Lab 4 – Black Box Design

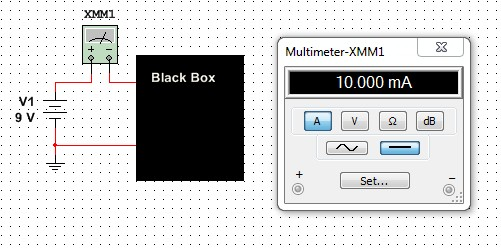
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Date: September 21, 2017

The purpose of this lab is to:

Learn about series circuits

The voltage applied to a Black Box is 9V and the measured current draw is 10mA. Design a 3 resistor series circuit that meets the voltage and current requirements using “standard” resistor value.



Equipment needed:

1 – Digital Multimeter

1 – Elvis II

3 – Standard Resistors

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Design | Measured | Calculated | Simulated |
| V1 = | 9V | 9.062V | 9V | 9V |
| IT = | 10mA | 10.179mA | 10mA | 10mA |
| RT = | 900Ω | 878.5Ω | 900Ω | 900Ω |
| R1 = | 100Ω | 98.91Ω | 100Ω | 100Ω |
| R2 = | 330Ω | 322.68Ω | 330Ω | 330Ω |
| R3 = | 470Ω | 457.0Ω | 470Ω | 470Ω |

Observations: None of the available resistors added up to exactly the required resistance. This could be compensated for using a rheostat or potentiometer.