

# SkyLinkSat

## user manual

Yuri Kulchitsky  
web-site [www.kulch.spb.ru](http://www.kulch.spb.ru), e-mail [postmaster@kulch.spb.ru](mailto:postmaster@kulch.spb.ru)

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### Disclaimer

This software is provided as it is without any warranty of any kind.

The project has been developed to be used as an add-on for Orbiter Space Flight Simulator by Martin Schweiger ([www.orbitersim.com](http://www.orbitersim.com)). Designed for Orbiter 2006 Edition, patch 1 (build 060929).

### Introduction

**SkyLinkSat (Sky Link Satellite)** is a big communication satellite intended for basing in a geostationary orbit. This platform does not have any real prototype. It is virtually designed to demonstrate the cargo carrying capacity of the Energia rocket from *ENERGY* project.

#### Technical Specifications

Length	24.2 m
Diameter	5.6 m
Dry mass	14 t
Fuel mass	4 t
Cross size in deployed kind	70 m
Full starting mass	18 t
Main engine thrust	1 tf
Fuel for main engine and RCS	N2O4/UDMH

SkyLinkSat is put into a working orbit not in deployed state. SkyLinkSat will be deployed in 60 seconds' time after the separation from the space tug. The solar batteries of a SkyLinkSat platform being deployed have an optimum orientation towards the Sun.

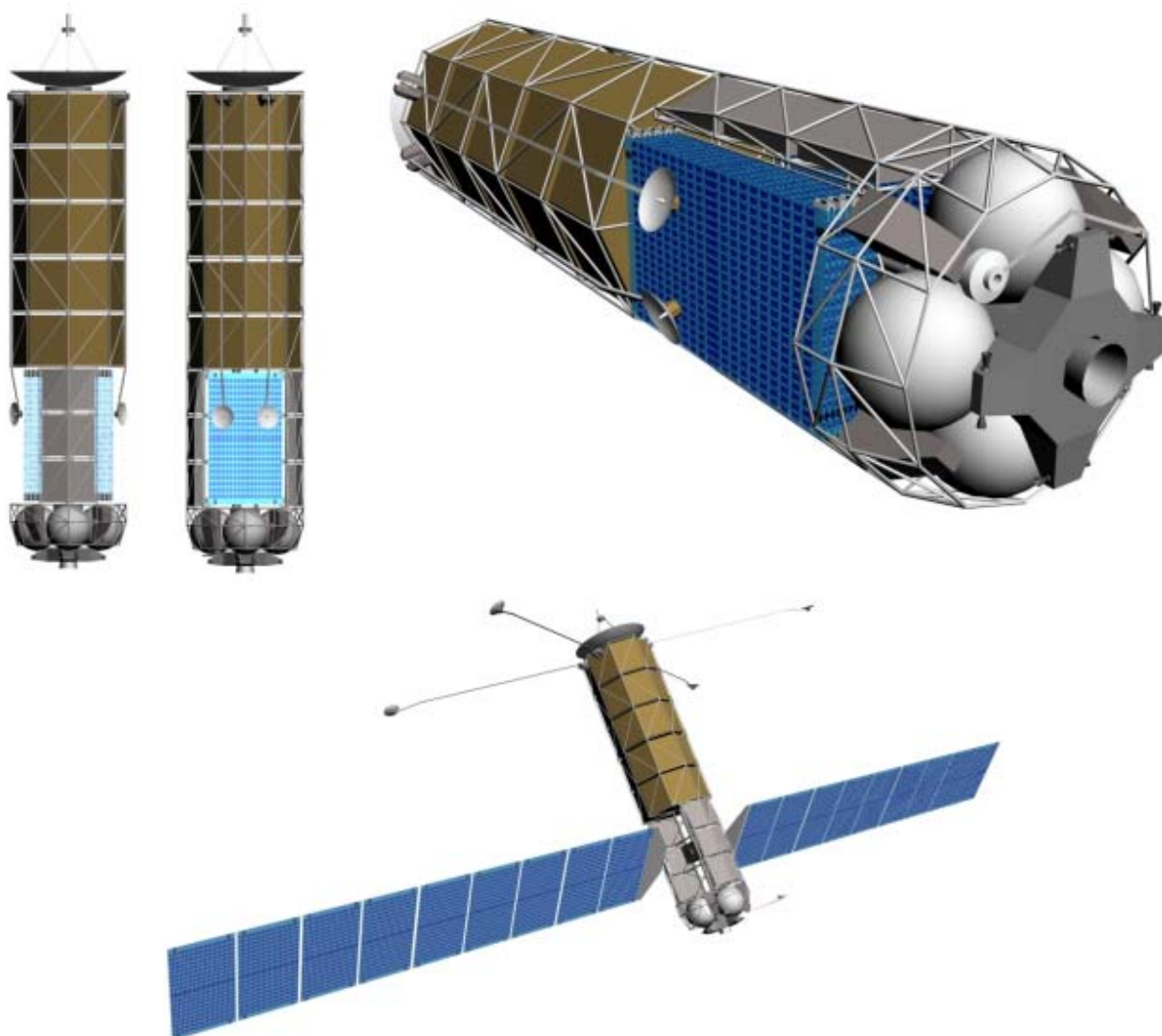
SkyLinkSat is equipped with the system of automatic orientation and stabilization. This system is always intended for orientation of the platform aerals towards Earth. Actually this system is the autopilot supporting the local vertical. The autopilot is also switched on in 60 seconds' time after the space tug separation.

