



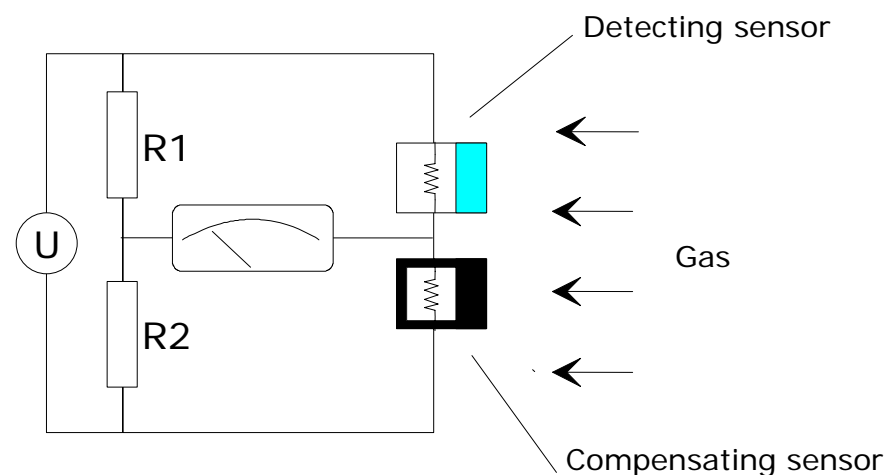
ARTICLE

Detection principle Thermal Conductivity (TC)

Thermal conductivity is used to measure gas concentrations up to 100% volume. Thermal conductivity is suitable for measuring combustible and toxic gases. It is, however, not suitable for monitoring in the LEL range.

The detection principle depends on the fact that different gases have different heat conductivity. In a thermal conductivity transmitter there are 2 sensors which are both catalytically inactive. The sensor elements are built into a Wheatstone bridge. The detecting sensor (D-sensor) is exposed to the gas. The compensation sensor (K-sensor) is situated in an enclosed chamber that is filled with clean air. The gas causes the D-sensor to cool the temperature and change the electrical resistance of the wire. The change in electrical resistance is proportional to the gas concentration.

To ensure that the change in temperature is caused by the gas and not by other influences like ambient temperature, the K-sensor is necessary.



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