Table 3

Conversion table for symbols and formulas

The symbols for mass, length, time, force, and other not specifically electromagnetic quantities are unchanged. To convert any equation in Gaussian variables to the corresponding equation in mks quantities, on both sides of the equation replace the relevant symbols listed below under "Gaussian" by the corresponding "mks" symbols listed on the right. The reverse transformation is also allowed. Since the length and time symbols are unchanged, quantities which differ dimensionally from one another only by powers of length and/or time are grouped together where possible.

Quantity	Gaussian	mks
Velocity of light	c	$(\mu_0\epsilon_0)^{-\frac{1}{2}}$
Electric field (potential, voltage)	$\mathbf{E}(\Phi, V)$	$\sqrt{4\pi\epsilon_0}\,\mathbf{E}(\Phi, V)$
Displacement	$\mathbf{D}$	$\sqrt{\dfrac{4\pi}{\epsilon_0}}\,\mathbf{D}$
Charge density (charge, current density, current, polarization)	$\rho(q, \mathbf{J}, I, \mathbf{P})$	$\dfrac{1}{\sqrt{4\pi\epsilon_0}}\,\rho(q, \mathbf{J}, I, \mathbf{P})$
Magnetic induction	$\mathbf{B}$	$\sqrt{\dfrac{4\pi}{\mu_0}}\,\mathbf{B}$
Magnetic field	$\mathbf{H}$	$\sqrt{4\pi\mu_0}\,\mathbf{H}$
Magnetization	$\mathbf{M}$	$\sqrt{\dfrac{\mu_0}{4\pi}}\,\mathbf{M}$
Conductivity	σ	$\dfrac{\sigma}{4\pi\epsilon_0}$
Dielectric constant	ϵ	$\dfrac{\epsilon}{\epsilon_0}$
Permeability	μ	$\dfrac{\mu}{\mu_0}$
Resistance (impedance)	$R(Z)$	$4\pi\epsilon_0 R(Z)$
Inductance	L	$4\pi\epsilon_0 L$
Capacitance	C	$\dfrac{1}{4\pi\epsilon_0}\,C$