The autopilot work phases are the following:

1. Stop satellite rotation if there is any.
2. Result pitch and yaw angles in such values that the platform "nose" will be aimed towards the nearest celestial body (the Earth is implied).
3. Result bank angle in such value which will allow to provide an optimum turning of solar batteries towards the Sun.

## Platform Projections

The frontal projection and the perspective image of satellite are shown below. The perspective images are given with deployed and retracted aerals and folded solar arrays.



The SkyLinkSat autopilot can work correctly only with time acceleration no more than by 10000 times.

new !

## HUD



The satellite is equipped with a special HUD, see the picture:



The HUD shows the autopilot state and the current solar panels and aerals state.

## Keyboard interface

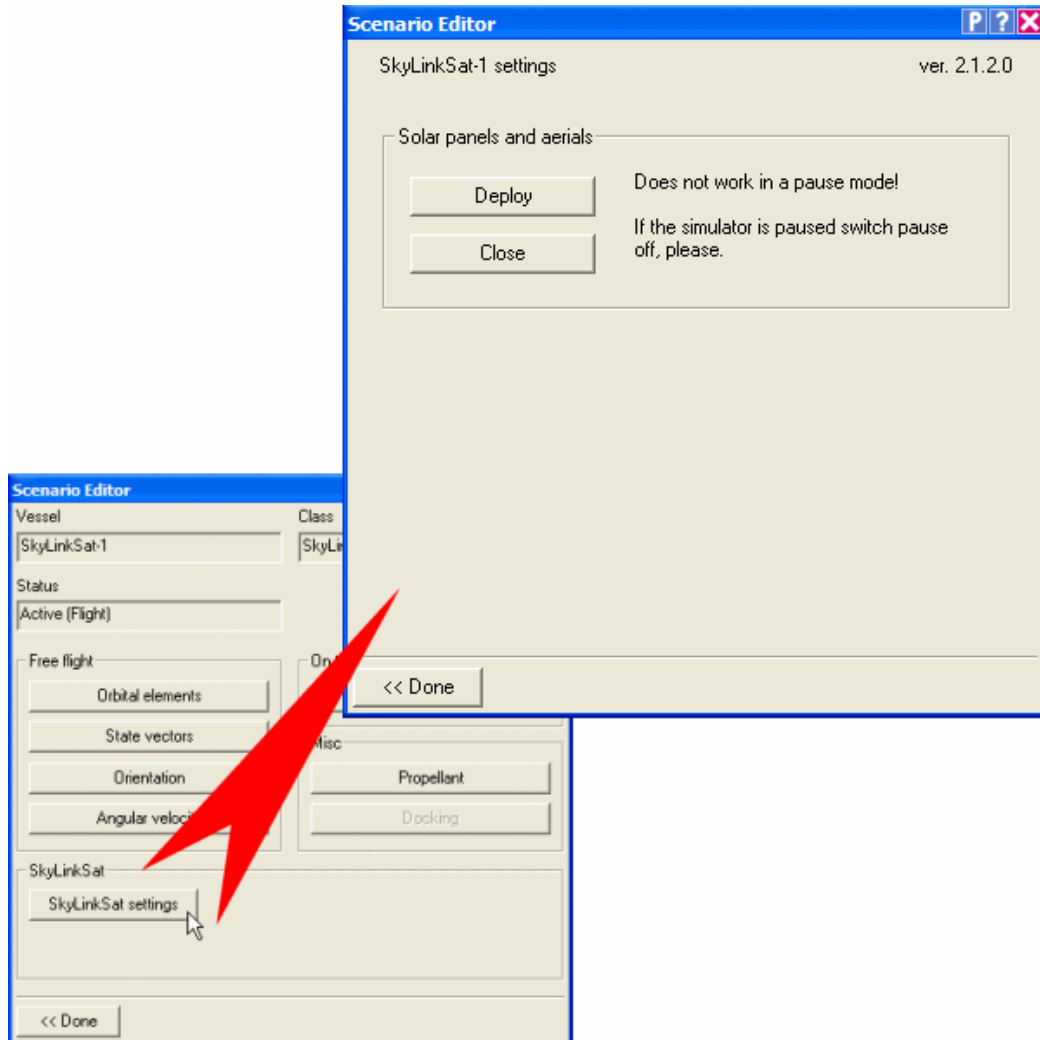
While working with SkyLinkSat platform it is possible to use the following keys in addition to the usual keyboard Orbiter combinations:

-  Close / deploy the platform
-  Switch the autopilot on / off

## new ! Configuring

SkyLinkSat can be configured with Orbiter's *Scenario Editor* (read more about Scenario Editor in *Doc\ScenarioEditor.pdf* manual).

The SkyLinkSat vessel has a special configuration page in Scenario Editor, see the picture:

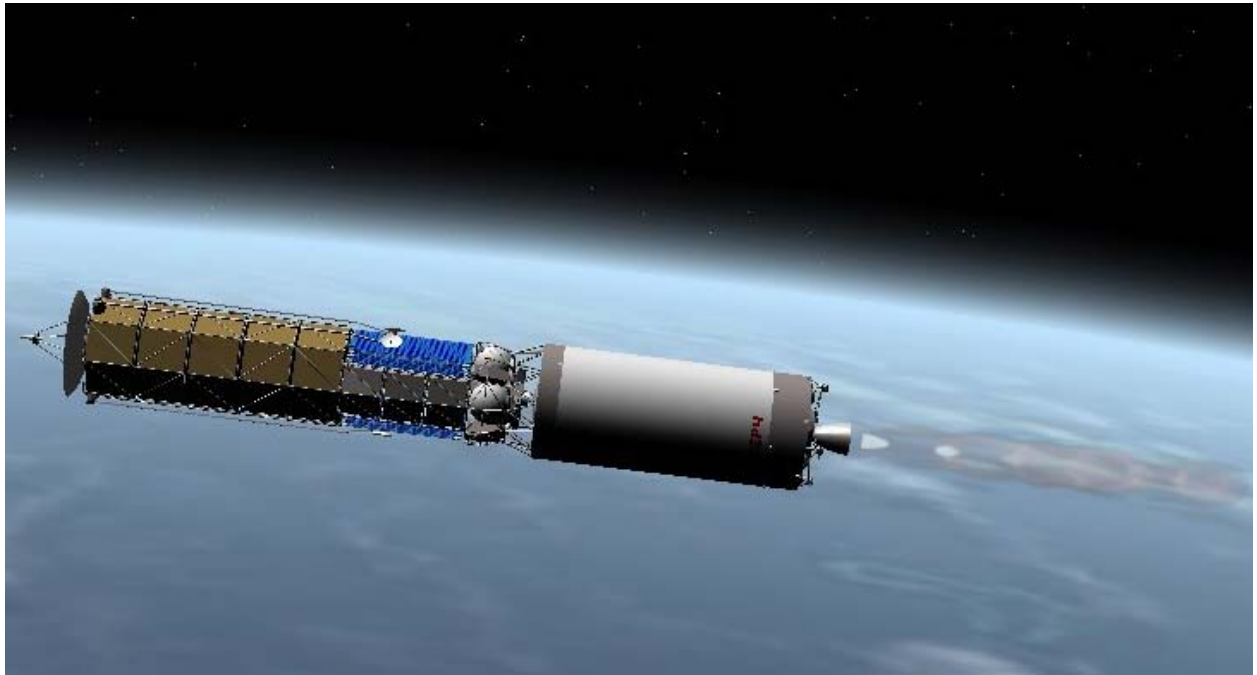


Here you can set the solar panels and aerals state – to deploy click the *Deploy* button, to retract click the *Close* button.

