



The TriSAT Picosatellite Turnkey Space Mission



Table of contents

Overview	3
TriSAT satellite specification	4
Payload capabilities.....	5
Testing services.....	6
Launch services.....	7
GRID.....	8
Summary	9
Contact us	10

Overview

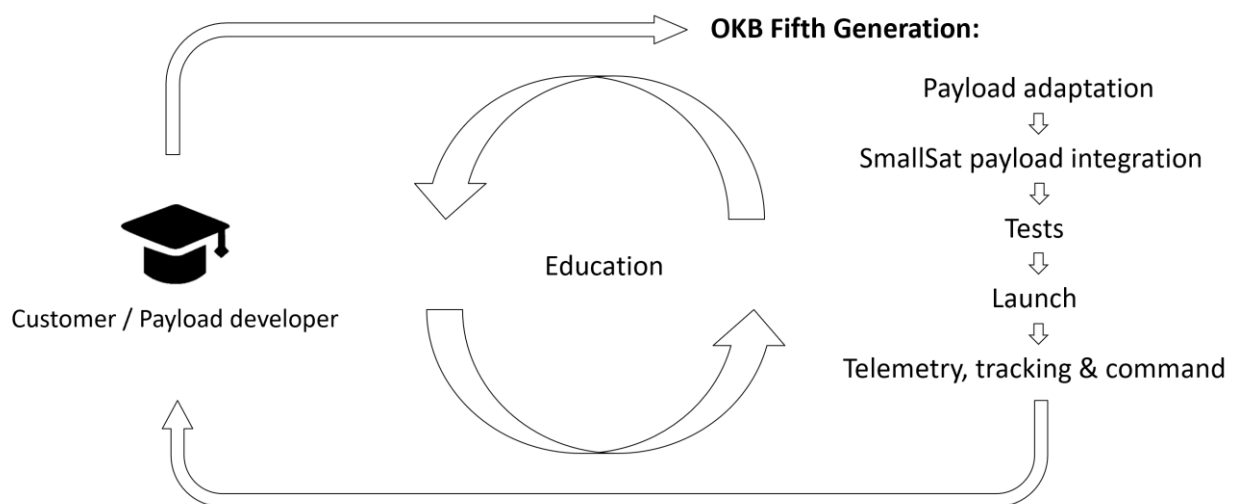
TriSAT is a single-board picosatellite, weighing up to 0.5 kg. In transport position, it folds into a triangular prism. In working position, it unfolds into a plane. The TriSAT deployer for 4 such units complies with 1U of the CubeSat standard.

The picosatellite TriSAT is the latest development of OKB Fifth Generation in the field of EdTech. This satellite is compact, budget-friendly, and has all the main subsystems, such as EPS, ADCS, battery modules, and solar panels. In its basic configuration, TriSAT is equipped with a camera, a radio transmitter, and a Raspberry Pi Zero microcomputer. At the request, a custom payload module can be developed based on the device that needs to be sent into space.

TriSAT is well suited for educational missions and for making first step towards space exploration. Moreover, the presence of the Raspberry Pi Zero allows for a variety of experiments in orbit.

Being a client-oriented and technologically advanced company, our Bureau can provide the full spectrum of space-mission related services or an individual solution tailored to your specific needs. Some of these solutions include crucial steps for any space mission, such as:

- training activities and educational programs in aerospace;
- building TriSAT satellite mission that meets your needs or one based on our in-house standards;
- testing services, payload adaptation and integration;
- launch services;
- telemetry, tracking and command services using the in-house GRID software and the network of GRID ground stations.



