Compliance sheet — star-units

Everything a supplier qualification, a legal review or an export check usually asks about star-units 0.1.1, in one document.

1. Identity

Document	STAR-PKG-STAR-UNITS-EN · v2.3 · 2026-11-14
Package	star-units
Version	0.1.1
Capability	star.units.conversion
Maturity	Released & Verified (RELEASED)
Python	>=3.9
Source commit	dc09f61d
Source	https://github.com/Andrea07072000/S.T.A.R.-/tree/main/packages/star_units

2. Licence and obligations

Apache License 2.0. You may use, copy, modify and distribute it, also commercially, and you receive a patent licence from the contributors. When you redistribute it: keep the LICENSE file and the copyright notices (and a NOTICE file, if a future version adds one), and state in modified files that you changed them. You may not use the S.T.A.R. name to endorse your product.

3. What it needs at run time

Nothing beyond the Python standard library: it works offline.

4. Integrity

SHA-256 fingerprints of the files published on this website. Check a downloaded file with:

```
python -c "import
hashlib,sys;print(hashlib.sha256(open(sys.argv[1],'rb').read()).hexdigest())" star_units-
0.1.1-py3-none-any.whl
```

FILE	SHA-256
star_units-0.1.1-py3-none-any.whl	c5e8574730523ffd9d864c247a23e76b52dd197721508ce47c92ca4191fe50f6
star_units.py	aa572fb2306c04bc7ab3feeeb17f228214ff33c60ec90abb8e5fc243a627713f
star_units-0.1.1-source.zip	08a346692f0811365d1e9662e1d3c6fd80d7c429af6b7088bfc18b1076053d18

5. What it does, and its limits

Conversion between 64 units of ten dimensions and four temperature scales from exact definitions held as fractions; identical to SciPy within 4.5e-16 on all 416 ordered pairs and to astropy within 2.3e-16 on 328; a conversion between different dimensions (force and impulse, mass and force) is refused.

A fixed table, not a unit algebra: no compound units beyond the ones listed, no prefixes generated on the fly, no parsing of expressions. The calorie is the thermochemical one (4.184 J) and the BTU the International Table one; other calories and BTUs exist. On the 68 pairs that involve lbf, slug, psi, hp, ft*lbf, lbf*s or BTU, astropy differs from this module and from SciPy by up to 1.7e-8 relative: it builds the pound-force from a slug rounded to 32.174049 lb and holds the BTU to nine digits; this module follows the exact definitions. That is recorded as a candidate observation about a third-party library, not reported. astropy has no kgf and no atm: 20 pairs are compared with SciPy only.

- `convert(value, from_unit, to_unit)` for 64 units of ten dimensions (length, mass, time, force, pressure, angle, speed, energy, power, impulse). Every factor is the exact definition (SI Brochure, NIST SP 811, the 1959 yard and pound, standard gravity, IAU 2012 B2 and 2015 B2) held as a fraction; the ratio is exact and rounded once.
- `convert_temperature` for K, °C, °F, °R, exact in rational arithmetic; `dimension(unit)` and `units(dimension)`.
- Measured on ALL 416 ordered pairs of units of the same dimension: within 4.5e-16 relative of SciPy's table on every pair; within 2.3e-16 of astropy on 328 pairs; 84 temperature conversions within 2e-12 K of both.

- A conversion between different dimensions raises `ValueError` naming both; so do unknown or mis-cased unit names, non-finite or non-numeric values (booleans included), an overflowing result, a temperature below absolute zero.

6. Export, use and certification

The package is published and freely available. That usually takes software out of export-control lists, but not every use of it: read the page on space activities and export control before using it in a controlled programme. It is not certified or qualified for flight; the evidence describes what was tested and how.

7. Citation and bill of materials

```
@software{cavazzini_star_units_0_1_1,
  author  = {Cavazzini, Andrea},
  title   = {{star-units}: Unit conversion with exact definitions and a dimension check},
  version = {0.1.1},
  year    = {2026},
  url     = {https://andrea07072000.github.io/S.T.A.R.-/software/star_units/},
  note    = {Apache-2.0. Source: https://github.com/Andrea07072000/S.T.A.R.-, commit dc09f61d}
}
```

CITATION.cff · BibTeX · SBOM CycloneDX 1.5 · SBOM SPDX 2.3

8. Warranty and liability

Provided "as is", without warranties or conditions of any kind (Apache License 2.0, sections 7 and 8), to the extent the law allows. This never excludes liability that the law does not allow to exclude.

Related: space activities and export control · acceptable use · evidence and limits · licence texts