

D. Tables

Table 1 Units with special names and symbols¹

ALL VALUES DECIMAL

Unit Category		Dimension	The Universal Unit Systems			
			with the Rydberg constant(u)		Harmonic System (\pm)	
Coherent	base units	length	$_{\text{u}}\text{m}$	272.102883 mm	$\pm h^2$	272.352206 mm
	that are not	time	$_{\text{u}}\text{s}$	390.267520 ms	$\pm n$	390.625115 ms
	natural units	energy	$_{\text{u}}\text{J}$	64.143275 mJ	$\pm J$	64.084556 mJ
		temperature ³	$_{\text{u}}\text{K}$	58.441041 μK	$\pm K$	58.387542 μK
	base units	plane angle	rad	(2/ π) arc sin(1)		
	that are	logarithm	neper	log(e)		
	natural units	amount of substance	$_{\text{u}}\text{mol}$ or N_{A}^{-1}	mol / 6.02214076 $\times 10^{23}$. In this context 'h' is equivalent to '3-' and $_{\text{u}}\text{mol}$ is called 'natural mol.'		
		impedance	$_{\text{u}}\Omega$ or Z_{P}	29.979245796 Ω (=1sr/($\epsilon_0 c_0$) ⁴) $_{\text{u}}\Omega$ is called 'natural ohm' or more simply 'nohm.'		
	derived units of electromagnetic quantities	charge	$\pm C$	28.896578 mC (may be called 'universal Coulomb' (or 'Clio' ⁶))		
		electric current	$_{\text{u}}\text{A}$	74.043001 mA	$\pm A$	73.975219 mA
		field strength	$_{\text{u}}\text{E}$ ^{5,6}	272.113988 mA/m	$\pm E$	271.616007 mA/m
		flux density	$_{\text{u}}\text{T}$	390.283447 mC/m ²	$\pm T$	389.569211 mC/m ²
	derived units of dynamical quantities	mass	$_{\text{u}}\text{g}$	131.950082 g	$\pm l$ (x006C)	131.829289 g
		power	$_{\text{u}}\text{W}$	164.357196 mW	$\pm W$	164.056415 mW
		force	$_{\text{u}}\text{N}$	235.731701 mN	$\pm N$	235.300301 mN
		Pressure	$_{\text{u}}\text{P}$	3.183843 Pa	$\pm P$	3.172201 Pa

¹ Please see also https://github.com/suchowan/a_converter/blob/master/doc/dozenal_com/univunit-e.pdf for details. A web-based unit converter is available at <http://hosi.org/cgi-bin/conv.cgi>. This converter also teaches us the representation of units that belong to various unit systems.

² 'harmon'($\pm h$), 'nic'($\pm n$), 'looloh'⁸($\pm l$, 'l' can also be a cursive 'l' (x2113), the suffix 'h' representing the Harmonic System's identity), and 'nohm'($_{\text{u}}\Omega$) constitutes a quartet.

³ The unit of thermodynamic temperature has been changed. The new unit is one-1,0000;th of the old unit in the paper <http://dozenal.com> along with the introduction of the Earth local extension.

⁴ If we adopt the elementary charge as one of the definition constants, $\pm \Omega$ is used in substitution for $_{\text{u}}\Omega$.

⁵ See electromagnetic units in Appendix エラー! 参照元が見つかりません。 and §3.2.2 of the paper <http://dozenal.com>, https://github.com/suchowan/a_converter/blob/master/doc/dozenal_com/electromagnetism.pdf.

⁶ The unit symbol E (Ørsted) is associated with the CGS system. In this paper, we adopt metric unit names based on the scientists' names as is.

However, under the Harmonic System, an alternative proposal suggests replacing these units with the names of Muses bearing the same initials — namely, Newton→**Nete**, Pascal→(Polymnia→)**Polym**, Coulomb→**Clio**, Ampere→**Aoide**, Ørsted→**Erato**, Tesla→**Thalia**, and Kelvin→**Kalliope**. This proposal has two advantages: (1) it does not honor any individual, and (2) it allows the omission of redundant 'harmonic' terms エラー! テクニックが定義されていません. The unit converter for this proposal is available at http://hosi.org/cgi-bin/conv_muse.cgi.

