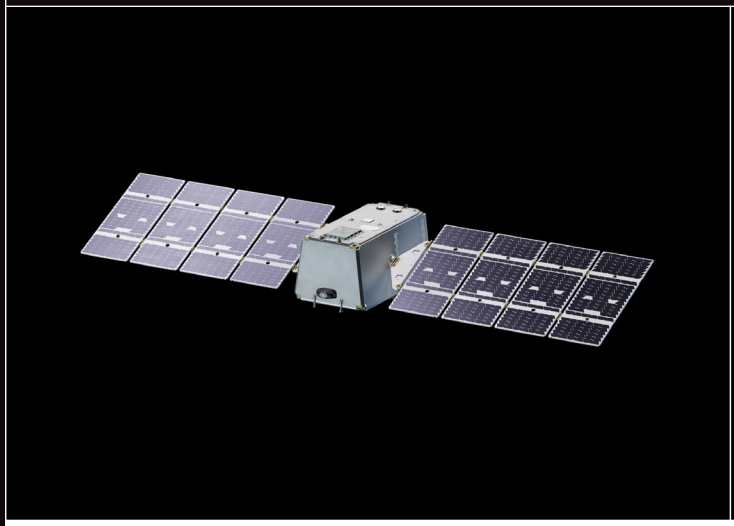
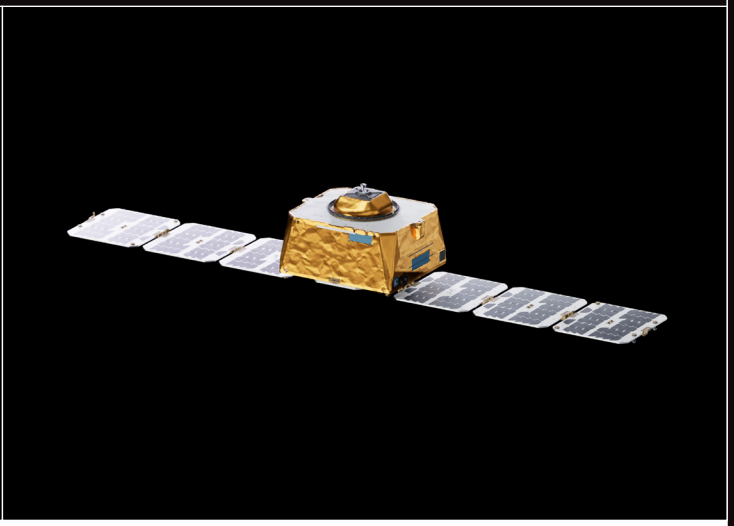
# STARRAY

Customizable Solar Array Solutions for Satellites





## OVERVIEW

Rocket Lab's Standardized Array (STARRAY) is a pre-engineered solution, providing a customizable solar array solution to meet the diverse power needs of satellites operating in any orbital condition. STARRAY can be configured into one, two, three or four panels per wing depending on your satellite's needs.

STARRAY offers two voltage options of 45V and 62V at beginning of life (BOL), targeting end of life (EOL) options of approximately 36V and 50V for a typical missions' lifecycle (end of life performance analysis can be provided upon request).

**STARRAY is available in two options:**

- **L-Star:** For low mass satellites ranging from ~130W to ~390W BOL per wing (1 to 3 deployable panels per wing)
- **T-Star:** For high power satellites ranging from ~180W to ~1800W BOL per wing (1 to 4 deployable panels per wing)

## FEATURES

- Using Rocket Lab's Z4J+ radiation-hard, quad-junction solar cell technology with 81.49cm2 cell area and 4mil thick coverglass.
- Aluminum honeycomb-core, CRFP sandwich panels.
- Standard components include mil-spec wiring, temperature sensors, blocking diodes, and bleed resistors.
- TiNi E2000 ejector release mechanisms
- Suitable for LEO and GEO missions.

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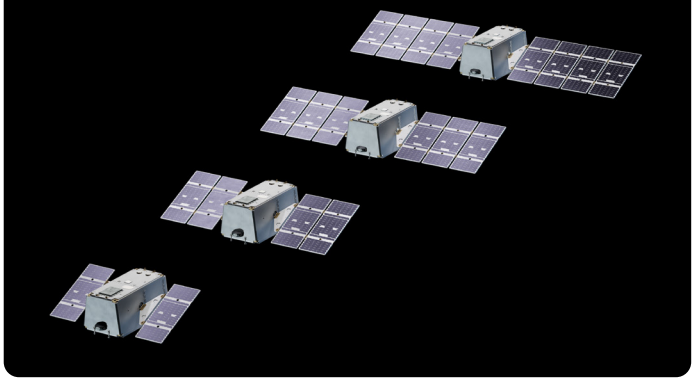
# T-STAR

