

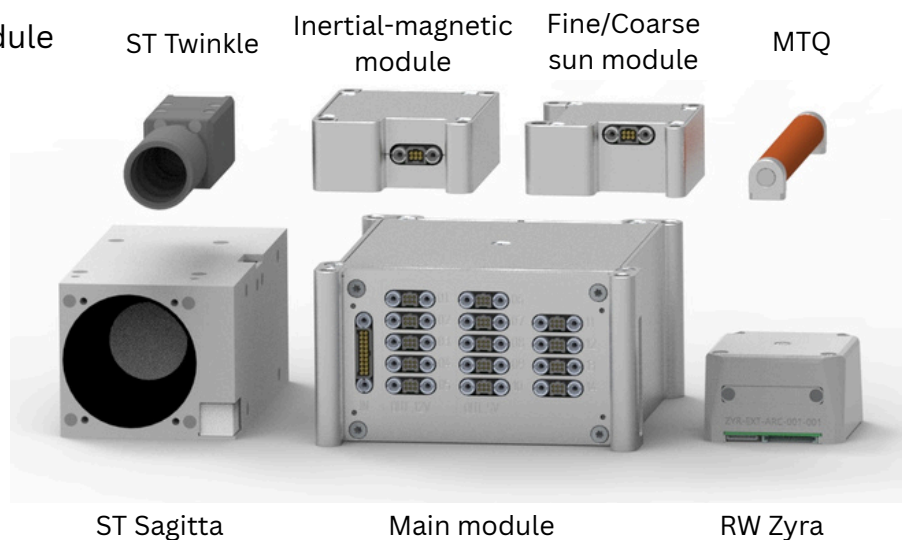
# Precision Aerospace Solutions

## ARCUS ADCS

The **Arcus ADCS** offers high-precision attitude determination and control prioritizing reliability and autonomy. Building on the flight-proven heritage of arcsec's earlier ADCS developments, this second-generation system combines our robust, in-house star tracker and precision-engineered reaction wheels with advanced estimation and control algorithms. Together with a flexible guidance, estimation, and control architecture, Arcus provides agility, pointing accuracy, and reliability for CubeSats and SmallSats.

### Configuration

- Main module including submodule interfaces, power, and processing
- 3 or 4 (pyramidal) reaction wheels
- 3 magnetorquers
- Up to 4 star trackers
- Fine/Coarse sun module (F/CSM):
  - either 3 analog fine sun sensors
  - or 8 photodiodes
- Inertial-magnetic module (IMM):
  - 1 fine + 3 coarse gyroscopes
  - 3 magnetometers



### Interface

- Communication: CAN or RS-485
- Supply voltage: 12 V
- Main module (excluding external components)
  - Dimensions: 94 x 92 x 50 mm<sup>3</sup> (0.5U)
  - Mass: 0.45 kg
  - Radiation-hardened MCU

### Performance

|                                | 3RW   | 4RW         | Unit   |
|--------------------------------|-------|-------------|--------|
| Momentum capacity              | 27    | 44.1 - 62.3 | mNms   |
| Max torque                     | 2     | 3.3 - 4.6   | mNm    |
| Absolute knowledge error* (3σ) | < 70  | < 70        | arcsec |
| Absolute pointing error* (3σ)  | < 116 | < 97        | arcsec |

\*These values are obtained from a hi-fidelity simulator under an **ESA GSTP program** covering inertial, nadir and LLA pointing for a **single star tracker** configuration.

### Features

- Autonomous mode management (safe, detumbling, desaturation, slewing, and 3-axis fine pointing)
- Flexible guidance architecture
- Robust estimation with automatic rejection of invalid measurements
- Continuous reaction wheel momentum management
- Traceability and automatic system recovery through integrated FDIR framework
- Complete SEE/TID tested electronics



# Precision Aerospace Solutions

Explore arcsec's advanced attitude determination and control systems, revolutionizing satellite performance with unparalleled precision.



## Find us on

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## Arcsec's Remarkable Achievements in Perspective



**99.9%** Availability

Arcsec star trackers can acquire attitudes in 99.9% of night sky scenarios



**+5** Years cumulative  
heritage in space



**2"** Accuracy

Top of the line accuracy with a size and power consumption fit for even the smallest satellites



**+100** Systems sold

Arcsec has sold over 100 components to clients worldwide