

## APPENDIX B SYSTEMS INTERNATIONAL CONVERSIONS

### Alphabetical List of Units

To Convert From	To	Multiply By
acre-foot	meter <sup>3</sup> (m <sup>3</sup> )	1.233 482 E+03
acre	meter <sup>2</sup> (m <sup>2</sup> )	4.046 856 E+03
astronomical unit	meter (m)	1.495 98 E+11
atmosphere (normal)	pascal (Pa)	1.013.25 E+05
bar	pascal (Pa)	1.000 000 E+05
barrel (for petroleum, 42 gal)	meter <sup>3</sup> (m <sup>3</sup> )	1.589 873 E-01
British thermal unit (International Table)	joule (J)	1.055 056 E+03
bushel (U.S.)	meter <sup>3</sup> (m <sup>3</sup> )	3.523 907 E-02
caliber (inch)	meter (m)	2.540 000 E-02
calorie (International Table)	joule (J)	4.186 800 E+00
cal/g	joule/kilogram (J/kg)	4.186 800 E+03
calorie (thermochemical)/minute	watt (W)	6.973 333 E-02
carat (metric)	kilogram (kg)	2.000 000 E-04
centimeter of mercury (0°)	pascal (Pa)	1.333 22 E+03
centimeter of water (4°C)	pascal (Pa)	9.806 38 E+01
circular mil	meter <sup>2</sup> (m <sup>2</sup> )	5.067 075 E-10
cup	meter <sup>3</sup> (m <sup>3</sup> )	2.365 882 E-04
day (mean solar)	second (s)	8.640 000 E+04
degree (angle)	radian (rad)	1.745 329 E-02
degree Celsius	Kelvin (K)	$t_K = t_C + 273.15$
degree Fahrenheit	degree Celsius	$t_C = (t_F - 32)/1.8$
degree Fahrenheit	Kelvin (K)	$t_K = (t_F + 459.67)/1.8$
degree Rankine	Kelvin (K)	$t_K = t_R / 1.8$
dyne	newton (N)	1.000 000 E-05
dyne-centimeter	newton-meter (Nm)	1.000 000 E-07
dyne/centimeter	pascal (Pa)	1.000 000 E-01
electron volt	joule (J)	1.602 19 E-19
erg	joule (J)	1.000 000 E-07
faraday (chemical)	coulomb ©	9.649 57 E+04
fluid ounce (U.S.)	meter <sup>3</sup> (m <sup>3</sup> )	2.957 353 E-05
foot	meter (m)	3.048 000 E-01
foot <sup>3</sup> /minute	meter <sup>3</sup> /second (m <sup>3</sup> /s)	4.719 474 E-04
foot/second	meter <sup>3</sup> /second (m <sup>3</sup> /s)	2.831 685 E-02
foot <sup>3</sup>	meter <sup>3</sup> (m <sup>3</sup> )	2.831 685 E-02
foot <sup>3</sup>	gallons (gal)	7.48052 E+00
foot <sup>2</sup>	meter <sup>2</sup> (m <sup>2</sup> )	9.290 304 E-02
foot/hour	meter/second (m/s)	8.466 667 E-05
foot/minute	meter/second (m/s)	5.080 000 E-03
foot/second	meter/second (m/s)	3.048 000 E-01
foot <sup>2</sup> /second	meter <sup>2</sup> /second (m <sup>2</sup> /s)	9.290 304 E-02
foot of water (39.2°F)	pascal (Pa)	2.988 98 E+03
footcandle	lumen/meter <sup>2</sup> (lm/m <sup>2</sup> )	1.076 391 E+01
footcandle	lux (lx)	1.076 391 E+01
foot-pound-force	joule (J)	1.355 818 E+00

