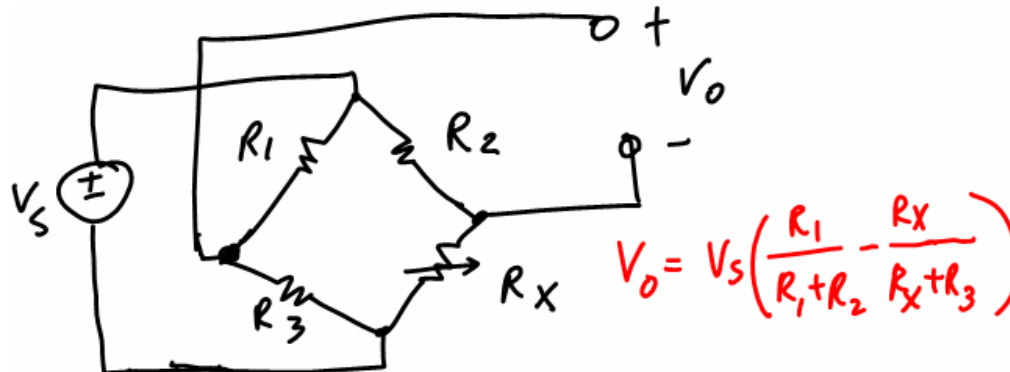


Mobile Studio (MS) 02 - Basic Bridge Circuit Application using CdS Cell

1. Basic Bridge Circuit

A basic bridge circuit relates the output voltage V_o in terms of the four resistors connected in diamond shape and the supply voltage V_s . If one of the four resistors is a variable resistor, the value of the variable resistor will determine the voltage V_o .

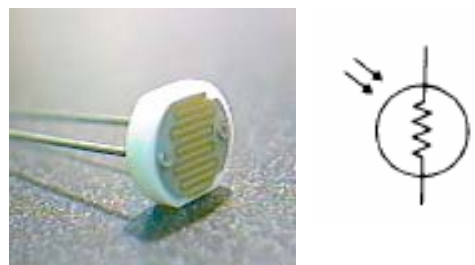


2. Bridge Circuit in Load Cell



A load cell is typically an electronic device that is used to convert a force, sensed the deformation resulted from the exerted force in a strain gauge, into an electrical signal. A load cell consists of four strain gauges in a bridge configuration, but is also available with one or two strain gauges.

3. Bridge Circuit with CdS (Cadmium Sulfide) Cell



A CdS cell is an interesting compound. Its resistance changes readily when exposed to light energy: the more light, the lower the resistance. In other words, CdS cells are photo-resistive light sensors. This is useful for measuring the intensity of light. These cells have a slower reaction time in response to changes in light as they have a large memory effect.

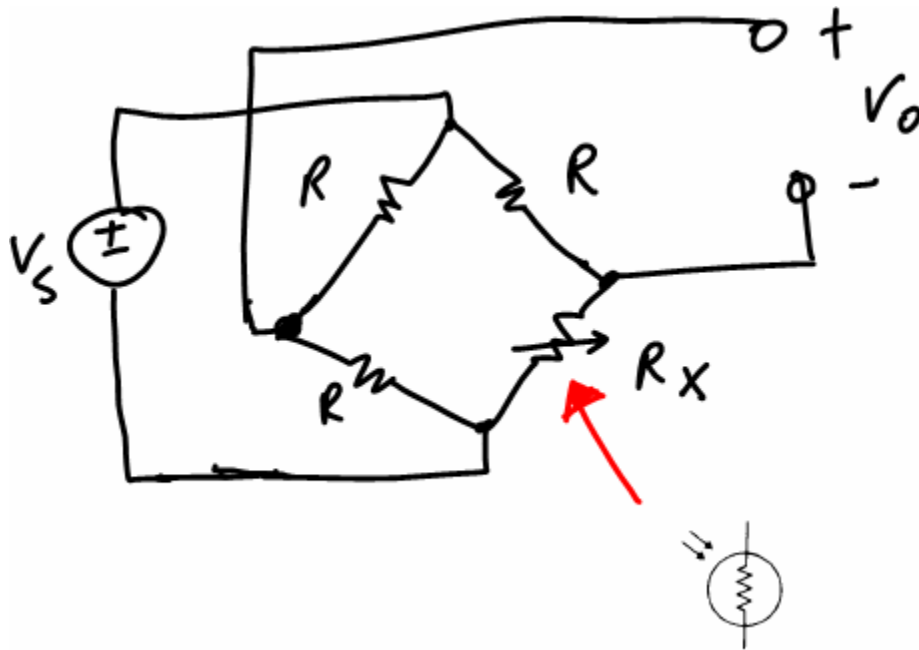
The CdS cells are bi-directional, which means connection in a circuit is straightforward without worrying about polarity.

Mobile Studio (MS) 02 - Basic Bridge Circuit Application using CdS cell

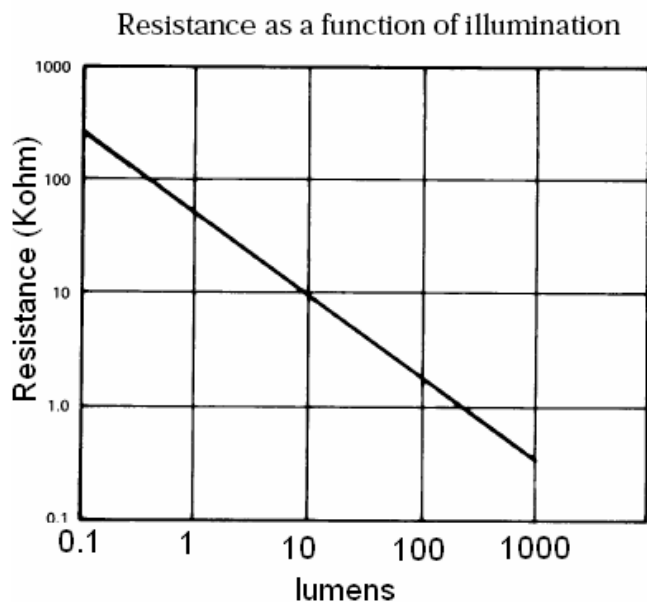
MS-02 Pre-Lab

NAME: _____

1. Express the output voltage V_o in terms of CdS cell resistance, R_x , and resistor R in the bridge circuit below, if $V_s=5[V]$. (Show your work)



2. Using the resistance characteristic of the CdS cell in the circuit above, draw a graph of light illumination (in lumens) vs. voltage V_o , if $V_s=5[V]$ and $R=10Kohm$. (Show your work)



Mobile Studio (MS) 02 - Basic Bridge Circuit Application using CdS Cell

REPORT

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