TriSAT satellite specification

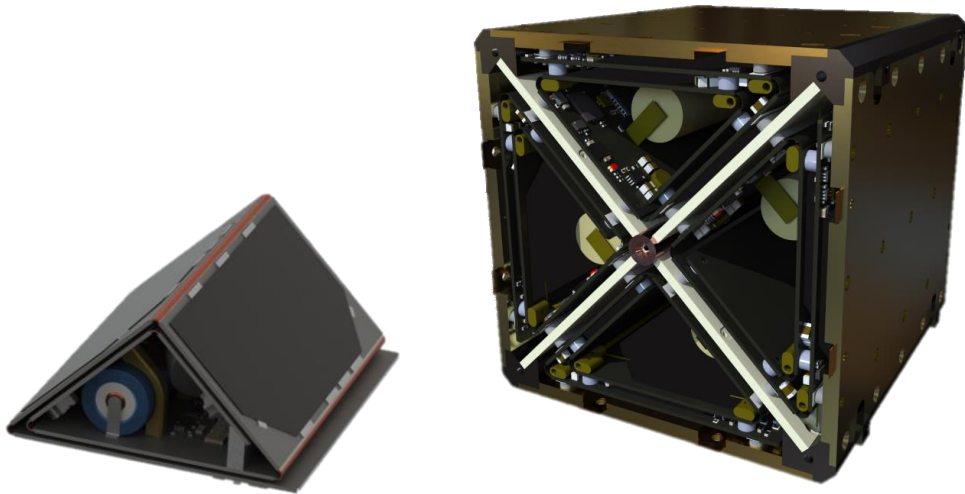


Figure 1. On the left: a picosatellite in transport configuration. On the right: 4 picosatellites packed in a launch container.

Parameter	Value
Weight	Up to 0,5 kg
Lifetime	1 year
Average power available	≈ 2 W
Average power requirement or on-board systems	0,73 W
Battery capacity	2250 mA×h
Orientation accuracy	< 1°
Stabilization accuracy	< 0,2°/s
Telemetry and control	UHF, S-band
Operating temperature range	-20...60 °C

