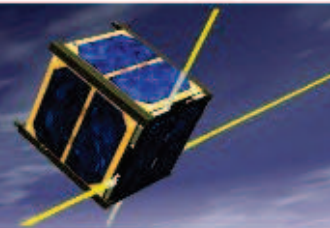




# FUNcube

UK Amateur Radio Educational Satellite



AMSAT-UK, a group of radio amateurs especially interested in space, has launched a satellite project called FUNcube. The AMSAT-UK FUNcube project is being undertaken by an experienced team of volunteers in collaboration with AMSAT-NL based in the Netherlands.

The FUNcube project has created the first ever educational CubeSat for schools. This is intended to enthuse, excite and educate young people about radio, space, physics and electronics. It also supports other educational Science, Technology, Engineering, Maths (STEM) initiatives.

A “1U” CubeSat is just a 10cm cube and only weighs about 1 kilogram. They are very small but effective spacecraft.

The primary mission of FUNcube-1 is to provide downlink telemetry that can be easily received by schools and colleges for educational outreach purposes. The target audience is primarily students at both primary and secondary levels and the project includes the development of a simple and cheap “ground station” operating on VHF frequencies in the Amateur Satellite Service.

This station comprises of a USB dongle, the “FUNcube dongle”, which receives the signals direct from the satellite and transfers the data to specially developed graphical software running on any Windows computer. The required antenna is no more than a simple VHF dipole or turnstile.

The telemetry provides information about:

- On board temperatures – internal and external
- Voltages and currents flowing from the solar arrays and to/from the battery.
- Temperatures from external metal strips which have different finishes to provide an enhanced demonstration of the “Leslie’s Cube” experiment. (One of the traditional demonstrations of how objects emit heat)

Additional educational objectives and opportunities offered by the project include:

- “Whole Orbit Data” for orbit illumination/eclipse demonstrations.
- More advanced demonstrations relating to antenna radiation patterns and levels of solar radiation. Long term effects of radiation on microcircuits and other subjects would also be possible.
- Integration into the maths and physics curricula at primary and secondary levels
- Demonstrations of radio communications at schools
- Display of an actual FUNcube “demosat” in the school

The payload also enables the uploading (indirectly via a moderated host) of short greetings messages for schools to use and the deposition of the data received by a school on a central database. This central data is also available to be retrieved by schools for display and analysis.

Finally the linear UHF to VHF transponder provides radio amateurs with a transponder usable for their communication in voice, morse code or digital data.

FUNcube-1 was launched into a low earth orbit (LEO) on 21<sup>st</sup> of November 2013.

Further information about FUNcube and details of sponsorship and support opportunities are available from:

[www.funcube.org.uk](http://www.funcube.org.uk)



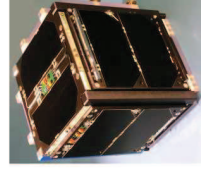
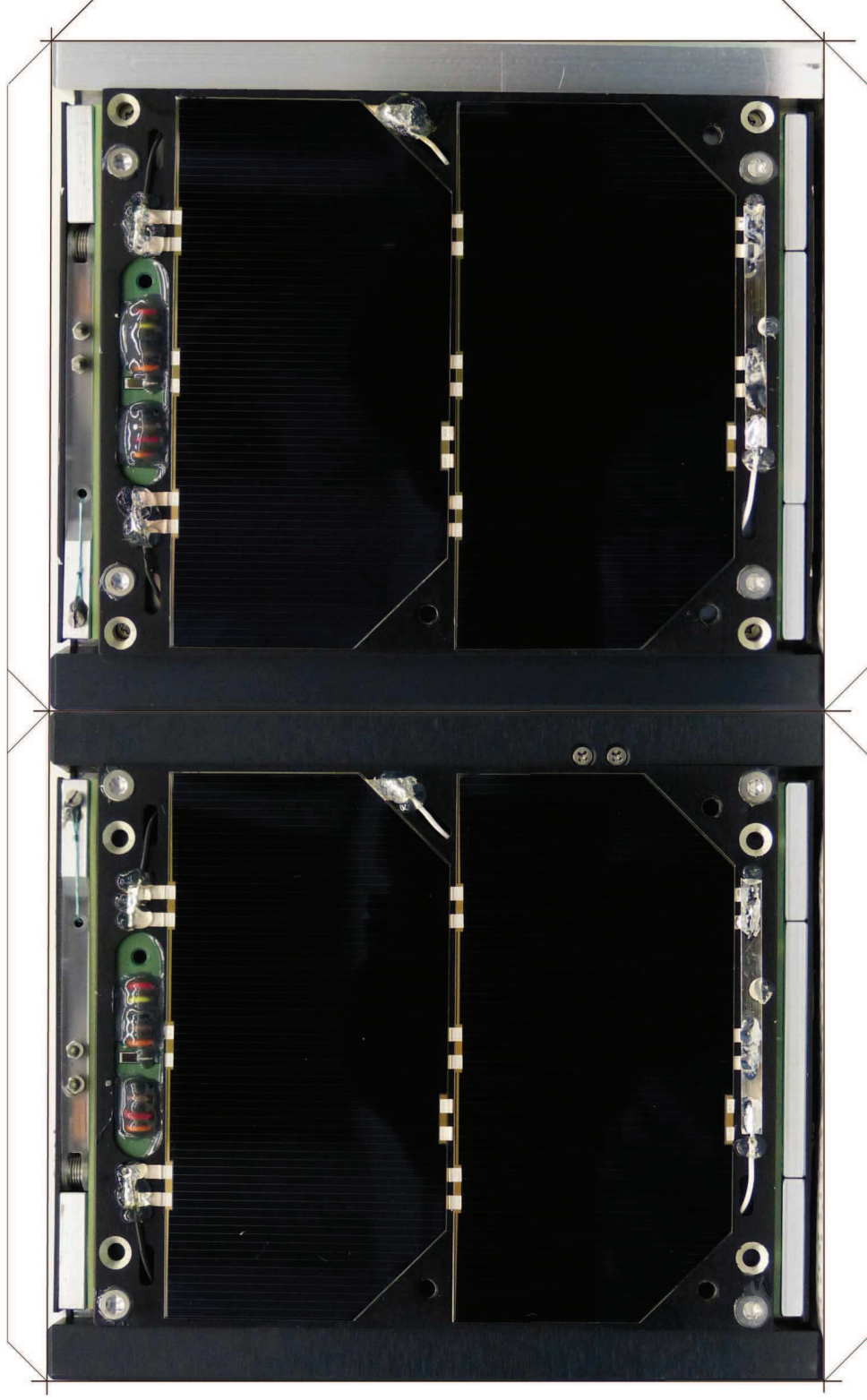
**AMSAT-NL**  
Radio Amateur Satellites