This proposal also renames units for which no corresponding Muse is found, such as Joule→**Juno**, Watt→(Walküre→)**Walku**, naper→(Nephele→)**nephe**, dirac→**diana**, and Ω_{hm} → **Ω (Omega)**. Since no suitable Muse exists for Joule, Watt, or naper, the proposal instead borrows names from Roman, Norse, and Greek mythology. Moreover, because of the electromagnetic symmetry required to pair $_{\text{u}}\Omega$ and Ω_2 (see the 3rd part of p. 20), ' Ω (Omega)' is adopted without a Muse equivalent.

Non-coherent	defining constants	wave number	R_∞	10,973,731.568157/m (is called ‘Rydberg’)
		velocity	c_0 or γ	299,792,458 m/s (defined, and is called ‘light’)
		action	\hbar	$6.62607015 \times 10^{-34}$ Js/ 2π (is called ‘quantum’)
		heat capacity	k_B	1.380649×10^{-23} J/K (is called ‘Boltzmann’)
	supplementary constants	the total solid angle of a hypersphere	Ω_k	$\frac{2\pi^{\frac{k+1}{2}}}{\Gamma(\frac{k+1}{2})} \text{ rad}^k$ $k=0,1,2$ $\Omega_0=2$ $\Omega_1=2\pi \text{ rad}$ (is called ‘cycle’) $\Omega_2=4\pi \text{ sr}$ (is called ‘turn’)
		logarithm of an integer	$\bar{\Omega}_k$	$\log(2^k)$ $k=1(\text{bit}), z(\text{figure}), 4(\text{nibble}), 8(\text{byte}), \dots$ $z=\log_2(12.)$
		amount of substance	$\pm \text{mol}$	132.007620 mol (=12. ²⁴ / N_A) ($\pm \text{mol}$ may be called ‘universal mol’)
		elementary charge	e	$1.6021766340 \times 10^{-19}$ C (e is called ‘electron’) $(=\sqrt{\frac{\alpha \hbar}{\Omega_n}})$

Table 2 Physical, material and astronomical constants⁷

ALL VALUES DOZENAL

Constant Symbols and Name (UNDERLINE INDICATES CONSTANT MAINTAINS SAME VALUE BETWEEN SYSTEMS u AND h)		Constant Value expressed by the Universal Unit Systems		Exponent N of 10^N	Unit Symbol (u and h prefixes omitted)
		with the Rydberg constant (u)	Harmonic System (h)		
R_∞	Rydberg constant	1	1;00170000	6;	Ω_1/m
c_0	<u>the speed of light in vacuum</u>	1		8;	m/s
\hbar	<u>quantum of action</u>	1		-26;	J s
k_B	<u>Boltzmann constant</u>	1		-20;	J/K
N_A	<u>Avogadro constant</u>	1		20;	mol ⁻¹
R	<u>gas constant</u>	1		0;	J/(mol K)
u	unified atomic mass unit	1;00090610	1;00240733	-20;	g ⁸
a_B	Bohr Radius	1;005E85684	1;00447X74	-9;	m
α	<u>fine structure constant</u>	1;0739940472		-2;	-
e	<u>elementary charge</u>	1;0374439E14		-14;	C
m_e	electron mass	0;E4692217E0	0;E48324X245	-23;	g
σ	<u>Stefan-Boltzmann constant</u>	1;E82E28		-1E;	W/(m ² K ⁴)

⁷ If CODATA (2022) values are required, see <http://physics.nist.gov/cuu/Constants/index.html> .