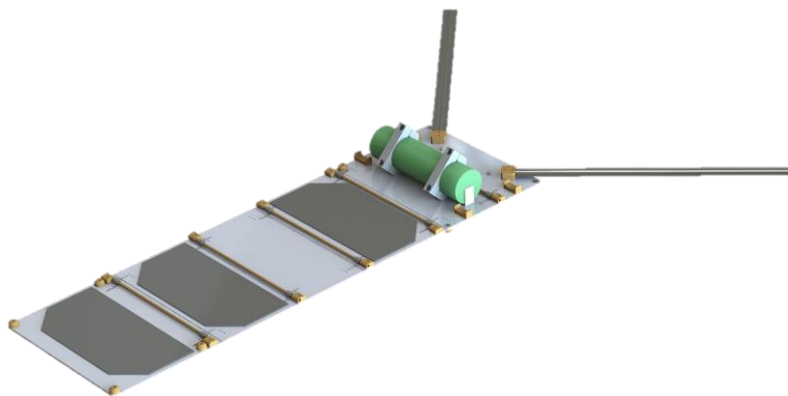


Figure 2. Unfolded TriSAT

Payload capabilities

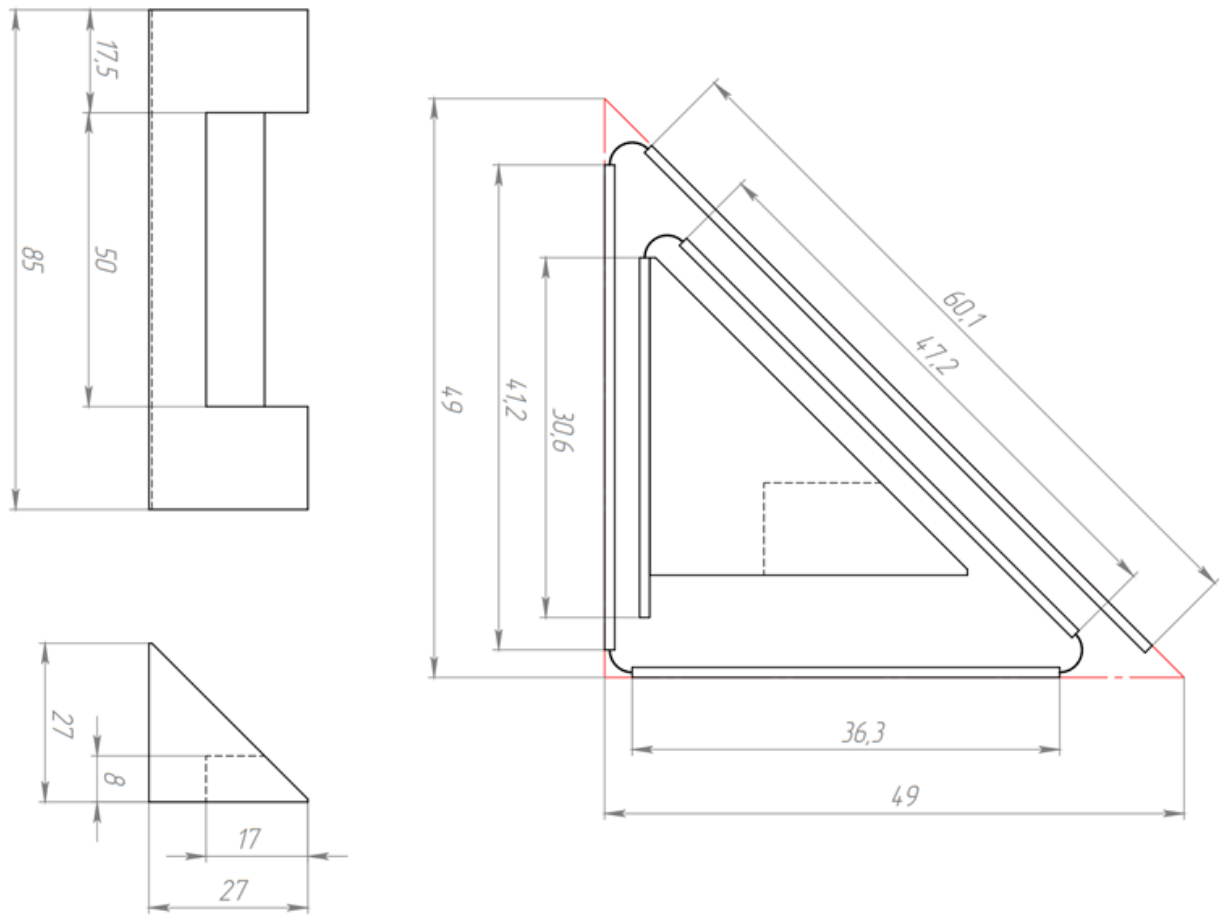


Figure 3. The available payload volume for the picosatellite, dimensions in mm

The picosatellite can be equipped with a payload of your design that fits within the dimensions specified in Figure 3. However, a standard payload option could include a module with Raspberry Pi Zero and a Waveshare RPi Zero V1.3 Camera module.

Testing services

Any organization collaborating with OKB Fifth Generation can be assured that our spacecraft and subsystems have undergone rigorous testing both during trials and in real space conditions. Full equipment testing is carried out at the Testing Laboratory of Novosibirsk State University. Our laboratory is certified by Roscosmos and is fully equipped to perform ground testing on both onboard and satellite systems (vibration, shock, thermal and vacuum testing).

Our programs and methods for conducting laboratory testing have been repeatedly tested in actual projects completed for such notable contractors as:

- Academician M.F. Reshetnev Information Satellite Systems;
- Lavochkin Research and Production Association;
- Khrunichiev State Research and Production Space Center;
- S. P. Korolev Rocket and Space Corporation Energia.

In case there is a need to conduct tests for your hardware or as part of a turnkey mission, we are capable of performing them to ensure the stability and safety of all systems' operations.



Launch services

TriSAT turnkey mission includes launch of your TriSAT satellite into orbit. OKB Fifth Generation offers a complete launch package service for rideshare-launch opportunities to the Low Earth Orbit (LEO) on the Souyz-Fregat launch vehicle.



The service includes:

- providing a satellite deployer;
- logistics coordination and support, including coordination of satellite and ground support equipment logistics to the launch site, as well as personnel transportation to and from integration facilities. Equipment re-export is also taken care of;
- launch vehicle integration, which includes final satellite mission preparation, satellite fueling operations, and final checkout of the satellite. Integration with the launch vehicle is also carried out at the launch site;
- acquiring of satellite orbit and attitude data at orbit insertion and providing support.

Our complete launch package service ensures hassle-free and efficient deployment of the customer satellite in LEO.

GRID

GRID™ is a cloud service that enables you to communicate with your satellites via a grid of ground stations located all over the world that we are deploying right now.

It provides hassle-free communication on demand, without incurring additional costs and causing no issues to troubleshoot.

- Easy integration through the API.
- Automatic TLE update.
- Reliable cloud storage to keep your data related to communication sessions.
- The capability to use other ground stations connected to the GRID network.
- Automatic compensation for the Doppler effect during data transmission.
- Retrieval and display of telemetry from your satellites.
- Convenient planning of communication sessions.





Summary

Our cutting-edge company, where vertical integration is our hallmark, and we excel in delivering comprehensive, end-to-end solutions for space mission development. Contact us today to tap into our unparalleled expertise.

Our team of seasoned experts is poised to assist you in crafting a compelling preliminary mission design that's primed for seamless funding approval.