**AMSAT-UK**

Print on A4 (glossy) 160 gr paper and strengthen with cardboard inside.

TOP



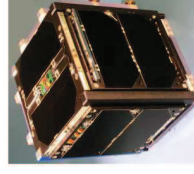
## FUNcube-1 cubesat satellite



**TOP**

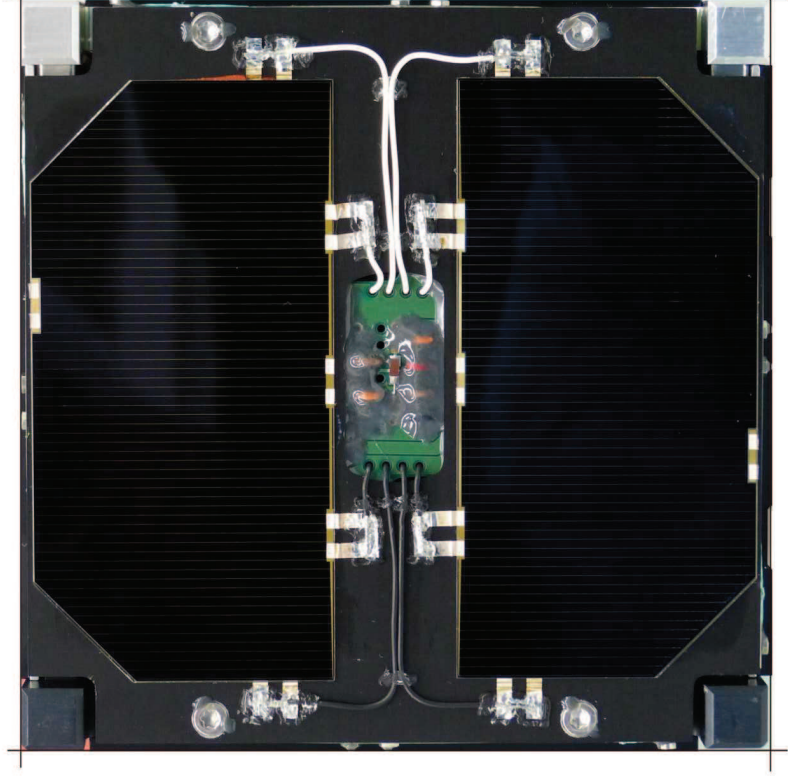


## **FUNcube-1 cubesat satellite**

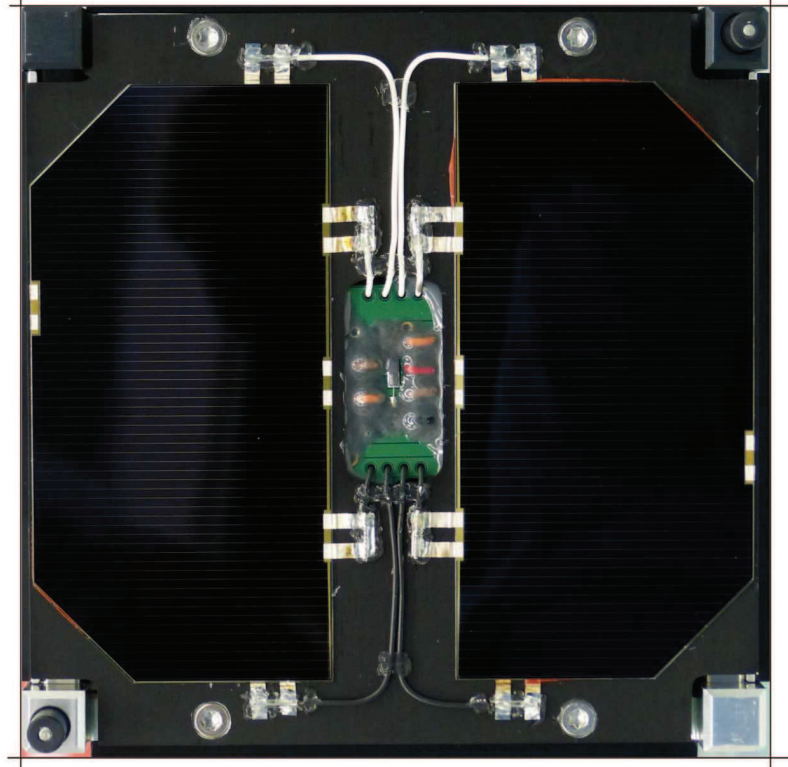




**Top**



**Bottom**



# **FUNcube-1 cubesat satellite**

