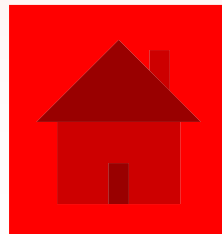


Electrode transducers



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Electrode transducer

[pengertian](#)

[Wheatstone bridge](#)

[Syarat transducer](#)

[klasifikasi](#)

[surface](#)

[thermal](#)

[capacitive](#)

[inductive](#)

[Strain gauges](#)

[EXIT](#)

Definisi transduser/sensor

• **William D.C, (1993)**

transduser adalah sebuah alat yang bila digerakan oleh suatu energi di dalam sebuah sistem transmisi, akan menyalurkan energi tersebut dalam bentuk yang sama atau dalam bentuk yang berlainan ke sistem transmisi berikutnya". Transmisi energi ini bisa berupa listrik, mekanik, kimia, optic (radiasi) atau thermal (panas).

• **D Sharon, dkk (1982)**

sensor adalah suatu peralatan yang berfungsi untuk mendeteksi gejala-gejala atau sinyal-sinyal yang berasal dari perubahan suatu energi seperti energi listrik, energi fisika, energi kimia, energi biologi, energi mekanik dan sebagainya..



Peryaratan Umum Sensor dan Transduser

- *Linearitas*
- *Sensitivitas*
- *Tanggapan Waktu*

menu

Klasifikasi Sensor

- a. sensor thermal (panas)
- b. sensor mekanis
- c. sensor optik (cahaya)

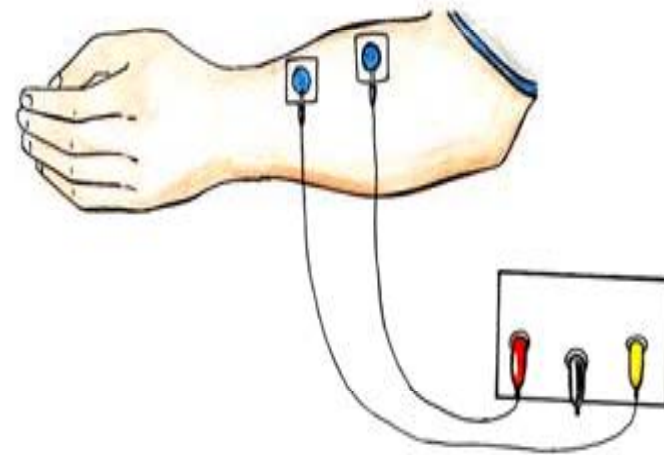
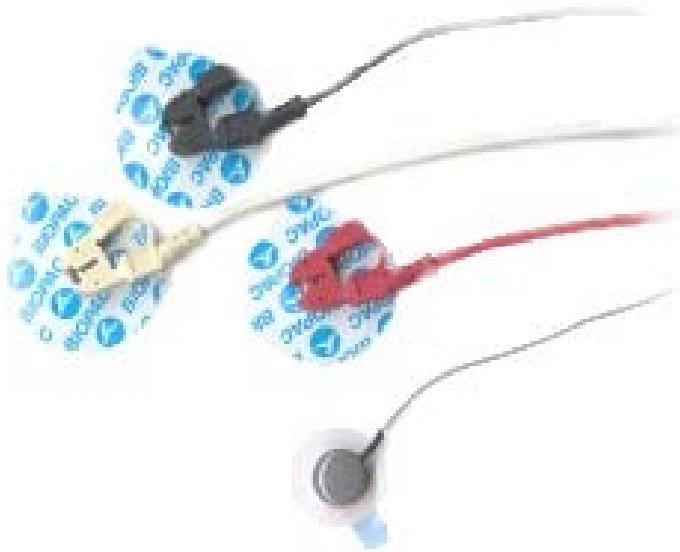


Klasifikasi Transduser

- *Self generating transduser* (transduser pembangkit sendiri)
- *External power transduser* (transduser daya dari luar)

