

A comprehensive (SI) units package

Joseph Wright

16th October 2010

Before siunitx

- ✦ units
- ✦ unitsdef
- ✦ Slunits
- ✦ Slstyle
- ✦ numprint
- ✦ fancyunits
- ✦ ...

Design aims

- ✦ Flexible input
- ✦ Semantic mark up
- ✦ Easy for end users
- ✦ Apply standards by default
- ✦ Accept that not everyone will stick to these

The key–value control system

Control

- ✦ Item-by-item as optional argument
- ✦ General using `\sisetup`

Example keys

- ✦ `per-mode`
- ✦ `round-mode`
- ✦ `table-format`

The unit processor

In words

kilogram metres per second squared

kilogram metres per square second

In macros

```
\si{\kilogram\metre\per\second\squared}
```

```
\si{\kilogram\metre\per\square\second}
```

Output

kg m s^{-2} kg m/s^2 $\frac{\text{kg m}}{\text{s}^2}$ kg m/s^2

Numbers

Grouping	123 456	<code>\num{123456}</code>
Decimals	123.456	<code>\num{123,456}</code>
Exponents	12.3×10^4	<code>\num{12.3e4}</code>
Uncertainty	123.4(5)	<code>\num{123.4(5)}</code>
	123.4 ± 0.5	
Rounding	123.456	<code>\num{123.456}</code>
	123.46	
	123.5	
Complex numbers	$1.2 + 3i$	<code>\num{1.2+3i}</code>

Numbers with units

Input

```
\SI{1.2e3}{\metre\per\second\squared}
```

```
\SI{1.2(3)}{\kelvin}
```

```
\SI[separate-uncertainty]{1.2(3)}{\kelvin}
```

```
\SIrange{10}{20}{\metre}
```

```
\SIlist{10;20;30;40}{\metre}
```

Output

$1.2 \times 10^3 \text{ m s}^{-2}$

1.2(3) K

(1.2 ± 0.3) K

10 m to 20 m

10 m, 20 m, 30 m and 40 m

Tables

Values	Values	Values	Values	Values
2.3	2.3(5)	2.3 ± 0.5	2.3	2.3×10^8
34.23	34.23(4)	34.23 ± 0.04	34.23	34.23
56.78	56.78(3)	56.78 ± 0.03	-56.78	56.78×10^3
3.76	3.76(2)	3.76 ± 0.02	± 3.76	10^6

Summary

- ✦ siunitx supercedes all previous unit packages
- ✦ Setting allow many possible output formats
- ✦ Development continuing: v2.1 expected by November