Compliance sheet — star-elements

Everything a supplier qualification, a legal review or an export check usually asks about star-elements 0.2.4, in one document.

1. Identity

Document	STAR-PKG-STAR-ELEMENTS-EN · v2.3 · 2026-11-14
Package	star-elements
Version	0.2.4
Capability	star.orbit.anomalies
Maturity	Released & Verified (RELEASED)
Python	>=3.9
Source commit	dc09f61d
Source	https://github.com/Andrea07072000/S.T.A.R.-/tree/main/packages/star_elements

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_elements-
0.2.4-py3-none-any.whl
```

FILE	SHA-256
star_elements-0.2.4-py3-none-any.whl	bb7b96a3fbd632fd7cf99f4ebb30eb90a23fbffaa237e4e33286bd343599518f
star_elements.py	7b54ae0a1b1796edbc6cc38206d431dec18e3024b95a99fa76c3846e98002044
star_elements-0.2.4-source.zip	c183181a0a3fd64c534d8cfabe32e2b0cec9f9df126fe5927c6737fc0dce2ba3

5. What it does, and its limits

Classical orbital elements to and from Cartesian state. Standard library only.

Hyperbolic/parabolic anomalies, equinoctial or other non-singular element sets (needed for equatorial/circular orbits), mean elements, any flight use.

- `rv_to_coe(r, v, mu=398600.4418) -> (h, e, i, raan, argp, nu)` (Curtis Algorithm 4.2); units km, km/s, radians.
- `coe_to_rv(h, e, i, raan, argp, nu, mu) -> (r, v)` (Curtis Algorithm 4.5).
- Singular or invalid cases raise `ValueError`: equatorial (no RAAN), circular (no argp), rectilinear, h <= 0, hyperbolic true anomaly beyond the asymptotes. No arbitrary angle is ever returned for an undefined element.
- (0.2.0) Anomalies for 0 <= e < 1: `mean_to_eccentric` (Kepler, Newton; RuntimeError if not converged), `eccentric_to_true`, `true_to_eccentric`, `eccentric_to_mean`; e >= 1 raises `ValueError`.

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_elements_0_2_4,
  author  = {Cavazzini, Andrea},
  title   = {{star-elements}: Classical orbital elements to and from Cartesian state (Curtis
Algorithms 4.2 / 4.5)},
  version = {0.2.4},
  year    = {2026},
  url     = {https://andrea07072000.github.io/S.T.A.R.-/software/star_elements/},
  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

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