⁸ Because u_g is approximately 100;¹⁰; u , I add dedicated name ‘looloh’ (lú:lou/əu, ± 1) to mass unit of the Harmonic System.

m_G	gravitic meter ($\sqrt{2E}; l_P$)	1;00186	1;00016	-27;	m
l_P	Planck length	2;0445E	2;04134	-28;	m
F_P	Planck force ($\hbar c_0 / l_P^2$)	2;XE206	2;XEE32($\div 2;E$) ⁹	35;	N
G	Newtonian constant of gravitation (c_0^4/F_P)	4;15768	4;14663	-X;	(m ⁴ /s ⁴)/N
θ_W	<u>weak mixing angle</u>	E;304		-2;	Ω_1
V_m	molar volume of an ideal gas under standard conditions	1;02X469	1;025665	2;	m ³ /mol
	black-body radiation at the ice point	0;EX2466	0;EX8784	2;	W/m ²
	maximum density of water	1;088183	1;092X47 ($\div 15;14;$)	2;	g/m ³
	density of ice at the ice point	0;E7E9	0;E85E	2;	g/m ³
	specific heat of water ¹⁰	0;6052	0;6045 ($\div 1/2$)	0;	J/(g K)
	surface tension of water at 25°C	0;EE68	0;EEE4	-1;	N/m
atm	standard atmosphere	1;65008E	1;659967 ($\div 1;66$)	4;	P
g_n	standard gravitational acceleration	5;5X54XE9	5;5E21264 ($\div E;2$)	0;	m/s ²
r_E	gravitational radius of Earth	2;41E8982X0X	2;418030652	-2;	m
au	astronomical unit	8;X67575535	8;X55509X31	X;	m
	<u>astronomical unit</u>	9;E91731X53		-3;	c_0 s _E day

Table 3 Power prefixes

name	symbol	T _E X text	value	name	symbol	T _E X text	value
dirac ¹¹	$\mathcal{V}\#$	dirac	10;				
hyper	$\#$ (x266F)	hyper	10;⁴	sub	\mathfrak{b} (x266D)	sub	10;⁻⁴
cosmic	+	$_+$	10; ⁸ (=U)	atomic	-	$_-$	U⁻¹
di-cosmic	2+	$_{2+}$	U ²	di-atomic	2-	$_{2-}$	U ⁻²
ter-cosmic	3+	$_{3+}$	U ³	ter-atomic	3-	$_{3-}$	U ⁻³
tetra-cosmic	4+	$_{4+}$	U ⁴	tetra-atomic	4-	$_{4-}$	U ⁻⁴
penta-cosmic	5+	$_{5+}$	U ⁵	penta-atomic	5-	$_{5-}$	U ⁻⁵
hexa-cosmic	6+	$_{6+}$	U ⁶	hexa-atomic	6-	$_{6-}$	U ⁻⁶
hepta-cosmic	7+	$_{7+}$	U ⁷	hepta-atomic	7-	$_{7-}$	U ⁻⁷

⁹ If this is expressed as 2;E, the error from CODATA (2018) becomes -6;61(-6.51) times standard deviation.

¹⁰ This corresponds to the definition of the thermodynamic calorie.

¹¹ ‘dirac’ is only used when expressing the unit of the Gravitic System with the Harmonic System. (i.e., gravitic meter = tetra-atomic dirac harmon, gravitic second = penta-atomic dirac nic, gravitic gram = atomic dirac looloh)

Table 4 Examples of natural scale quantity representation ¹²

quantity	symbol	value	refer to
2E; penta-cosmic Newton	2E; ₅ N	2E; \times U ⁵ [harmonic] Newton	the Planck force
6;di-cosmic nic	6; ₂ +n	6; \times U ² [harmonic]nic[second]	the age of the universe
cosmic hyper bit [Boltzmann]	+ $\# \bar{0}_1[k_B]$	U ^{1\cdot⁴} log2 ¹ [Boltzmann]	1.01 Tera Byte(=2 ⁴³ .bit)
cosmic harmon	+h	U ¹ harmon[ic meter]	the speed of light in vacuum
ato[mic][light]	- γ	harmon[ic meter]/ [harmonic]nic[second]	U ⁻¹ light(\div 2.51 km / hour)
atomic uninio[][h[armon]	1; '[0].h ¹³	U ^{-1\cdot¹} harmon[ic meter]	the Bohr radius
di-atomic Coulomb	₂ .C	U ⁻² [universal] Coulomb	the elementary charge
di-atomic effective Watt ¹⁴	₂ . \bar{W}	U ⁻² [harmonic]effective Watt	a photon power (540.THz)
ter-atomic looloh	₃ .l	U ⁻³ looloh	the unified atomic mass unit
2; tetra-atomic harmon	2; ₄ .h	2; \times U ⁻⁴ harmon[ic meter]	the Planck length