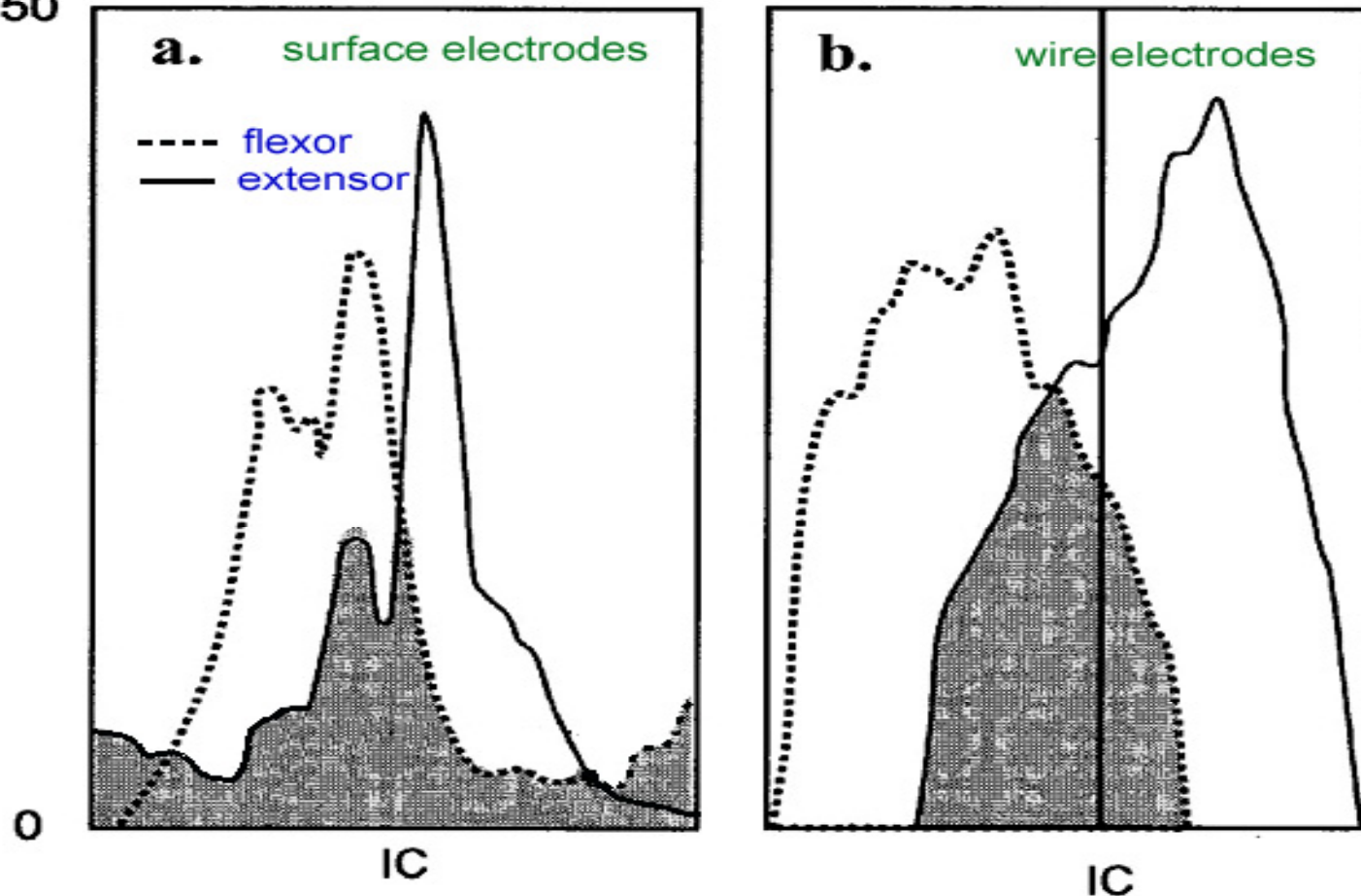


Surface electroda

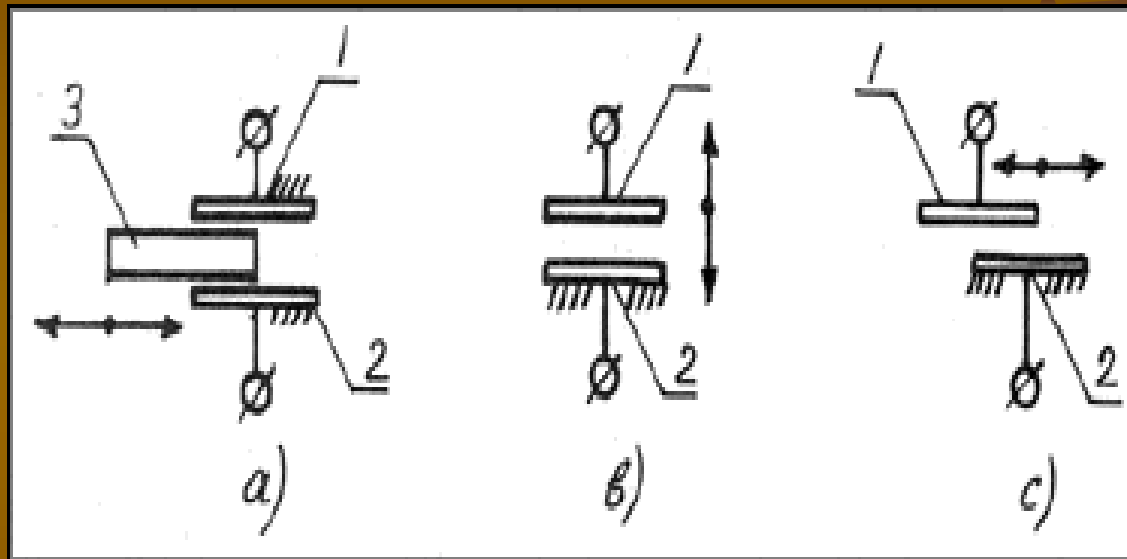


Contoh hasil pengukurannya