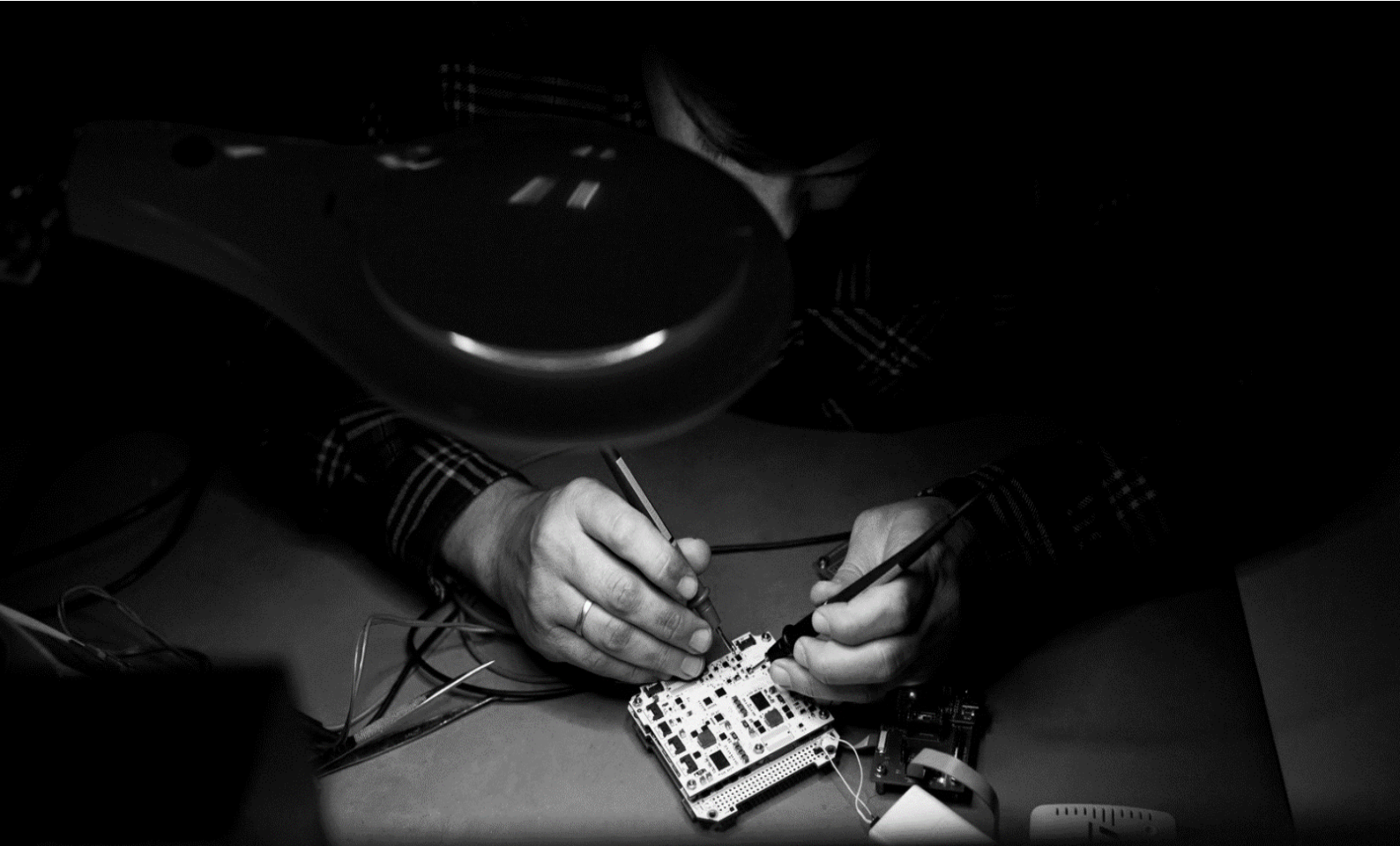
Eager to embark on a collaborative journey, we stand ready to tailor your space mission to perfectly align with your current capabilities. By choosing to harness our innovative technologies, you will not only supercharge your space program but also solidify your position as a space industry leader.

Let's join forces and pave the way to unprecedented success together. We are thrilled to forge a powerful partnership with you!



2024

Contact us



OKB Fifth Generation

630090, Russia, Novosibirsk,

Nikolaeva st., 11

+7 (495) 542-64-55

sales@5okb.com