To Convert From	To	Multiply By
foot-pound-force/hour	watt (W)	3.766 161 E-04
foot-pound-force/minute	watt (W)	2.259 697 E-02
foot-pound-force/second	watt (W)	1.355 818 E+00
foot-second <sup>2</sup>	meter/second <sup>2</sup> (m/s <sup>2</sup> )	3.048 000 E-01
gallon (U.S. dry)	meter <sup>3</sup> (m <sup>3</sup> )	4.404 884 E-03
gallon (U.S. liquid)	meter <sup>3</sup> (m <sup>3</sup> )	3.785 412 E-03
gallon (U.S. liquid)/day	meter <sup>3</sup> /second (m <sup>3</sup> /s)	4.381 264 E-08
gallon (U.S. liquid)/minute	meter <sup>3</sup> /second (m <sup>3</sup> /s)	6.309 020 E-05
gallon/minute	foot <sup>3</sup> /hr	8.020800 E+00
gamma	tesla (T)	1.000 000 E-09
gill (U.S.)	meter <sup>3</sup> (m <sup>3</sup> )	1.182 941 E-04
grad	degree (angular)	9.000 000 E-01
grad	radian (rad)	1.570 796 E-02
gram	kilogram (kg)	1.000 000 E-03
gram/centimeter <sup>3</sup>	kilogram/meter <sup>3</sup> (kg/m <sup>3</sup> )	1.000 000 E+03
gram-force/centimeter <sup>2</sup>	pascal (Pa)	9.806 650 E+01
horsepower (electric)	watt (W)	7.460 000 E+01
horsepower (metric)	watt (W)	7.354 99 E+02
inch	meter (m)	2.540 000 E-02
inch <sup>2</sup>	meter <sup>2</sup> (m <sup>2</sup> )	6.451 600 E-04
inch <sup>3</sup>	meter <sup>3</sup> (m <sup>3</sup> )	1.638 706 E-05
inch <sup>3</sup> /minute	meter <sup>3</sup> /second (m <sup>3</sup> /s)	2.731 177 E-07
inch of mercury (32°F)	pascal (Pa)	3.386 389 E+03
inch of water (39.2° F)	pascal (Pa)	2.490 82 E+02
kilocalorie (International Table)	joule (J)	4.186 800 E+03
kilocalorie (thermochemical)	joule (J)	4.184 000 E+03
kilocalorie (thermochemical)/minute	watt (W)	6.973 333 E+01
kilocalorie (thermochemical)/second	watt (W)	4.184 000 E+03
kilogram-force (kgf)	newton (N)	9.806 650 E+00
kilogram-force-meter	Newton-meter (N m)	9.806 650 E+00
kilogram-force-second <sup>2</sup> /meter (mass)	kilogram (kg)	9.806 650 E+00
kilogram-force/centimeter <sup>2</sup>	pascal (Pa)	9.806 650 E+04
kilogram-force/meter <sup>2</sup>	pascal (Pa)	9.806 650 E+00
kilogram-force/millimeter <sup>2</sup>	pascal (Pa)	9.806 650 E+06
kilogram-mass	kilogram (kg)	1.000 000 E+00
kilometer/hour	meter/second (m/s)	2.777 778 E_01
kilowatt-hour	joule (J)	3.600 000 E+06
kip (1000 lbf)	newton	4.448 222 E+03
kip/inch <sup>2</sup> (ksi)	pascal (Pa)	6.894 757 E+06
knot (International)	meter/second (m/s)	5.144 444 E-01
liter (L)	feet <sup>3</sup> (ft <sup>3</sup> )	3.53000 E+02
liter (L)	gallons(gal)	0.264000 E+00
liter (L)	meter <sup>3</sup> (m <sup>3</sup> )	1.000 000 E-03
lux	lumen/meter <sup>2</sup> (lm/m <sup>2</sup> )	1.000 000 E+00
maxwell	weber (Wb)	1.000 000 E-08
mil	meter (m)	2.540 000 E-08
mile (International Nautical)	meter (m)	1.852 000 E+03
mile (U.S. nautical)	meter (m)	1.852 000 E+03
mile (U.S. statue)	meter (m)	1.609 344 E+03