50



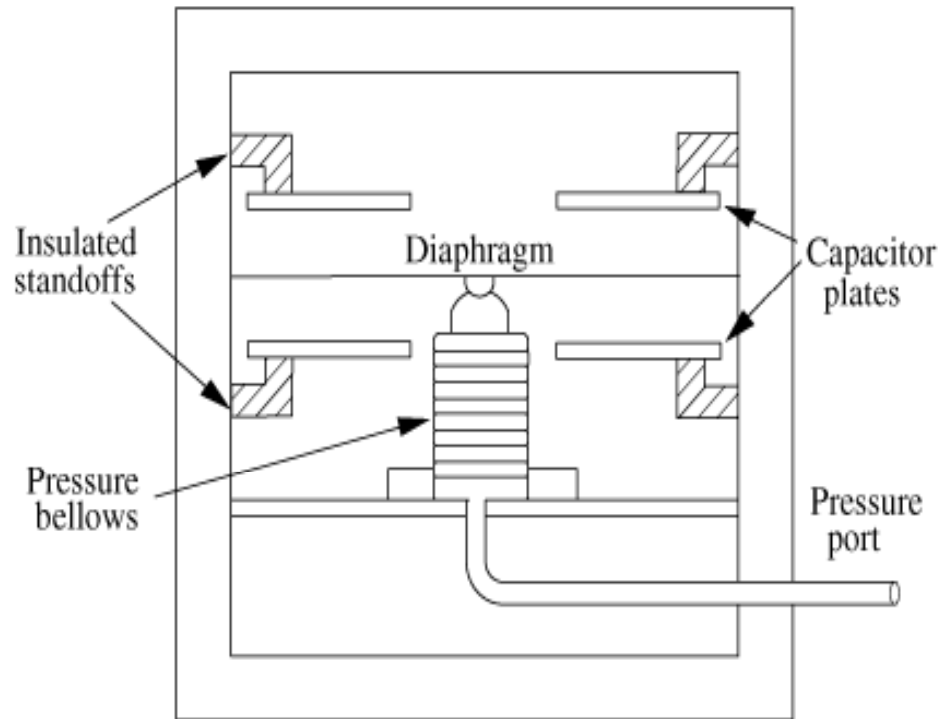
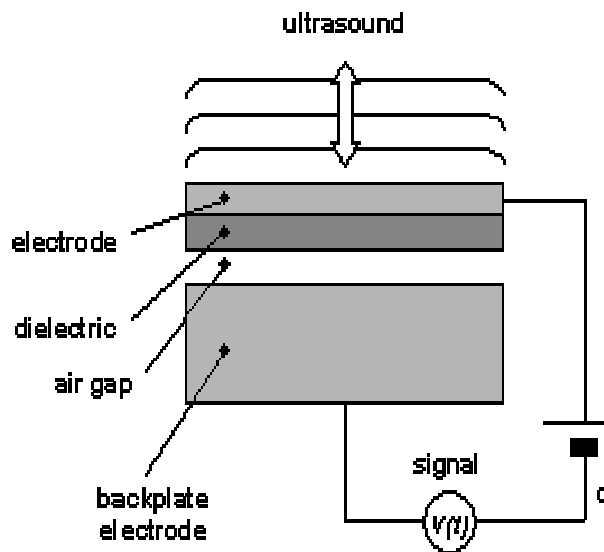
Capasitif tranduser



