Difference between Sensor and Actuator

Sensor

Sensor is a device used for the conversion of physical events or characteristics into electrical signals. This is a hardware device that takes the input from the environment and gives to the system by converting it.

Actuator

Actuator is a device that converts the electrical signals into the physical events or characteristics. It takes the input from the system and gives output to the environment. For example, motors and heaters are some of the commonly used actuators.

Difference between Sensor and Actuator

Sensor	Actuator
It converts physical characteristics into electrical signals.	It converts electrical signals into physical characteristics.
It takes input from the environment.	It takes input from the output conditioning unit of the system.
It gives output to the input conditioning unit of the system.	It gives output to the environment.
Sensor generates electrical signals.	Actuator generates heat or motion.
It is placed at the input port of the system.	It is placed at the output port of the system.
It is used to measure the physical quantity.	It is used to measure the continuous and discrete process parameters.
It gives information to the system about the environment.	It accepts commands to perform a function.
Example: Photo-voltaic cell which converts light energy into electrical energy.	Example: Stepper motor where electrical energy drivers the motor.