Table 5 The Earth local extension for the Harmonic Universal Unit System

category		name / description	symbol	plain text	value																	
Non-coherent calendar time	units	year	☼ _(x263C)	year	☼=365.days 31.nodus (265; [̄] 27; ☼)																	
		month	☾ _(x263D)	month	☾=10; ⁻¹ ☼																	
		day	[̄] _(x00B0)	day	Ω ₁ =1 [̄] =10; [̄] =100; [̄] =1000; [̄] ¹³																	
		unino day dino day terno day (tertiary 12 divisions of one day)	[̄] _(x2032) [̄] _(x2033) [̄] _(x2034)	unitia ditia tertia	‘day’ corresponds to 86,400. s at the beginning of year 1900. Each calendar time unit symbol is distinguished from existing systems by adding a tilde (“~”,x0303) or by superscripting the symbol itself.																	
Non-coherent unit and constants		nodus	☼ _(x2606)	nodus	[̄] =2 ⁺⁷ ☼																	
		terno nodus→terno n(odus)→ternon	☾ _(x25BD)	ternon	☾=10; ⁻³ ☼																	
		hexaon nodus→hex(a)o(n) n(odus)→hexon	☾ _(x232C)	hexon	☾=2 ⁺⁶ ☼=1;003628×10; ⁺⁶ ☼																	
		difference between thermodynamic temperature and T_E (=118,2354; ±K (-74.36°C,-101.85°F))	°H	deg H	1,0000; ±K(÷1.210724 K ÷ 23./19. K)																	
		approximate formula	<table><tr><td>°C = $\frac{1E}{17}$; °H-62;4</td><td>°H = $\frac{17}{1E}$; °C + 51;5</td></tr></table>			°C = $\frac{1E}{17}$; °H-62;4	°H = $\frac{17}{1E}$; °C + 51;5	<table><tr><td>100; 0000°H</td><td>is</td><td>99.9839 °C</td></tr><tr><td>78;0000°H</td><td>is</td><td>37.0262°C</td></tr><tr><td>61;0000°H</td><td>is</td><td>14.0224°C</td></tr><tr><td>51;5026°H</td><td>is</td><td>0.0000°C</td></tr></table>			100; 0000°H	is	99.9839 °C	78;0000°H	is	37.0262°C	61;0000°H	is	14.0224°C	51;5026°H	is	0.0000°C
°C = $\frac{1E}{17}$; °H-62;4	°H = $\frac{17}{1E}$; °C + 51;5																					
100; 0000°H	is	99.9839 °C																				
78;0000°H	is	37.0262°C																				
61;0000°H	is	14.0224°C																				
51;5026°H	is	0.0000°C																				
supple-mentary constants		the gravitational acceleration of the Earth (is called ‘gee [of Earth] ’)	g_E	g_ E or gee	5;611X615 harmon/nic ² g _E is defined as c ₀ ² r _E (m _E rad) ⁻²																	
		the rotation period of the Earth (is called ‘[Earth] solar’) at the beginning of year 1900.	s_E	s_ E or solar	0;EEEEEE15336X nic/ ternon (=86400 s /Ω ₁) (This should be ‘coordinated’.)																	
		the meridian length of the Earth (is called ‘[Earth] meridian’)	m_E	m_ E or meridian	4124,216E; harmon/Ω ₁																	

¹² The part enclosed with '[']' can be omitted in Table 4 and Table 5.

¹³ This is the notation explained at the end of Appendix C.

\bar{W} corresponds to 1;di-cosmic photon energy(540.THz) / nic and 115.667212 lumen.

¹⁴ Units for quantity weighted by dimensionless human sensitivity are indicated by 'effective' and symbolled by overline.

\bar{W} corresponds to 1;di-cosmic photon energy(540.THz) / nic and 115.667212 lumen.