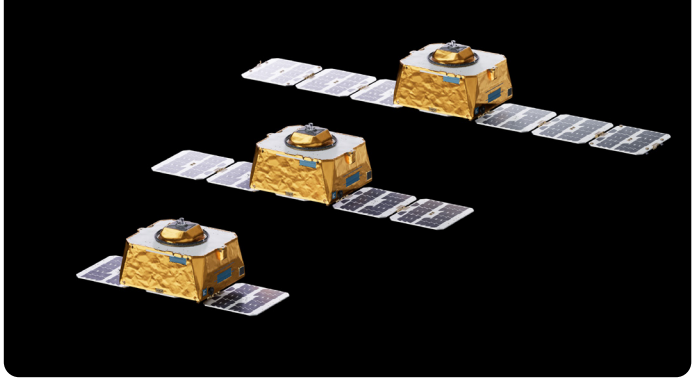


- Up to four panels per wing
- 7 panel size options
- Length (along wing deployment direction) 541mm, 667mm, and 800mm; Width: 1198mm, 1479mm, 1619mm, 1760mm, 1900mm
- Panel thickness of 18mm with 18mm spacing, resulting in maximum distance between spacecraft sidewall and most extruded point of:
  - 95mm for single panel
  - 131mm for two panels
  - 167mm for three panels
  - 203mm for four panels
  - A yoke adds 36mm to the total stowed wing thickness
- Yokes can be added depending on the specific configurations required.
- Approximate mass of 4.3 kg/m$^2$ to 5.8 kg/m$^2$ (without deployment mechanisms) or 5.4 kg/m$^2$ to 10.4 kg/m$^2$ (including deployment mechanisms) dependent on specific option size option and number of panels per wing. A yoke will add between 1.9kg and 2.3kg depending on the specific configuration.
- Electrical interface to spacecraft via rectangular GlenAir Series 28 connector with a pin count of 37 contacts without yoke and via circular D39888 connectors if yoke is included in design.

## T-Star BOL Vmp and size options with wing power

| Voltage Option | Substrate Size (mm) | Wing Power (Pmp, beginning of life, AM0 28°C and 0° angle of incidence) | | | |
|---|---|---|---|---|---|
| | | 1 Panel per Wing | 2 Panels per Wing | 3 Panels per Wing | 3 Panels per Wing |
| Vmp of 45V BOL | 541 x 1198 | 183 W | 366 W | 547 W | 727 W |
| | 667 x 1198 | 229 W | 457 W | 683 W | 909 W |
| | 800 x 1198 | 275 W | 548 W | 819 W | 1090 W |
| | 800 x 1479 | 320 W | 638 W | 955 W | 1270 W |
| | 800 x 1619 | 365 W | 729 W | 1091 W | 1451 W |
| | 800 x 1760 | 411 W | 821 W | 1228 W | 1633 W |
| | 800 x 1900 | 457 W | 911 W | 1364 W | 1814 W |
| Vmp of 62V BOL | 800 x 1198 | 263 W | 525 W | 786 W | 1045 W |
| | 800 x 1479 | 329 W | 656 W | 981 W | 1305 W |
| | 800 x 1619 | 394W | 787 W | 1177 W | 1566 W |
| | 800 x 1900 | 460W | 917 W | 1373 W | 1825 W |

# L-STAR



- Up to three panels per wing
- Single substrate size option of 750mm (along wing deployment direction) x 840mm
- Single hinge per panel
- Panel thickness of 12mm with 12mm spacing, results in maximum distance between spacecraft sidewall and most extruded point of:
  - 99mm for single panel
  - 123mm for two panels
  - 146mm for three panels
- Approximate mass of 3.3 kg/m$^2$ (without deployment mechanisms) or 4.3 kg/m$^2$ to 4.5 kg/m$^2$ (including deployment mechanisms) dependent on specific option size option and number of panels per wing.
- Electrical interface to spacecraft via rectangular GlenAir series 790 connector (pin count of 13, 33 and 43 for single, two and three panels per wing respectively).

## L-Star BOL Vmp and size definition with wing power

| Voltage Option | Substrate Size (mm) | Wing Power (at beginning of life, AM0 28°C and 0° angle of incidence) | | |
|---|---|---|---|---|
| | | 1 Panel per Wing | 2 Panels per Wing | 3 Panels er Wing |
| Vmp of 45V BOL | 750 x 840 | 137 W | 274 W | 410 W |
| Vmp of 62V BOL | 750 x 840 | 132 W | 263 W | 393 W |