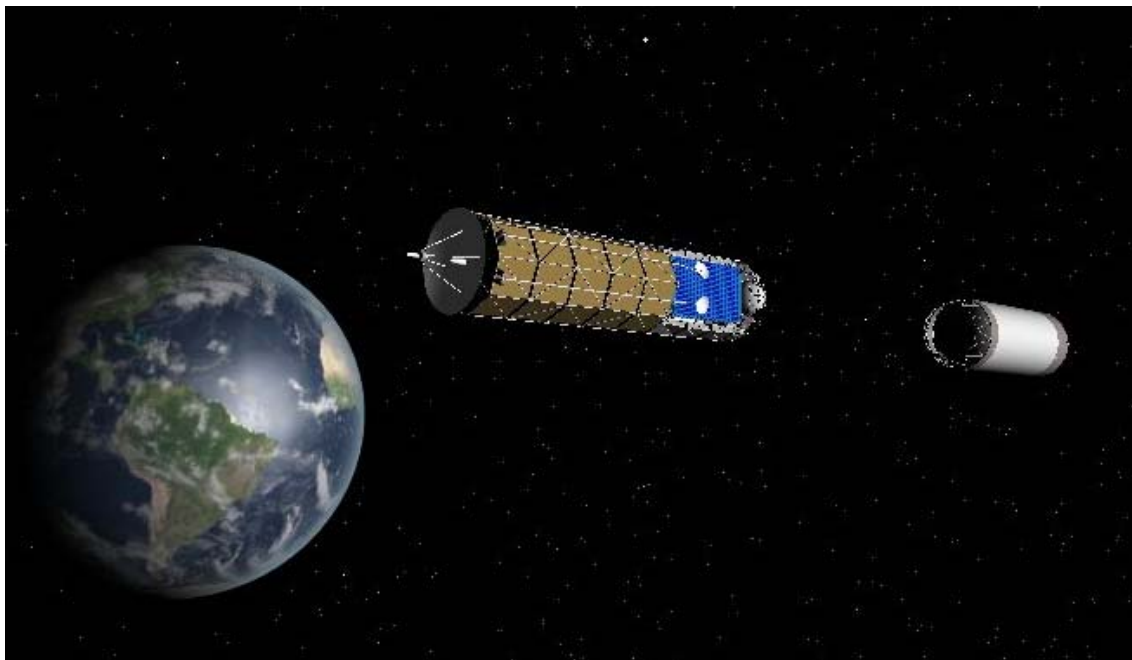


You can change the settings instantly only if the Orbiter is not in the pause mode.

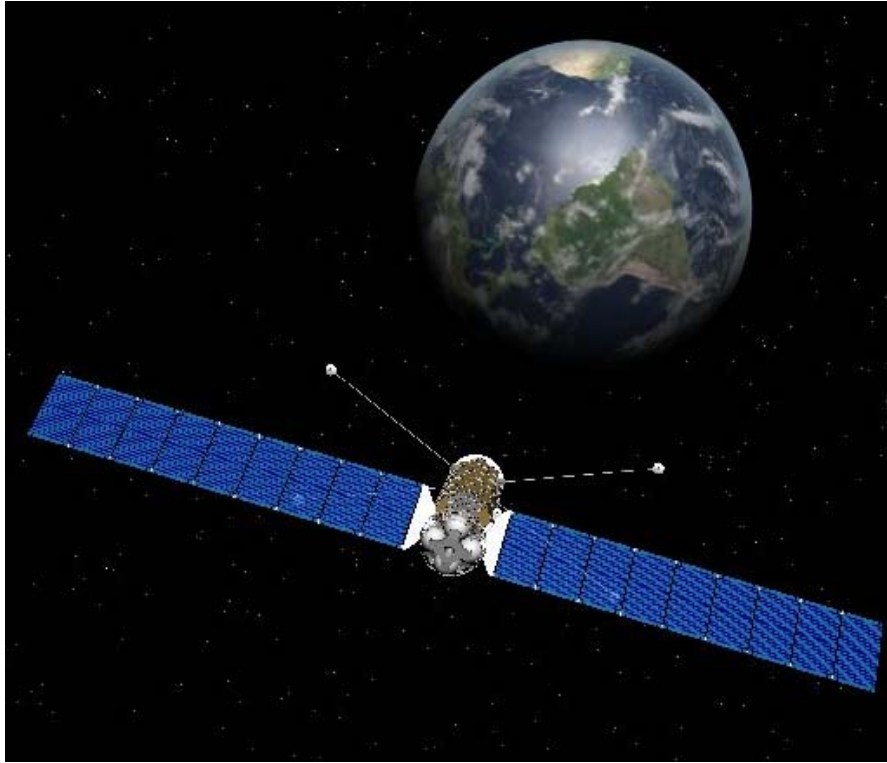
## Screenshots



The Smerch space tug starting transorbital flight



The satellite working orbit insertion



SkyLinkSat deployed at orbit