



FACULTY OF ENGINEERING & TECHNOLOGY

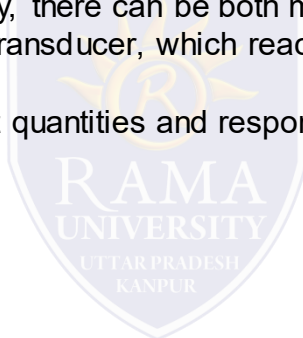
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1. Mechanical Transducers

Mechanical transducers are a set of primary sensing elements that respond to changes in a physical quantity with a mechanical output. The output mechanical quantity can be anything like displacement, force (or torque), pressure and strain. For any measuring quantity, there can be both mechanical and electrical transducers.

Example. a Bimetallic Strip is a mechanical Transducer, which reacts to changes in temperature and responds with mechanical displacement.

Mechanical transducers for measuring different quantities and responds with mechanical signal.



Quantity to be Measured	Mechanical Transducer	Type of Output Signal (Mechanical)
Temperature	Bimetallic Strip	Displacement and Force
	Fluid Expansion	Displacement and Force
Pressure	Ring Balance Manometer	Displacement
	Metallic Diaphragms	Displacement and Strain
	Capsules and Bellows	Displacement
	Membranes	Displacement
Force	Spring Balance	Displacement and Strain
	Hydraulic Load Cell	Pressure
	Column Load Cell	Displacement and Strain
Torque	Dynamometer	Force and Strain
	Gyroscope	Displacement
	Spiral Springs	Displacement
	Torsion Bar	Displacement and Strain
Flow Rate	Flow Obstruction Element	Strain and Pressure
	Pitot Tube	Pressure
	Manometer	Displacement

TRANSDUCERS

Electrical Transducers

Electrical transducers are those that respond to changes in physical quantities with electrical outputs. Electrical Transducers are further divided into Passive Electrical Transducers and Active Electrical Transducers.

The following table lists out a few electrical transducers (both passive and active).

Electrical Transducers	Resistive Transducers	Resistance Thermometers
		Resistive Displacement Transducers
		Resistive Strain Transducers
		Resistive Pressure Transducers
		Resistive Moisture Transducers
	Capacitive Transducers	Capacitive Moisture Transducers
		Capacitive Displacement Transducers
		Capacitive Thickness Transducers
	Inductive Transducers	Inductive Displacement Transducers
		Inductive Thickness Transducers
		Eddy-Current Inductive Transducers
		Moving core Inductive Transducers