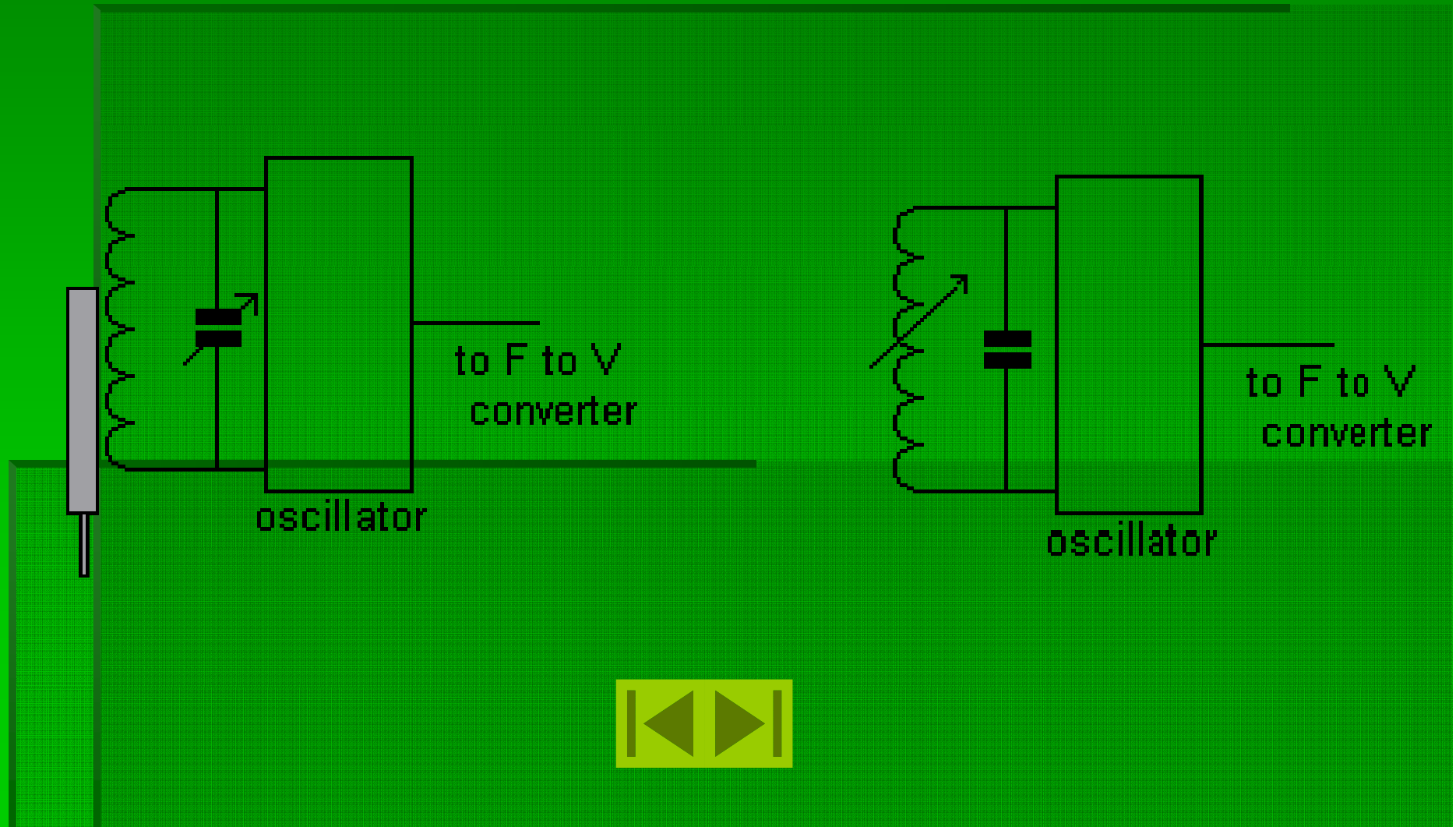
1 dan 2= plat kapasitor, 3= dielektrikum

