Transducer meaning

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A transducer is a device that converts energy from one form to another. Usually a transducer converts a signal in one form of energy to a signal in another.[1]Transducers are often employed at the boundaries of automation, measurement, and control systems, where electrical signals are converted to and from other physical quantities (energy, force, torque, light, motion, position, etc.). The process of converting one form of energy to another is known as transduction.[2]

Transducers can be categorized by the direction information passes through them:

Passive transducers require an external power source to operate, which is called an excitation signal. The signal is modulated by the sensor to produce an output signal. For example, a thermistor does not generate any electrical signal, but by passing an electric current through it, its resistance can be measured by detecting variations in the current or voltage across the thermistor.[5][2]

Active transducers in contrast, generate electric current in response to an external stimulus which serves as the output signal without the need of an additional energy source. Such examples are a photodiode, and a piezoelectric sensor, photovoltic, thermocouple.[5]

Some specifications that are used to rate transducers:

Electromechanical input feeds meters and sensors, while electromechanical output devices are generically called actuators):

Also known as photoelectric:

Britannica : Encyclopedia article about transducer

We know that energy can transform from one form to another. On top of that, a signal can change from one state to another.

Parts and Working of Transducer

Electrical Transducer

Mechanical Transducer

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