To Convert From	To	Multiply By
mile <sup>2</sup> (U.S. statute)	meter <sup>2</sup> (m <sup>2</sup> )	2.589 988 E+06
mile/hour (U.S. statute)	meter/second (m/s)	4.470 400 E-01
mile/hour (U.S. statute)	kilometer/hour	1.609 344 E+00
minute (angle)	radian (rad)	2.908 882 E-04
moment of inertia (lbm·ft <sup>2</sup> )	kilogram-meter <sup>2</sup> (kg·m <sup>2</sup> )	4.214 011 E-02
moment of inertia (lbm·in <sup>2</sup> )	kilogram-meter <sup>2</sup> (kg m <sup>2</sup> )	2.926 397 E-04
ounce (U.S. fluid)	meter <sup>3</sup> (m <sup>3</sup> )	2.957 353 E-05
peck (U.S.)	meter <sup>3</sup> (m <sup>3</sup> )	8.809 768 E-03
pennyweight	kilogram (kg)	1.555 174 E-03
pint (U.S. dry)	meter <sup>3</sup> (m <sup>3</sup> )	5.506 105 E-04
pint (U.S. liquid)	meter <sup>3</sup> (m <sup>3</sup> )	4.731 765 E-04
poise (absolute viscosity)	pascal-second (Pa·s)	1.000 000 E-01
pound-force-foot/inch	newton-meter/meter (N·m/m)	5.337 866 E+01
pound-force-foot/inch	newton-meter/meter (N·m/m)	4.448 222 E+00
pound-force/inch	newton/meter (N/m)	1.751 268 E+02
pound-force/foot	newton/meter (N/m)	1.459 390 E+01
pound-force/foot <sup>2</sup>	pascal (Pa)	4.788 026 E+01
pound-force/inch <sup>2</sup> (psi)	pascal (Pa)	6.894 757 E+03
pound-force-second/foot <sup>2</sup>	pascal-second (Pa·s)	4.788 026 E+01
pound-mass (lbm avoirdupois)	kilogram (kg)	4.535 924 E-01
pound-mass (troy or apothecary)	kilogram (kg)	3.732 417 E-01
pound-mass/foot <sup>2</sup>	kilogram/meter <sup>2</sup> (kg/m <sup>2</sup> )	4.882 428 E+00
pound-mass/second	kilogram/second (kg/s)	4.535 924 E-01
pound-mass/foot <sup>3</sup>	kilogram/meter <sup>3</sup> (kg/m <sup>3</sup> )	1.601 846 E+01
pound-mass/inch <sup>3</sup>	kilogram/meter <sup>3</sup> (kg/m <sup>3</sup> )	2.767 990 E+04
pound-mass/gallon (U.S. liquid)	kilogram/meter <sup>3</sup> (kg/m <sup>3</sup> )	1.198 264 E+02
pound-mass/foot – second	pascal – second (Pa·s)	1.488 164 E+00
quart (U.S. dry)	meter <sup>3</sup> (m <sup>3</sup> ) <sup>3</sup>	1.101 221 E-03
quart (U.S. liquid)	kilogram/meter <sup>3</sup> (kg/m <sup>3</sup> )	9.463 529 E-04
rod	meter (m)	1.101 221 E-03
roentgen	coulomb/kilogram (C/kg)	2.579 760 E-04
second (angle)	radian (rad)	4.848 137 E-06
slug	kilogram (kg)	1.459 390 E+01
slug/foot <sup>2</sup>	kilogram/meter <sup>3</sup> (kg/m <sup>3</sup> )	5.153 788 E+02
slug/foot-second	pascal-second (Pa·s)	4.788 026 E+01
statute mile (U.S.)	meter (m)	1.609 344 E+03
stere	meter <sup>3</sup> (m <sup>3</sup> )	1.000 000 E+00
tablespoon	meter <sup>3</sup> (m <sup>3</sup> )	1.478 676 E-05
teaspoon	meter <sup>3</sup> (m <sup>3</sup> )	4.928 922 E-06
tex	kilogram/meter (kg/m)	1.000 000 E-06
ton (assay)	kilogram (kg)	2.916 667 E-02
ton (long, 2240 ibm)	kilogram (kg)	1.016 047 E+03
ton (metric)	kilogram (kg)	1.000 000 E+03
ton (nuclear equivalent of TNT)	joule (J)	4.200000 E+09
ton (register)	meter <sup>3</sup> (m <sup>3</sup> )	2.831 685 E+00
ton (short, 2000 ibm)	kilogram (kg)	9.071 847 E+02
ton (short, mass)/hour	kilogram (kg)	2.519 958 E-01
ton (long, mass)/yard <sup>3</sup>	kilogram/meter <sup>3</sup> (kg/m <sup>3</sup> )	1.328 939 E+03
watt-hour	joule (J)	3.600 000 E+03

<b>To Convert From</b>	<b>To</b>	<b>Multiply By</b>
watt-second	joule (J)	1.000 000 E+00
yard	meter (m)	9.144 000 E-01
yard <sup>2</sup>	meter <sup>2</sup> (m <sup>2</sup> )	8.361 274 E-01
yard <sup>3</sup>	meter <sup>3</sup> (m <sup>3</sup> )	7.645 549 E-01
yard <sup>3</sup> /minute	meter <sup>3</sup> /second (m <sup>3</sup> /s)	1.274 258 E-02
year (calendar)	second (s)	3.153 600 E+07