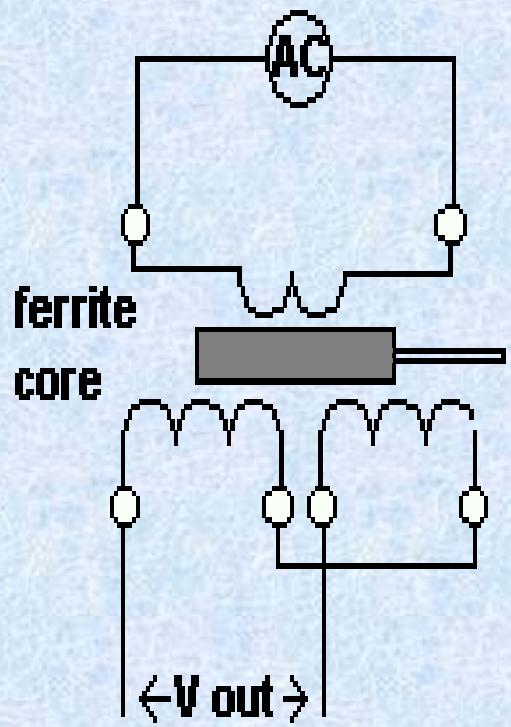


aplikasi

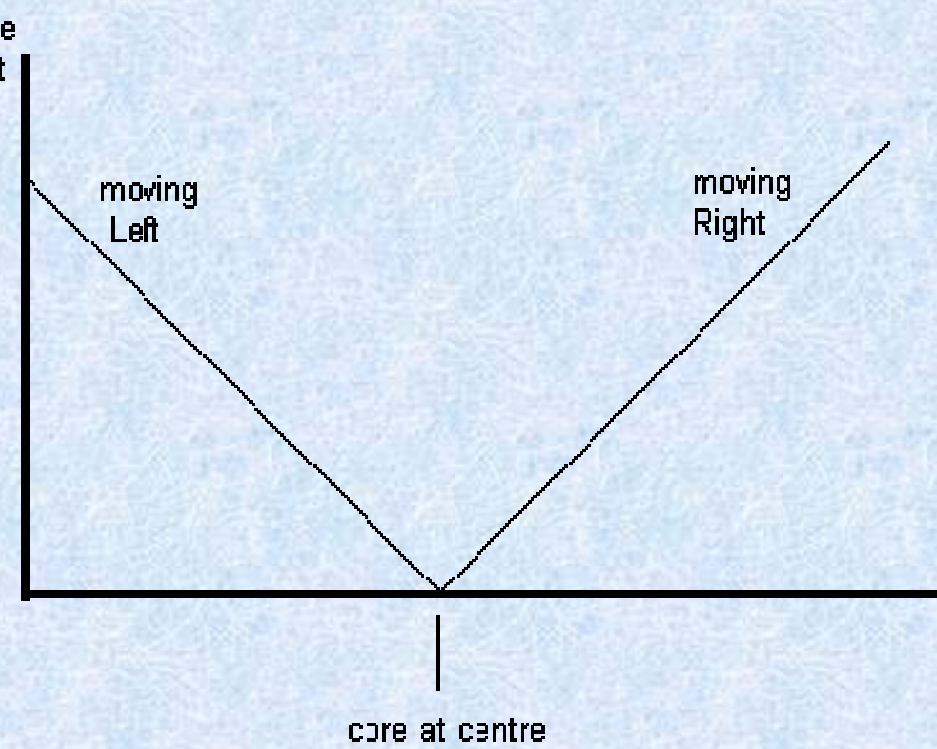


Induktif tranduser

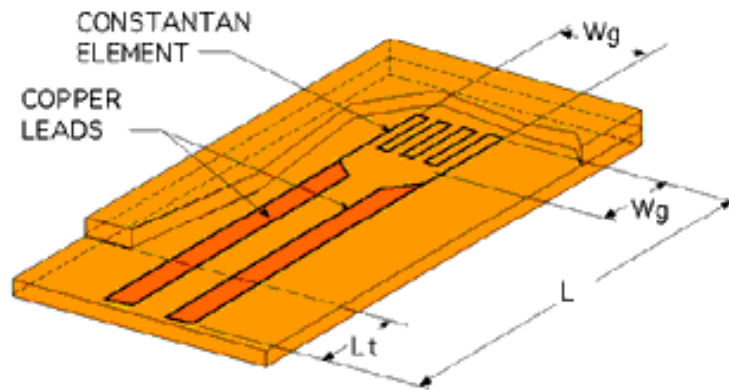




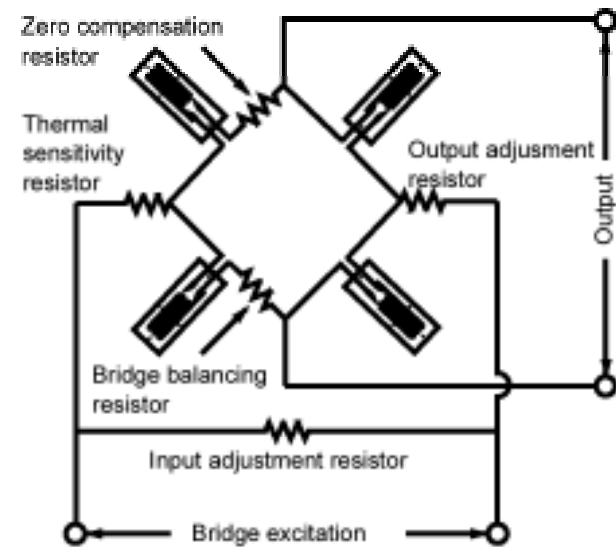
movement



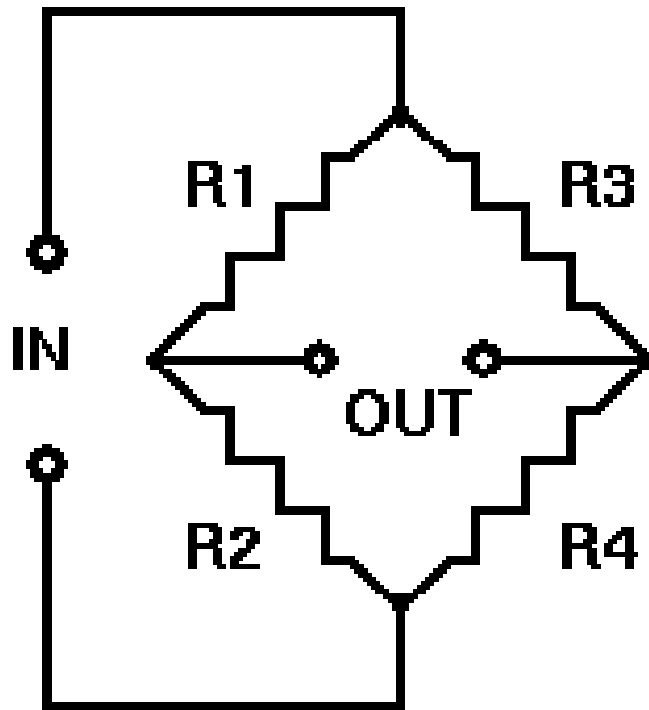
