture 1:



Example picture 2:

