

# Modul:Val/units/sandbox

Die Dokumentation für dieses Modul kann unter [Modul:Val/units/sandbox/Doku](#) erstellt werden

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-- Definitions for units known to val
-- File format is two strings and a return statement with them in it:
-- string in quotes [= ... builtin_units ... ]=].
-- string in quotes [= ... builtin_units_long_scale ... ]=].
-- First string, builtin_units, is short-scale, second string is long scale.

-- Entry format:
-- One record per line, starting in first column, having 2-4 fields.
-- Field separator: two or more spaces
-- Between first and second fields: two or more spaces
-- Between all other fields: two or more spaces, or one or more tabs
-- Entries without two spaces in them are ignored.

-- There must be a blank line before the first entry and after the last.
-- I.e. the first two and last two characters of the string must be newlines.

-- Format of entry. Two record types:
--
-- One record type is a wikilink:
-- Unit-code      [[ pagename | Symbol-accepts-HTML-only ]]
-- Text-field separator is still two spaces. Two spaces not allowed in wikilink
--
-- The other record type is all fields:
-- Unit-code      symbol-accepts-HTML-only      pagename#section-OK
--
-- Plus there is an optional field that goes at the end after two or more spaces.
-- Whether it is a number or an equation or the letters SI,
-- any of these three has the same function: a wikititable sorting "scale".
-- It is for sorting, and it works for either record type.
-- Difference is SI can't accept HTML. But SI correctly scales any SI prefix.
-- (Optional fields ALIAS and NOSPACE and ANGLE are for advanced users.)

-- "Invalid unit" error:
-- Using SI requires that the symbol equal unit-code, so never allows HTML.
-- Any difference between SI or symbol must be an SI prefix, such as k, M, or G.
-- A space at the end of an entry is an error. No space at each EOL.

local builtin_units = [=]

== Test ==
Foo  [[Hz|<samp>Foo</samp>]]
Baz  [[Hertz|baz<sub>0</sub>]]
Baz  [[Kelvins|baz<sub>0</sub>]]
Bar  [[Foobar|bar<abbr title="super duper">0</abbr>]]
quux [[Foobar|<span title="super duper 2">bar0</span>]]

== Unsorted units ==
c0   [[Speed of light|Numerical value, notation, and units|'c'|<sub>0</sub>]]
lbf  [[Pound (force)|<span title="pound-force">lb<sub>F</sub></span> ]]
N.s  [[Newton-second|N&sdot;s]]
J.K-1 [[Joule per kelvin|J&sdot;K<sup>-1</sup>]]
C.mol-1 [[Faraday constant|C&sdot;mol<sup>-1</sup>]]
C/mol [[Faraday constant|C/mol]]
C.kg-1 [[Roentgen (unit)|C&sdot;kg<sup>-1</sup>]]
C/kg  [[Roentgen (unit)|C/kg]]
F.m-1 [[vacuum permittivity|F&sdot;m<sup>-1</sup>]]
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```
F/m  [[vacuum permittivity|F/m]]
e  [[Elementary charge|'e''']]
kB  [[Kilobyte|kB]]  8e3
MB  [[Megabyte|MB]]  8e6
GB  [[Gigabyte|GB]]  8e9
TB  [[Terabyte|TB]]  8e12
lx  [[Lux (unit)|lx]]
nat  [[nat (unit)|nat]]

== Time and frequency ==
byte/s  [[Data rate units|byte/s]]  8
kB/s  [[Data rate units#Kilobyte per second|<span title="Kilobytes per second">kB/s]]  8
MB/s  [[Data rate units#Megabyte per second|<span title="Megabytes per second">MB/s]]  8
GB/s  [[Data rate units#Gigabyte per second|<span title="Gigabytes per second">GB/s]]  8
TB/s  [[Data rate units#Terabyte per second|<span title="Terabytes per second">TB/s]]  8
bit/s  [[Bit per second|bit/s]]  1
bps  [[Bit per second|bit/s]]  1
kbit/s  [[Kilobit per second|kbit/s]]  1e3
Mbit/s  [[Megabit per second|Mbit/s]]  1e6
Gbit/s  [[Gigabit per second|Gbit/s]]  1e9
Tbit/s  [[Terabit per second|Tbit/s]]  1e12
kT/s  [[Transfer (computing)|<span title="Kilotransfers per second">kT/s]]  1
MT/s  [[Transfer (computing)|<span title="Megatransfers per second">MT/s]]  1
GT/s  [[Transfer (computing)|<span title="Gigatransfers per second">GT/s]]  1
year  [[Year|year]]  31557600
years  [[Year|years]]  31557600
yr  [[Year#Symbols y and yr|yr]]  31557600
y  [[Year|y]]  31557600
a  [[Annum|a]]  31557600
Ga  [[Gigaannum|Ga]]  315576000000000000
Ma  [[Megaannum|Ma]]  3155760000000000
ka  [[Kiloannum|ka]]  31557600000
kyr  [[kyr|kyr]]  31557600000
kya  [[kyr|kya]]  31557600000
myr  [[myr|myr]]  31557600000000
mya  [[Mya (unit)|mya]]  31557600000000
byr  [[Billion years|byr]]  315576000000000000
bya  [[Billion years ago|bya]]  315576000000000000
Gyr  [[billion years|Gyr]]  315576000000000000
BP  [[Before present|BP]]
uBP  [[Radiocarbon dating#Calibration|<sup>14</sup>C yr BP]]
BC  [[Before Christ|BC]]  -1
AD  [[Anno Domini|AD]]  1
BCE  [[Before the Common Era|BCE]]  -1
CE  [[Common Era|CE]]  1
JD  [[Julian date|JD]]  1
MJD  [[Modified Julian date|MJD]]  1

s-1  [[Second|s<sup>-1</sup>]]
s-2  [[Second|s<sup>-2</sup>]]
s2  [[Second|s<sup>2</sup>]]

s  [[Second|s]]  SI
as  [[Attosecond|s]]  SI
cs  [[Second|s]]  SI
das  [[Second|s]]  SI
ds  [[Second|s]]  SI
Es  [[Second|s]]  SI
fs  [[Femtosecond|s]]  SI
Gs  [[Second|s]]  SI
hs  [[Second|s]]  SI
ks  [[Second|s]]  SI
ms  [[Millisecond|s]]  SI
μs  [[Microsecond|s]]  SI
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```
us  [[Microsecond|s]]  SI
Ms  [[Second|s]]  SI
ns  [[Nanosecond|s]]  SI
ps  [[Picosecond|s]]  SI
Ps  [[Second|s]]  SI
Ts  [[Second|s]]  SI
Ys  [[Second|s]]  SI
ys  [[Yoctosecond|s]]  SI
Zs  [[Second|s]]  SI
zs  [[Zeptosecond|s]]  SI

Hz  [[Hertz|Hz]]  SI
aHz  [[Hertz|Hz]]  SI
cHz  [[Hertz|Hz]]  SI
daHz  [[Hertz|Hz]]  SI
dHz  [[Hertz|Hz]]  SI
EHz  [[Hertz|Hz]]  SI
fHz  [[Hertz|Hz]]  SI
hHz  [[Hertz|Hz]]  SI
GHz  [[Gigahertz|Hz]]  SI
kHz  [[Kilohertz|Hz]]  SI
MHz  [[Megahertz|Hz]]  SI
mHz  [[Hertz|Hz]]  SI
uHz  [[Hertz|Hz]]  SI
μHz  [[Hertz|Hz]]  SI
nHz  [[Hertz|Hz]]  SI
pHz  [[Hertz|Hz]]  SI
PHz  [[Hertz|Hz]]  SI
THz  [[Hertz|Hz]]  SI
yHz  [[Hertz|Hz]]  SI
YHz  [[Hertz|Hz]]  SI
zHz  [[Hertz|Hz]]  SI
ZHz  [[Hertz|Hz]]  SI

== Length, area, volume ==
Å3  [[Ångström|Å<sup>3</sup>]]
fb-1  [[Barn (unit)|fb<sup>-1</sup>]]
m-1  [[Metre|m<sup>-1</sup>]]
m-2  [[Square metre|m<sup>-2</sup>]]
m-3  [[Cubic metre|m<sup>-3</sup>]]
km2  [[Square kilometre|km<sup>2</sup>]]
km3  [[Cubic kilometre|km<sup>3</sup>]]
μm2  [[Square metre|μm<sup>2</sup>]]
um2  [[Square metre|μm<sup>2</sup>]]
am2  [[Square metre|am<sup>2</sup>]]
cm2  [[Square centimetre|cm<sup>2</sup>]]
dam2  [[Square metre|dam<sup>2</sup>]]
dm2  [[Square metre|dm<sup>2</sup>]]
Em2  [[Square metre|Em<sup>2</sup>]]
fm2  [[Square metre|fm<sup>2</sup>]]
Gm2  [[Square metre|Gm<sup>2</sup>]]
hm2  [[Square metre|hm<sup>2</sup>]]
mm2  [[Square metre|mm<sup>2</sup>]]
Mm2  [[Square metre|Mm<sup>2</sup>]]
nm2  [[Square metre|nm<sup>2</sup>]]
pm2  [[Square metre|pm<sup>2</sup>]]
Pm2  [[Square metre|Pm<sup>2</sup>]]
Tm2  [[Square metre|Tm<sup>2</sup>]]
ym2  [[Square metre|ym<sup>2</sup>]]
Ym2  [[Square metre|Ym<sup>2</sup>]]
zm2  [[Square metre|zm<sup>2</sup>]]
Zm2  [[Square metre|Zm<sup>2</sup>]]
gal  [[Gallon|gal]]
Gal  [[Gal (unit)|Gal]]
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uGal [[Gal (unit)|μGal]] SI
μGal [[Gal (unit)|μGal]] SI
mGal [[Gal (unit)|mGal]] SI

b [[Barn (unit)|b]] SI
ab [[Barn (unit)|b]] SI
cb [[Barn (unit)|b]] SI
dab [[Barn (unit)|b]] SI
db [[Barn (unit)|b]] SI
Eb [[Barn (unit)|b]] SI
fb [[Barn (unit)|b]] SI
Gb [[Barn (unit)|b]] SI
hb [[Barn (unit)|b]] SI
kb [[Barn (unit)|b]] SI
mb [[Barn (unit)|b]] SI
ub [[Barn (unit)|b]] SI
ub [[Barn (unit)|b]] SI
Mb [[Barn (unit)|b]] SI
nb [[Barn (unit)|b]] SI
pb [[Barn (unit)|b]] SI
Pb [[Barn (unit)|b]] SI
Tb [[Barn (unit)|b]] SI
Yb [[Barn (unit)|b]] SI
yb [[Barn (unit)|b]] SI
Zb [[Barn (unit)|b]] SI
zb [[Barn (unit)|b]] SI

== Velocity and acceleration ==
m.s-2 [[Metre per second squared|m·s-2]]
m/s2 [[Metre per second squared|m/s2]]
m.s-1 [[Metre per second|m·s-1]]
m/s [[Metre per second|m/s]]
km.s-1 [[Metre per second|km·s-1]]
km/s [[Metre per second|km/s]]

== Mass and energy ==
lbm [[Pound (mass)|lbm]]
uJ [[Joule|μJ]]
J.s [[Joule-second|J·s]]
kWh [[Kilowatt hour|kWh]]
kW.h [[Kilowatt hour|kW·h]]
J/C [[Volt|J/C]]
J/kg [[Joule|J/kg]]

Da [[Dalton (unit)|Da]] SI
EDa [[Dalton (unit)|Da]] SI
PDa [[Dalton (unit)|Da]] SI
TDa [[Dalton (unit)|Da]] SI
GDa [[Dalton (unit)|Da]] SI
MDa [[Dalton (unit)|Da]] SI
kDa [[Dalton (unit)|Da]] SI
mDa [[Dalton (unit)|Da]] SI
uDa [[Dalton (unit)|Da]] SI
μDa [[Dalton (unit)|Da]] SI
nDa [[Dalton (unit)|Da]] SI
pDa [[Dalton (unit)|Da]] SI
fDa [[Dalton (unit)|Da]] SI
aDa [[Dalton (unit)|Da]] SI

g [[Gram|g]] SI
ag [[Attogram|g]] SI
cg [[Centigram|g]] SI
dag [[Gram|g]] SI
dg [[Decigram|g]] SI
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Eg  [[Exagram|g]]  SI
fg  [[Femtogram|g]]  SI
Gg  [[Gigagram|g]]  SI
hg  [[Kilogram#SI multiples|g]]  SI
kg  [[Kilogram|g]]  SI
mcg  [[Microgram|g]]  SI
Mg  [[Megagram|g]]  SI
mg  [[Milligram|g]]  SI
ug  [[Microgram|g]]  SI
μg  [[Microgram|g]]  SI
ng  [[Nanogram|g]]  SI
Pg  [[Petagram|g]]  SI
pg  [[Picogram|g]]  SI
Tg  [[Tonne|g]]  SI
yg  [[Yoctogram|g]]  SI
Yg  [[Yottagram|g]]  SI
zg  [[Zeptogram|g]]  SI
Zg  [[Zettagram|g]]  SI

== Pressure and density ==
psi  [[Pounds per square inch|psi]]
g.cm-3  [[Gram per cubic centimetre|g&sdot;cm-3]]
g/cm3  [[Gram per cubic centimetre|g/cm3]]
kg.m-3  [[Kilogram per cubic metre|kg&sdot;m-3]]
kg/m3  [[Kilogram per cubic metre|kg/m3]]
kg/cm3  [[Density#Formula and common units|kg/cm3]]
g/L  [[Gram per litre|g/L]]
g/l  [[Gram per litre|g/l]]
mcg/dL  [[Gram per litre|μg/dL]]
mcg/dl  [[Gram per litre|μg/dl]]
mg/mL  [[Gram per litre|mg/mL]]
mg/ml  [[Gram per litre|mg/ml]]
ug/dL  [[Gram per litre|μg/dL]]
ug/dl  [[Gram per litre|μg/dl]]
μg/dL  [[Gram per litre|μg/dL]]
μg/dl  [[Gram per litre|μg/dl]]
mg.L-1  [[Gram per litre|<abbr title="milligrams per liter">mg/L</abbr>]]
mg/L  [[Gram per litre|<abbr title="milligrams per liter">mg/L</abbr>]]
mg.l-1  [[Gram per litre|<abbr title="milligrams per liter">mg/l</abbr>]]
mg/l  [[Gram per litre|<abbr title="milligrams per liter">mg/l</abbr>]]

== Fracture toughness ==
MPa.m0.5  [[Fracture toughness|MPa&sdot;m1/2]]
kPa.m0.5  [[Fracture toughness|kPa&sdot;m1/2]]
Pa.m0.5  [[Fracture toughness|Pa&sdot;m1/2]]

== Temperature ==
degC  °C  ALIAS
degF  °F  ALIAS
degR  °R  ALIAS

K  [[Kelvin|K]]  SI
YK  [[Yottakelvin|K]]  SI
ZK  [[Zettakelvin|K]]  SI
EK  [[Kelvin|K]]  SI
PK  [[Petakelvin|K]]  SI
TK  [[Terakelvin|K]]  SI
GK  [[Gigakelvin|K]]  SI
MK  [[Megakelvin|K]]  SI
kK  [[Kilokelvin|K]]  SI
hK  [[Hectokelvin|K]]  SI
daK  [[Decakelvin|K]]  SI
dK  [[Decikelvin|K]]  SI
cK  [[Centikelvin|K]]  SI
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mK [[Millikelvin|K]] SI
µK [[Microkelvin|K]] SI
uK [[Microkelvin|K]] SI
nK [[Nanokelvin|K]] SI
pK [[Picokelvin|K]] SI
fK [[Femtokelvin|K]] SI
aK [[Attokelvin|K]] SI
zK [[Zeptokelvin|K]] SI
yK [[Yoctokelvin|K]] SI

== Electromagnetism ==
Wb [[Weber (unit)|Wb]]
N.A-2 [[Permeability (electromagnetism)|N&sdot;A<sup>-2</sup>]]
H.m-1 [[Permeability (electromagnetism)|H&sdot;m<sup>-1</sup>]]
V.m-1 [[Electric field|V&sdot;m<sup>-1</sup>]]
V/m [[Electric field|V/m]]

C [[Coulomb|C]] SI
YC [[Coulomb|C]] SI
ZC [[Coulomb|C]] SI
EC [[Coulomb|C]] SI
PC [[Coulomb|C]] SI
TC [[Coulomb|C]] SI
GC [[Coulomb|C]] SI
MC [[Coulomb|C]] SI
kC [[Coulomb|C]] SI
hC [[Coulomb|C]] SI
daC [[Coulomb|C]] SI
dC [[Coulomb|C]] SI
cC [[Coulomb|C]] SI
mC [[Coulomb|C]] SI
µC [[Coulomb|C]] SI
uC [[Coulomb|C]] SI
nC [[Coulomb|C]] SI
pC [[Coulomb|C]] SI
fC [[Coulomb|C]] SI
aC [[Coulomb|C]] SI
zC [[Coulomb|C]] SI
yC [[Coulomb|C]] SI

F [[Farad|F]] SI
YF [[Farad|F]] SI
ZF [[Farad|F]] SI
EF [[Farad|F]] SI
PF [[Farad|F]] SI
TF [[Farad|F]] SI
GF [[Farad|F]] SI
MF [[Farad|F]] SI
kF [[Farad|F]] SI
hF [[Farad|F]] SI
daF [[Farad|F]] SI
dF [[Farad|F]] SI
cF [[Farad|F]] SI
mF [[Farad|F]] SI
µF [[Farad|F]] SI
uC [[Farad|F]] SI
nF [[Farad|F]] SI
pF [[Farad|F]] SI
fF [[Farad|F]] SI
aF [[Farad|F]] SI
zF [[Farad|F]] SI
yF [[Farad|F]] SI

H [[Henry (unit)|H]] SI
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YH	[[Henry (unit) H]]	SI
ZH	[[Henry (unit) H]]	SI
EH	[[Henry (unit) H]]	SI
PH	[[Henry (unit) H]]	SI
TH	[[Henry (unit) H]]	SI
GH	[[Henry (unit) H]]	SI
MH	[[Henry (unit) H]]	SI
kH	[[Henry (unit) H]]	SI
hH	[[Henry (unit) H]]	SI
daH	[[Henry (unit) H]]	SI
dH	[[Henry (unit) H]]	SI
cH	[[Henry (unit) H]]	SI
mH	[[Henry (unit) H]]	SI
μH	[[Henry (unit) H]]	SI
uH	[[Henry (unit) H]]	SI
nH	[[Henry (unit) H]]	SI
pH	[[Henry (unit) H]]	SI
fH	[[Henry (unit) H]]	SI
aH	[[Henry (unit) H]]	SI
zH	[[Henry (unit) H]]	SI
yH	[[Henry (unit) H]]	SI
A	[[Ampere A]]	SI
YA	[[Ampere A]]	SI
ZA	[[Ampere A]]	SI
EA	[[Ampere A]]	SI
PA	[[Ampere A]]	SI
TA	[[Ampere A]]	SI
GA	[[Ampere A]]	SI
MA	[[Ampere A]]	SI
kA	[[Ampere A]]	SI
hA	[[Ampere A]]	SI
daA	[[Ampere A]]	SI
dA	[[Ampere A]]	SI
cA	[[Ampere A]]	SI
mA	[[Ampere A]]	SI
μA	[[Ampere A]]	SI
uA	[[Ampere A]]	SI
nA	[[Ampere A]]	SI
pA	[[Ampere A]]	SI
fA	[[Ampere A]]	SI
aA	[[Ampere A]]	SI
zA	[[Ampere A]]	SI
yA	[[Ampere A]]	SI
V	[[Volt V]]	SI
YV	[[Volt V]]	SI
ZV	[[Volt V]]	SI
EV	[[Volt V]]	SI
PV	[[Volt V]]	SI
TV	[[Volt V]]	SI
GV	[[Volt V]]	SI
MV	[[Volt V]]	SI
kV	[[Volt V]]	SI
hV	[[Volt V]]	SI
daV	[[Volt V]]	SI
dV	[[Volt V]]	SI
cV	[[Volt V]]	SI
mV	[[Volt V]]	SI
μV	[[Volt V]]	SI
uV	[[Volt V]]	SI
nV	[[Volt V]]	SI
pV	[[Volt V]]	SI
fV	[[Volt V]]	SI

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aV  [[Volt|V]]  SI
zV  [[Volt|V]]  SI
yV  [[Volt|V]]  SI

VA  [[Volt-ampere|VA]]  SI
YVA [[Volt-ampere|VA]]  SI
ZVA [[Volt-ampere|VA]]  SI
EVA [[Volt-ampere|VA]]  SI
PVA [[Volt-ampere|VA]]  SI
TVA [[Volt-ampere|VA]]  SI
GVA [[Volt-ampere|VA]]  SI
MVA [[Volt-ampere|VA]]  SI
kVA [[Volt-ampere|VA]]  SI
hVA [[Volt-ampere|VA]]  SI
daVA [[Volt-ampere|VA]]  SI
dVA [[Volt-ampere|VA]]  SI
cVA [[Volt-ampere|VA]]  SI
mVA [[Volt-ampere|VA]]  SI
μVA [[Volt-ampere|VA]]  SI
uVA [[Volt-ampere|VA]]  SI
nVA [[Volt-ampere|VA]]  SI
pVA [[Volt-ampere|VA]]  SI
fVA [[Volt-ampere|VA]]  SI
aVA [[Volt-ampere|VA]]  SI
zVA [[Volt-ampere|VA]]  SI
yVA [[Volt-ampere|VA]]  SI

Ω  [[Ohm|Ω]]  SI

YΩ.m [[Electrical resistivity and conductivity#Definition|YΩ&sdot;m]]  1e24
ZΩ.m [[Electrical resistivity and conductivity#Definition|ZΩ&sdot;m]]  1e21
EΩ.m [[Electrical resistivity and conductivity#Definition|EΩ&sdot;m]]  1e18
PΩ.m [[Electrical resistivity and conductivity#Definition|PΩ&sdot;m]]  1e15
TΩ.m [[Electrical resistivity and conductivity#Definition|TΩ&sdot;m]]  1e12
GΩ.m [[Electrical resistivity and conductivity#Definition|GΩ&sdot;m]]  1e9
MΩ.m [[Electrical resistivity and conductivity#Definition|MΩ&sdot;m]]  1e6
kΩ.m [[Electrical resistivity and conductivity#Definition|kΩ&sdot;m]]  1e3
Ω.m [[Electrical resistivity and conductivity#Definition|Ω&sdot;m]]  1
mΩ.m [[Electrical resistivity and conductivity#Definition|mΩ&sdot;m]]  1e-3
μΩ.m [[Electrical resistivity and conductivity#Definition|μΩ&sdot;m]]  1e-6
uΩ.m [[Electrical resistivity and conductivity#Definition|uΩ&sdot;m]]  1e-6
nΩ.m [[Electrical resistivity and conductivity#Definition|nΩ&sdot;m]]  1e-9
pΩ.m [[Electrical resistivity and conductivity#Definition|pΩ&sdot;m]]  1e-12
fΩ.m [[Electrical resistivity and conductivity#Definition|fΩ&sdot;m]]  1e-15
aΩ.m [[Electrical resistivity and conductivity#Definition|aΩ&sdot;m]]  1e-18
zΩ.m [[Electrical resistivity and conductivity#Definition|zΩ&sdot;m]]  1e-21
yΩ.m [[Electrical resistivity and conductivity#Definition|yΩ&sdot;m]]  1e-24

R  [[Rayleigh (unit)|R]]  SI

G  [[Gauss (unit)|G]]  SI
aG [[Attogauss|G]]  SI
cG [[Centigauss|G]]  SI
daG [[Decagauss|G]]  SI
dG [[Decigauss|G]]  SI
EG [[Exagauss|G]]  SI
fG [[Femtogauss|G]]  SI
GG [[Gigagauss|G]]  SI
hG [[Hectogauss|G]]  SI
kG [[Kilogauss|G]]  SI
MG [[Megagauss|G]]  SI
mG [[Milligauss|G]]  SI
uG [[Microgauss|G]]  SI
μG [[Microgauss|G]]  SI

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nG [[Nanogauss|G]] SI
PG [[Petagauss|G]] SI
pG [[Picogauss|G]] SI
TG [[Teragauss|G]] SI
yG [[Yoctogauss|G]] SI
YG [[Yottagauss|G]] SI
zG [[Zeptogauss|G]] SI
ZG [[Zettagauss|G]] SI

T [[Tesla (unit)|T]] SI
aT [[Attotesla|T]] SI
cT [[Centitesla|T]] SI
daT [[Decatesla|T]] SI
dT [[Decitesla|T]] SI
ET [[Exatesla|T]] SI
fT [[Femtotesla|T]] SI
GT [[Gigatesla|T]] SI
hT [[Hectotesla|T]] SI
kT [[Kilotesla|T]] SI
MT [[Megatesla|T]] SI
mT [[Millitesla|T]] SI
uT [[Microtesla|T]] SI
μT [[Microtesla|T]] SI
nT [[Nanotesla|T]] SI
PT [[Petatesla|T]] SI
pT [[Picotesla|T]] SI
TT [[Teratesla|T]] SI
yT [[Yoctotesla|T]] SI
YT [[Yottatesla|T]] SI
zT [[Zeptotesla|T]] SI
ZT [[Zettatesla|T]] SI

== Astrophysics ==
au [[Astronomical unit|au]]
c [[Speed of light|'c']]
ly [[Light-year|ly]]
dex [[decimal exponent|dex]]
Earth mass [[Earth mass|'M'<sub>1</sub></sub>]]
Earth radius [[Earth radius|'R'<sub>1</sub></sub>]]
M_Earth [[Earth mass|'M'<sub>1</sub></sub>]]
R_Earth [[Earth radius|'R'<sub>1</sub></sub>]]
M+ [[Earth mass|'M'<sub>2</sub></sub>]]
R+ [[Earth radius|'R'<sub>2</sub></sub>]]
Jupiter mass [[Jupiter mass|'M'<sub>3</sub></sub>]]
Jupiter radius [[Jupiter radius|'R'<sub>3</sub></sub>]]
M_Jupiter [[Jupiter mass|'M'<sub>3</sub></sub>]]
R_Jupiter [[Jupiter radius|'R'<sub>3</sub></sub>]]
Solar mass [[Solar mass|'M'<sub>4</sub>&#x2609;</sub>]]
solar mass [[Solar mass|'M'<sub>4</sub>&#x2609;</sub>]]
M_Solar [[Solar mass|'M'<sub>4</sub>&#x2609;</sub>]]
M_solar [[Solar mass|'M'<sub>4</sub>&#x2609;</sub>]]
R_Solar [[Solar radius|'R'<sub>4</sub>&#x2609;</sub>]]
R_solar [[Solar radius|'R'<sub>4</sub>&#x2609;</sub>]]
Solar radius [[Solar radius|'R'<sub>4</sub>&#x2609;</sub>]]
solar radius [[Solar radius|'R'<sub>4</sub>&#x2609;</sub>]]
Solar luminosity [[Solar luminosity|'L'<sub>4</sub>&#x2609;</sub>]]
solar luminosity [[Solar luminosity|'L'<sub>4</sub>&#x2609;</sub>]]
L_solar [[Solar luminosity|'L'<sub>4</sub>&#x2609;</sub>]]
L_solar [[Solar luminosity|'L'<sub>4</sub>&#x2609;</sub>]]
L_0 [[Solar luminosity|'L'<sub>4</sub>&#x2609;</sub>]]
pc2 [[Parsec|pc<sup>2</sup>]]
pc3 [[Parsec|pc<sup>3</sup>]]
kpc2 [[Parsec#Parsecs and kiloparsecs|kpc<sup>2</sup>]]
kpc3 [[Parsec#Parsecs and kiloparsecs|kpc<sup>3</sup>]]

```

```
kpc [[Parsec#Parsecs and kiloparsecs|kpc]]
Mpc2 [[Parsec#Megaparsecs and gigaparsecs|Mpc2</sup>]]
Mpc3 [[Parsec#Megaparsecs and gigaparsecs|Mpc3</sup>]]
Mpc [[Parsec#Megaparsecs and gigaparsecs|Mpc]]
Gpc2 [[Parsec#Megaparsecs and gigaparsecs|Gpc2</sup>]]
Gpc3 [[Parsec#Megaparsecs and gigaparsecs|Gpc3</sup>]]
Gpc [[Parsec#Megaparsecs and gigaparsecs|Gpc]]

== Nuclear physics and chemistry ==
cm-1 [[Wavenumber|cm-1</sup>]]
u [[Unified atomic mass unit|u]]
osmol [[Osmole (unit)|osmol]]
Osm [[Osmole (unit)|Osm]]
M [[Molarity|M]]
TM [[Molarity|M]] SI
GM [[Molarity|M]] SI
MM [[Molarity|M]] SI
kM [[Molarity|M]] SI
hM [[Molarity|M]] SI
daM [[Molarity|M]] SI
dM [[Molarity|M]] SI
cM [[Molarity|M]] SI
mM [[Molarity|M]] SI
uM [[Molarity|M]] 1e-6
nM [[Molarity|M]] SI
pM [[Molarity|M]] SI
kg.mol-1 [[Molar mass|kg&sdot;mol-1</sup>]]
kg/mol [[Molar mass|kg/mol]]
g.mol-1 [[Molar mass|g&sdot;mol-1</sup>]]
g/mol [[Molar mass|g/mol]]
eV/c2 [[Electronvolt#Mass|eV/'c'2</sup>]]
keV/c2 [[Electronvolt#Mass|keV/'c'2</sup>]]
MeV/c2 [[Electronvolt#Mass|MeV/'c'2</sup>]]
GeV/c2 [[Electronvolt#Mass|GeV/'c'2</sup>]]
TeV/c2 [[Electronvolt#Mass|TeV/'c'2</sup>]]
μN [[Nuclear magneton|μ<span style="display:inline-block; margin-bottom:-0.3em; vertical-align:middle;">&nbsp;eV]]
μB [[Bohr magneton|μ<span style="display:inline-block; margin-bottom:-0.3em; vertical-align:middle;">&nbsp;eV]]
eV [[Electronvolt|eV]]
meV [[Electronvolt|meV]]
keV [[Electronvolt|keV]]
MeV [[Electronvolt|MeV]]
GeV [[Electronvolt|GeV]]
TeV [[Electronvolt|TeV]]
mol-1 [[Avogadro constant|mol-1</sup>]]
J.mol-1 [[Joule per mole|J&sdot;mol-1</sup>]]
J/mol [[Joule per mole|J/mol]]
kJ.mol-1 [[Joule per mole|kJ&sdot;mol-1</sup>]]
kJ/mol [[Joule per mole|kJ/mol]]
MJ.mol-1 [[Joule per mole|MJ&sdot;mol-1</sup>]]
MJ/mol [[Joule per mole|MJ/mol]]
GJ.mol-1 [[Joule per mole|GJ&sdot;mol-1</sup>]]
GJ/mol [[Joule per mole|GJ/mol]]
TJ.mol-1 [[Joule per mole|TJ&sdot;mol-1</sup>]]
TJ/mol [[Joule per mole|TJ/mol]]

== Numbers and phrases ==
pp [[Page (paper)|pp]]
ppb [[Parts per billion|ppb]] 1e-9
ppm [[Parts per million|ppm]] 1e-6
billiard [[Orders of magnitude (numbers)|billiard]] 1e15
billion [[1,000,000,000|billion]] 1e9
billionth [[1,000,000,000|billionth]] 1e-9
billionths [[1,000,000,000|billionths]] 1e-9
decilliard [[Orders of magnitude (numbers)|decilliard]] 1e63
```

```
decillion [[Orders of magnitude (numbers)#1033|decillion]] 1e33
decillionth [[Orders of magnitude (numbers)#1033|decillionth]] 1e-33
decillionths [[Orders of magnitude (numbers)#1033|decillionths]] 1e-33
milliard [[1,000,000,000|milliard]] 1e9
million [[Million|million]] 1e6
millionth [[Million|millionth]] 1e-6
millionths [[Million|millionths]] 1e-6
nonilliard [[Orders of magnitude (numbers)#1057|nonilliard]] 1e57
nonillion [[Orders of magnitude (numbers)#1030|nonillion]] 1e30
nonillionth [[Orders of magnitude (numbers)#1030|nonillionth]] 1e-30
nonillionths [[Orders of magnitude (numbers)#1030|nonillionths]] 1e-30
octilliard [[Orders of magnitude (numbers)#1051|octilliard]] 1e51
octillion [[Orders of magnitude (numbers)#1027|octillion]] 1e27
octillionth [[Orders of magnitude (numbers)#1027|octillionth]] 1e-27
octillionths [[Orders of magnitude (numbers)#1027|octillionths]] 1e-27
quadrilliard [[Orders of magnitude (numbers)#1027|quadrilliard]] 1e27
quadrillion [[Orders of magnitude (numbers)#1015|quadrillion]] 1e15
quadrillionth [[Orders of magnitude (numbers)#1015|quadrillionth]] 1e-15
quadrillionths [[Orders of magnitude (numbers)#1015|quadrillionths]] 1e-15
quintilliard [[Orders of magnitude (numbers)#1033|quintilliard]] 1e33
quintillion [[Orders of magnitude (numbers)#1018|quintillion]] 1e18
quintillionth [[Orders of magnitude (numbers)#1018|quintillionth]] 1e-18
quintillionths [[Orders of magnitude (numbers)#1018|quintillionths]] 1e-18
septilliard [[Orders of magnitude (numbers)#1045|septilliard]] 1e45
septillion [[Orders of magnitude (numbers)#1024|septillion]] 1e24
septillionth [[Orders of magnitude (numbers)#1024|septillionth]] 1e-24
septillionths [[Orders of magnitude (numbers)#1024|septillionths]] 1e-24
sexilliard [[Orders of magnitude (numbers)#1039|sexilliard]] 1e39
sexillion [[Orders of magnitude (numbers)#1021|sexillion]] 1e21
sexillionth [[Orders of magnitude (numbers)#1021|sexillionth]] 1e-21
sexillionths [[Orders of magnitude (numbers)#1021|sexillionths]] 1e-21
trilliard [[Orders of magnitude (numbers)#1021|trilliard]] 1e21
trillion [[Orders of magnitude (numbers)#1012|trillion]] 1e12
trillionth [[Orders of magnitude (numbers)#1012|trillionth]] 1e-12
trillionths [[Orders of magnitude (numbers)#1012|trillionths]] 1e-12

== Angles ==
% % Percent
percent % Percent
per cent % Percent
% %% Per mil
per mil %% Per mil
per mill %% Per mil
per mille %% Per mil
permil %% Per mil
permill %% Per mil
permille %% Per mil
° ° Degree (angle)
deg ° Degree (angle)
'
'
arcmin '
'
arcminute '
"
"
arcsec "
"
arcsecond "
"
mas [[Milliarcsecond|mas]] pi/648000000
]

-- If val has "|long scale=on" the following definitions are used
-- (then, if not found here, the normal definitions are used).
-- Unit code [[Link|Symbol]] Flags/Scale
```

```
local builtin_units_long_scale = [=]

== Long scale numbers and phrases ==
billion [[Orders of magnitude (numbers)#1012|billion]] 1e12
billionth [[Orders of magnitude (numbers)#1012|billionth]] 1e-12
billionths [[Orders of magnitude (numbers)#1012|billionths]] 1e-12
decillion [[Orders of magnitude (numbers)#1060|decillion]] 1e60
decillionth [[Orders of magnitude (numbers)#1060|decillionth]] 1e-60
decillionths [[Orders of magnitude (numbers)#1060|decillionths]] 1e-60
nonillion [[Orders of magnitude (numbers)#1054|nonillion]] 1e54
nonillionth [[Orders of magnitude (numbers)#1054|nonillionth]] 1e-54
nonillionths [[Orders of magnitude (numbers)#1054|nonillionths]] 1e-54
octillion [[Orders of magnitude (numbers)#1048|octillion]] 1e48
octillionth [[Orders of magnitude (numbers)#1048|octillionth]] 1e-48
octillionths [[Orders of magnitude (numbers)#1048|octillionths]] 1e-48
quadrillion [[Orders of magnitude (numbers)#1024|quadrillion]] 1e24
quadrillionth [[Orders of magnitude (numbers)#1024|quadrillionth]] 1e-24
quadrillionths [[Orders of magnitude (numbers)#1024|quadrillionths]] 1e-24
quintillion [[Orders of magnitude (numbers)#1030|quintillion]] 1e30
quintillionth [[Orders of magnitude (numbers)#1030|quintillionth]] 1e-30
quintillionths [[Orders of magnitude (numbers)#1030|quintillionths]] 1e-30
septillion [[Orders of magnitude (numbers)#1042|septillion]] 1e42
septillionth [[Orders of magnitude (numbers)#1042|septillionth]] 1e-42
septillionths [[Orders of magnitude (numbers)#1042|septillionths]] 1e-42
sextillion [[Orders of magnitude (numbers)#1036|sextillion]] 1e36
sextillionth [[Orders of magnitude (numbers)#1036|sextillionth]] 1e-36
sextillionths [[Orders of magnitude (numbers)#1036|sextillionths]] 1e-36
trillion [[Orders of magnitude (numbers)#1018|trillion]] 1e18
trillionth [[Orders of magnitude (numbers)#1018|trillionth]] 1e-18
trillionths [[Orders of magnitude (numbers)#1018|trillionths]] 1e-18

]=]

return { builtin_units = builtin_units, builtin_units_long_scale = builtin_units_
```