

Different Electrical Units:

Unit Name	Unit Symbol	Quantity
Ampere (amp)	A	Electric current (I)
Volt	V	Voltage (V, E) Electromotive force (E) Potential difference ($\Delta\phi$)
Ohm	Ω	Resistance (R)
Watt	W	Electric power (P)
Farad	F	Capacitance (C)
Henry	H	Inductance (L)
siemens / mho	S	Conductance (G) Admittance (Y)
Coulomb	C	Electric charge (Q)
Joule	J	Energy (E)
Kilowatt-hour	kWh	Energy (E)
Electron-volt	eV	Energy (E)
Ohm-meter	$\Omega\cdot\text{m}$	Resistivity (ρ)
siemens per meter	S/m	Conductivity (σ)
Volts per meter	V/m	Electric field (E)
Newtons per coulomb	N/C	Electric field (E)
Volt-meter	V·m	Electric flux (Φ_e)
Tesla	T	Magnetic field (B)
Gauss	G	Magnetic field (B)
Weber	Wb	Magnetic flux (Φ_m)
Hertz	Hz	Frequency (f)
Seconds	s	Time (t)
Meter / metre	m	Length (l)
Square-meter	m ²	Area (A)

Units prefix table

Prefix	Prefix Symbol	Prefix factor	Example
pico	p	10^{-12}	$1\text{pF} = 10^{-12}\text{F}$
nano	n	10^{-9}	$1\text{nF} = 10^{-9}\text{F}$
micro	μ	10^{-6}	$1\mu\text{A} = 10^{-6}\text{A}$
milli	m	10^{-3}	$1\text{mA} = 10^{-3}\text{A}$
kilo	k	10^3	$1\text{k}\Omega = 1000\Omega$
mega	M	10^6	$1\text{MHz} = 10^6\text{Hz}$
giga	G	10^9	$1\text{GHz} = 10^9\text{Hz}$

Electrical units definitions

Volt (V)

[Volt](#) is the electrical unit of [voltage](#).

One volt is the energy of 1 joule that is consumed when electric charge of 1 coulomb flows in the circuit.

$$1\text{V} = 1\text{J} / 1\text{C}$$

Ampere (A)

[Ampere](#) is the electrical unit of [electrical current](#). It measures the amount of electrical charge that flows in an electrical circuit per 1 second.

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

Ohm (Ω)

[Ohm](#) is the electrical unit of resistance.

$$1\Omega = 1\text{V} / 1\text{A}$$

Watt (W)

[Watt](#) is the electrical unit of [electric power](#). It measures the rate of consumed energy.

$$1\text{W} = 1\text{J} / 1\text{s}$$

$$1\text{W} = 1\text{V} \cdot 1\text{A}$$

Farad (F)

[Farad](#) is the unit of capacitance. It represents the amount of [electric charge](#) in coulombs that is stored per 1 volt.

$$1\text{F} = 1\text{C} / 1\text{V}$$

Henry (H)

Henry is the unit of inductance.

$$1\text{H} = 1\text{Wb} / 1\text{A}$$

siemens (S)

siemens is the unit of conductance, which is the opposite of resistance.

$$1\text{S} = 1 / 1\Omega$$

Coulomb (C)

Coulomb is the unit of [electric charge](#).

$$1\text{C} = 6.238792 \times 10^{18} \text{ electron charges}$$

Ampere-hour (Ah)

Ampere-hour is a unit of [electric charge](#).

One ampere-hour is the electric charge that flow in electrical circuit, when a current of 1 ampere is applied for 1 hour.

$$1\text{Ah} = 1\text{A} \cdot 1\text{hour}$$

One ampere-hour is equal to 3600 coulombs.

$$1\text{Ah} = 3600\text{C}$$

Tesla (T)

Tesla is the unit of magnetic field.

$$1\text{T} = 1\text{Wb} / 1\text{m}^2$$

Weber (Wb)

Weber is the unit of magnetic flux.

$$1\text{Wb} = 1\text{V} \cdot 1\text{s}$$

Joule (J)

Joule is the unit of energy.

$$1\text{J} = 1 \text{ kg} \cdot \text{m}^2 / \text{s}^2$$

Kilowatt-hour (kWh)

[Kilowatt-hour](#) is a unit of energy.

$$1\text{kWh} = 1\text{kW} \cdot 1\text{h} = 1000\text{W} \cdot 1\text{h}$$

Kilovolt-amps (kVA)

[Kilovolt-amps](#) is a unit of power.

$$1\text{kVA} = 1\text{kV} \cdot 1\text{A} = 1000 \cdot 1\text{V} \cdot 1\text{A}$$

Hertz (Hz)

Hertz is the unit of frequency. It measures the number of cycles per second.

$$1 \text{ Hz} = 1 \text{ cycles} / \text{s}$$