STRAIN GAUGES



UNIAXIAL CONSTANTAN STRAIN GAUGE

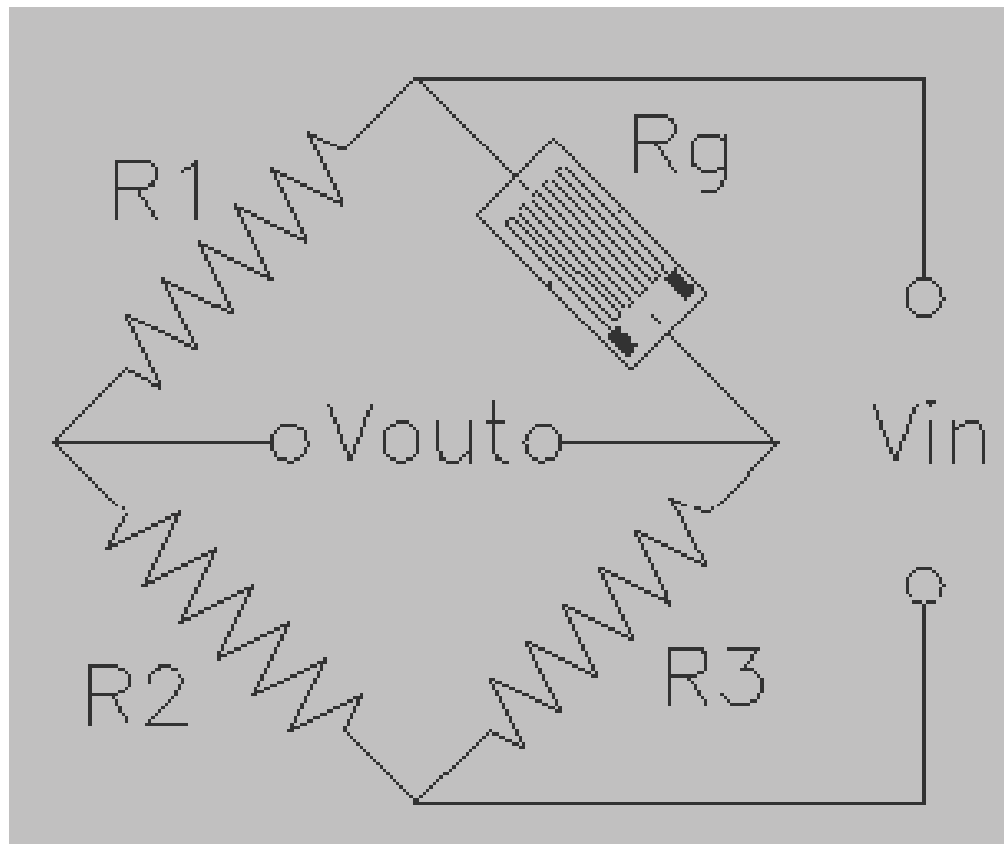


Jembatan wheatstone



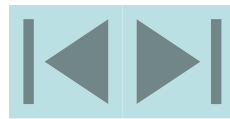
$$R1/R2 = R3/R4$$



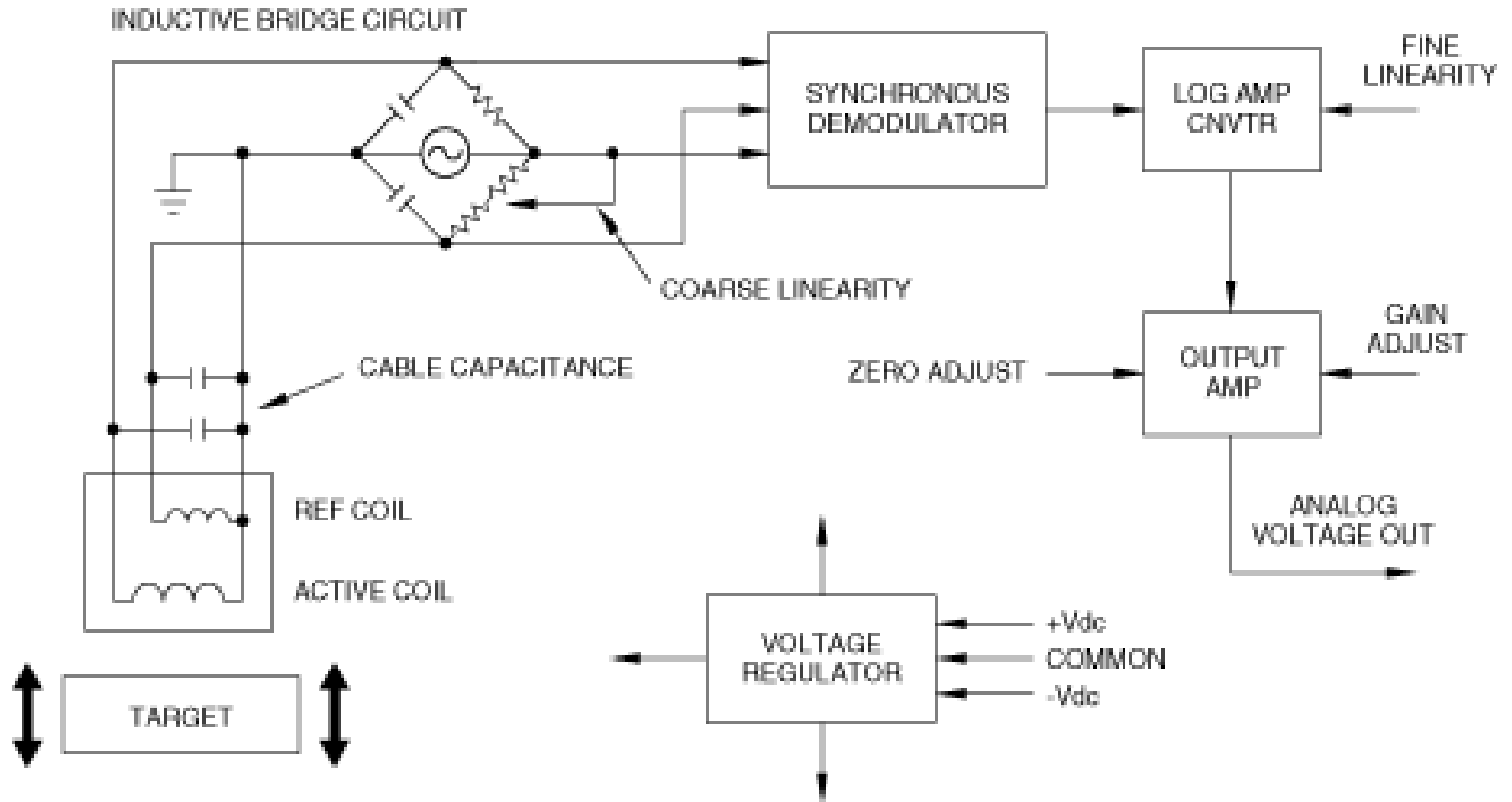


$$\frac{R_1}{R_3} = \frac{R_{gage}}{R_3}$$

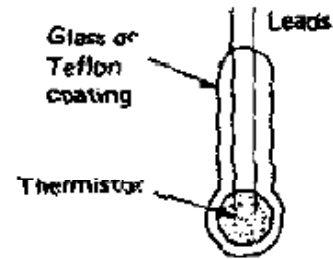
$$V_{out} = V_{in} \left(\frac{R_1}{R_1 + R_2} - \frac{R_{gage}}{R_{gage} + R_3} \right)$$



INDUCTIVE BRIDGE MEASURING SYSTEMS



Thermal transducer



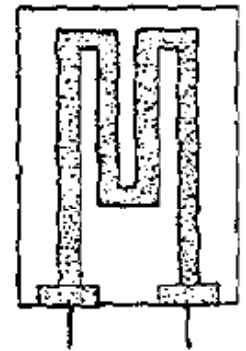
(a)



(b)



