Electronic Instrumentation
Problem sheet: Wheatstone

2011/2012 module 2

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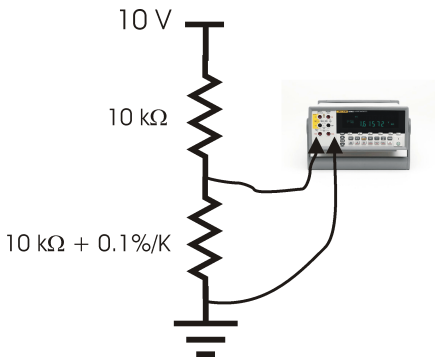
Determine the temperature resolution of a system based on a thermistor in a voltage divider configuration (a) and a Wheatstone bridge configuration (b)

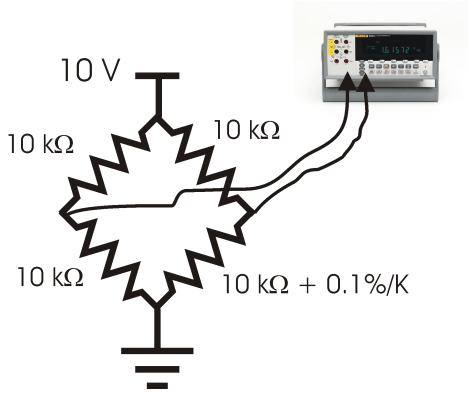
- The multimeter used has 4 digits scale. So, for instance, if the scale is 2 V, a typical reading is 1.346 V, so the resolution is 1 mV.
- Maximum scale of multimeter: 200 V.
- Minimum scale of multimeter: 20 mV.
- The thermistor has a response of 0.1%/°C, meaning that the resistance changes 0.1% if the temperature changes 1°C, for instance from 10 k to 10.01 k.

a)



Voltage divider setup

b)



Wheatstone bridge setup