

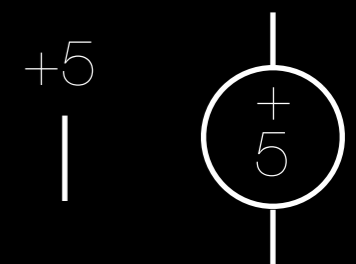
volt•age |'vɒltɪj|

an electromotive **force** or **potential difference** which causes electrons to flow, expressed in volts.

battery



voltage source



cur•rent |'kərənt; 'kə-rənt|

a quantity representing the **rate of flow** of electric charge, usually measured in Amperes.

$i \rightarrow$



Topward
DUAL-TRACKING
DC POWER SUPPLY
6306A

POWER



CV

CC

SLAVE
VOLTAGE



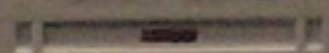
CURRENT



CE



OVER LOAD



- | | | |
|--------------------------|------|--------------------------|
| <input type="checkbox"/> | IND. | <input type="checkbox"/> |
| <input type="checkbox"/> | SER. | <input type="checkbox"/> |
| <input type="checkbox"/> | PAR. | <input type="checkbox"/> |

5V/5A



CV

CC

MASTER
VOLTAGE



CURRENT





re•sist•ance |ri'zistəns|

the degree to which a substance or device **opposes** the passage of an electric current, causing energy dissipation.



resistor

100Ω

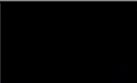








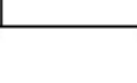


Ohm's Law

The voltage drop across a conductor is equal to the product of the resistance and the current flowing through the conductor ($V=IR$).



$$R = ab \times 10^c$$

BLACK		0	Multiplier
BROWN		1	_____0
RED		2	_____00
ORANGE		3	_____000
YELLOW		4	__0,000
GREEN		5	_00,000
BLUE		6	000,000
VIOLET		7	
GRAY		8	
WHITE		9	

EXAMPLE
47,000 Ohms
or
47-K Ω

1st Digit — 4
2nd Digit — 7
Multiplier — 000
Tolerance — 2% - Red



Kirchoff's Voltage Law

The sum of the voltage changes in a loop must equal zero.

Kirchoff's Current Law

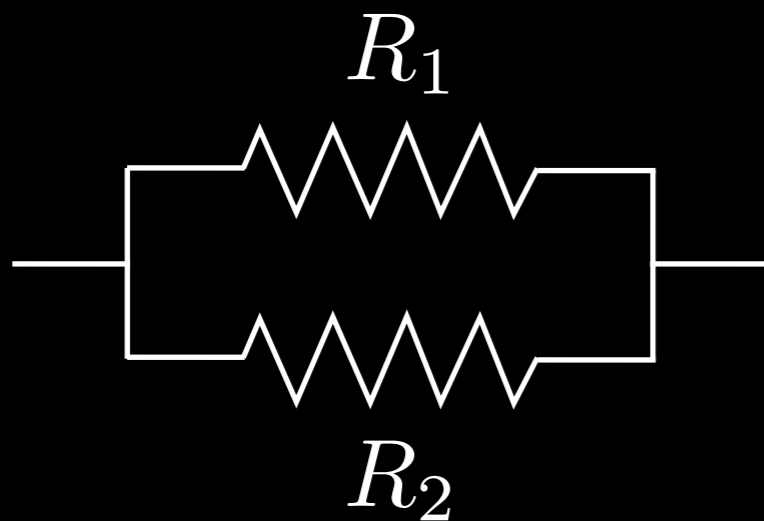
The sum of the currents flowing into and out of a node must equal zero.

series resistors



$$R = R_1 + R_2$$

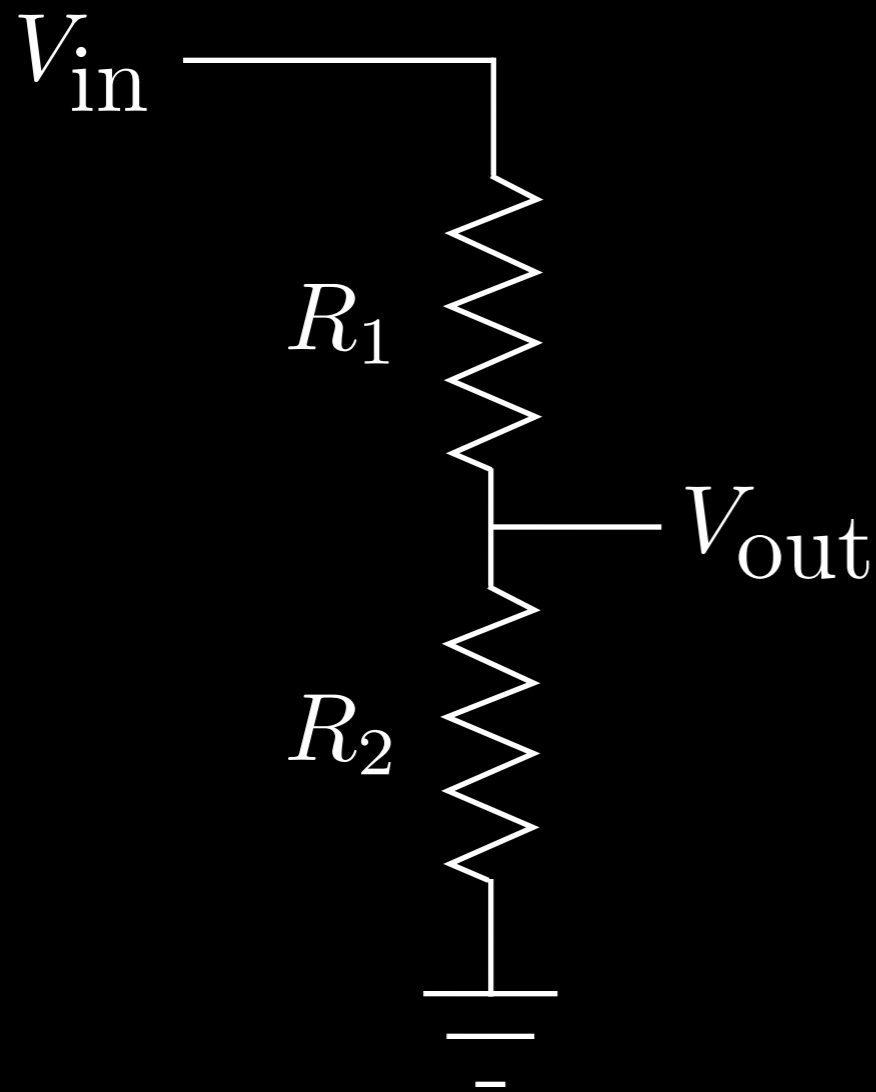
parallel resistors



$$R = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2}} = \frac{R_1 R_2}{R_1 + R_2}$$

Voltage Divider

Passive linear circuit that produces an output voltage that is a fraction of the input voltage.



$$V_{out} = \frac{R_2}{R_1 + R_2} V_{in}$$

assuming the output
draws NO CURRENT