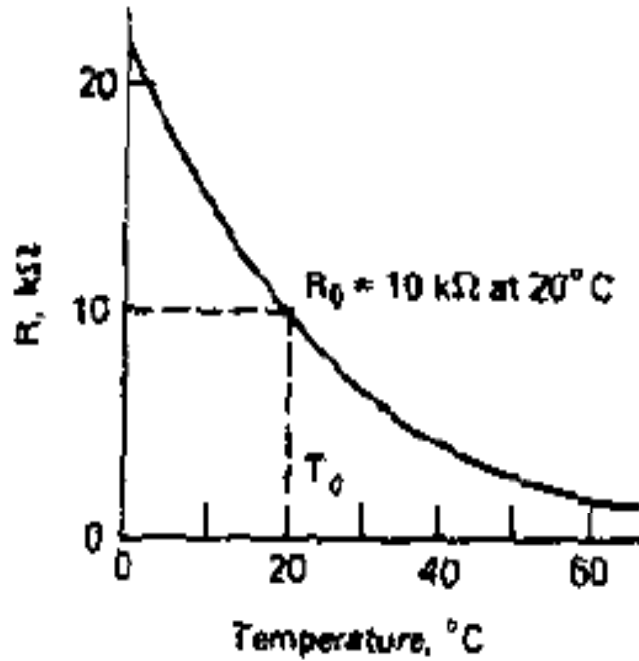
(c)



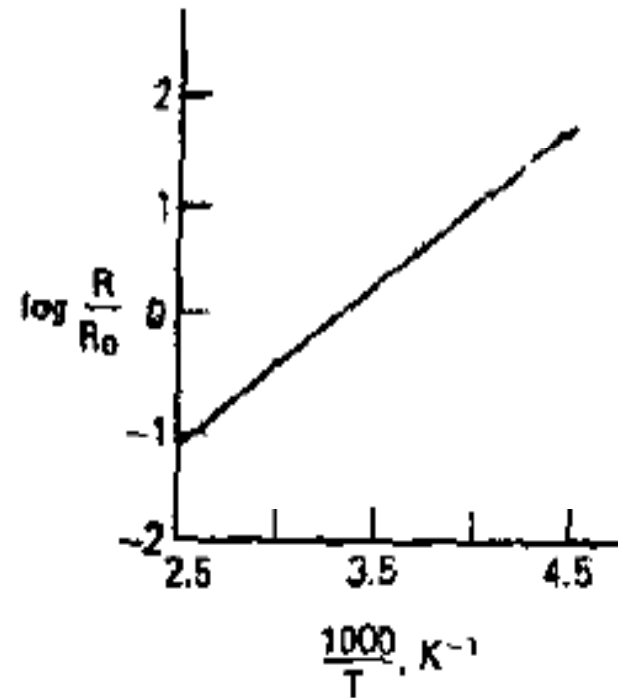
(d)



Grafik Termistor resistansi vs temperatur:
(a) logaritmik (b) skala linier

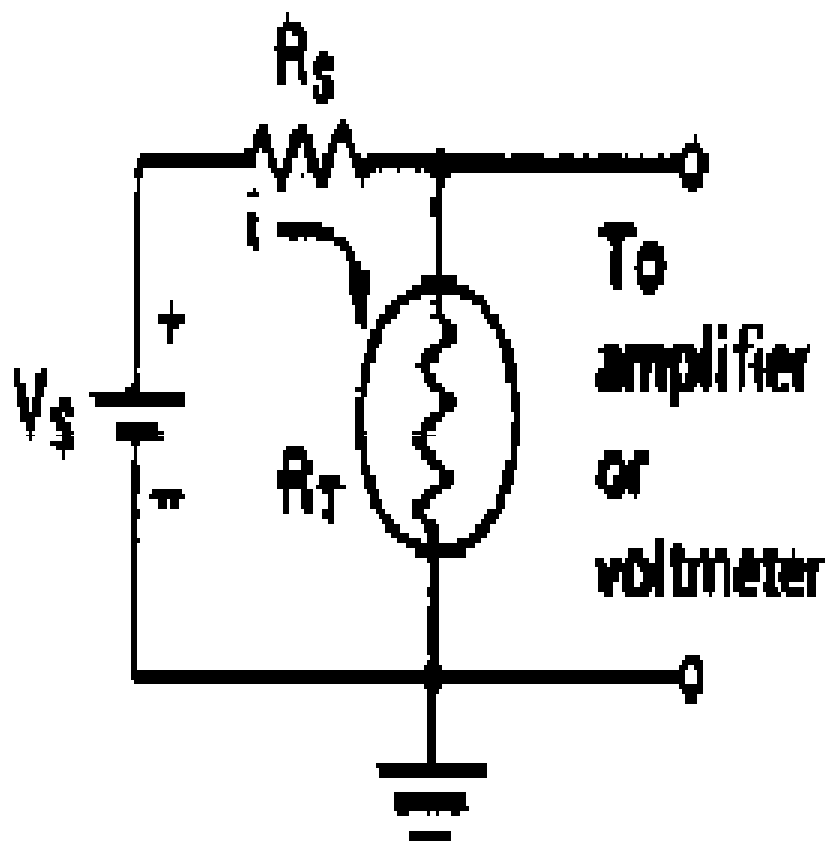


(a)



(b)





$$V_T = \frac{V_S R_T}{R_S + R_T} \approx \left(\frac{V_S}{R_S} \right) R_T$$



