

## used physical units in electrics and magnetics

electric charge: coulomb [C] = [A s]

electric potential (voltage): volt [V] = [J/C] = [kg m<sup>2</sup> s<sup>-2</sup>] / [A s] = [kg m<sup>2</sup> s<sup>-3</sup> A<sup>-1</sup>]

electric field: [V m<sup>-1</sup>] = [kg m s<sup>-3</sup> A<sup>-1</sup>] = [kg m s<sup>-2</sup> / (A s)] = [N C<sup>-1</sup>]

electric current density: [A m<sup>-2</sup>]

dipole moment: debey [D] = 3.33564 · 10<sup>-30</sup> [C m]

electric resistance: ohm [Ω] = [V/A] = [kg m<sup>2</sup> s<sup>-3</sup> A<sup>-2</sup>]

electric conductance: siemens [S] = [Ω<sup>-1</sup>] = [kg<sup>-1</sup> m<sup>-2</sup> s<sup>3</sup> A<sup>2</sup>]

electric permittivity: [F/m] = [A s V<sup>-1</sup> m<sup>-1</sup>]

capacitance: farad [F] = [C V<sup>-1</sup>] = [A s V<sup>-1</sup>] = [A<sup>2</sup> s<sup>4</sup> kg<sup>-1</sup> m<sup>-2</sup>]

inductance: henry [H] = [V s A<sup>-1</sup>] = [kg m<sup>2</sup> C<sup>-2</sup>] = [kg m<sup>2</sup> s<sup>-2</sup> A<sup>-2</sup>]

magnetic flux: weber [Wb] = [V s] = [T m<sup>2</sup>] = [kg m<sup>2</sup> s<sup>-2</sup> A<sup>-1</sup>]

magnetic induction: tesla [T] = [V s m<sup>-2</sup>] = [Wb m<sup>-2</sup>] = [kg A<sup>-1</sup> s<sup>-2</sup>]