

Homework # 10

Sensors

1. Select a sensor you would like to study.
2. Describe which physical parameters are measured by the sensor. (5p)
3. Indicate type of the physical transformation employed by the sensor. (5p)
4. Include illustration or description of the sensing mechanism and a photo of the sensor. (15p)
5. Discuss parameters and characteristics of the selected sensor. (25p)
This includes:
 - a. Sensitivity
 - b. Stability
 - c. Accuracy
 - d. Range of the input value (FS)
 - e. Full scale output (FSO)
 - f. Resolution
 - g. Selectivity
 - h. Speed of response
 - i. Saturation and overload characteristics
 - j. Hysteresis
 - k. Nonlinearity error (Linearity)
 - l. Repeatability or reproducibility
 - m. Dead band
 - n. Excitation requirements
 - o. Power requirements
 - p. Output impedance
 - q. Output format
 - r. Environmental conditions
 - s. Operating life
 - t. Size and weight
 - u. Cost
6. Identify advantages and disadvantages (limitations) of using the selected sensor. (10p)
7. Provide an electrical connection diagram for the sensor. (20p)
8. List manufacturers of the sensor (3 companies). (9p)
9. List examples of practical applications of the sensor. (11p)