

Electrical Quantities

Quantity	Symbol	Unit	Unit symbol	Also equals...
Current	I	Amps	A	= C/s
Voltage (potential difference)	ΔV	Volts	V	= J/C
Resistance	R	Ohms	Ω	
6.2×10^{18} electrons		Coulomb Of electrons	C	

**Voltage is also known as 'potential difference'

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Remember, electrons are small, so we bundle a whole bunch (6.2×10^{18}) of them together and call it a 'Coulomb' of electrons.

An amp is a unit of current. A circuit may have a current of 1.0 A but that also means 1 coulomb of electrons is going by every second!

$$1.0 \text{ A} = 1 \text{ C/s}$$

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A volt is a unit of potential difference or 'voltage'.

A volt measures how much energy (joules) each bundle of electrons (coulomb) has. So a 9 V battery sends out electrons so each coulomb of electrons has 9 Joules of energy.

$$\text{So } 1 \text{ V} = 1 \text{ J/C} \quad \dots\text{or}\dots \quad 9 \text{ V} = 9 \text{ J/C}$$

Potential difference?

Potential – electricity has the potential to do work

Difference – because you must connect your voltmeter in 2 difference places (in parallel)

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Resistance is the ability of a material to oppose the flow of electric current and is measured in ohms (Ω).

Measuring these quantities:

- Ammeter measure current (amps)
- Voltmeter measures voltage or p.d. (volts)
- Ohmmeter measures resistance (ohms)