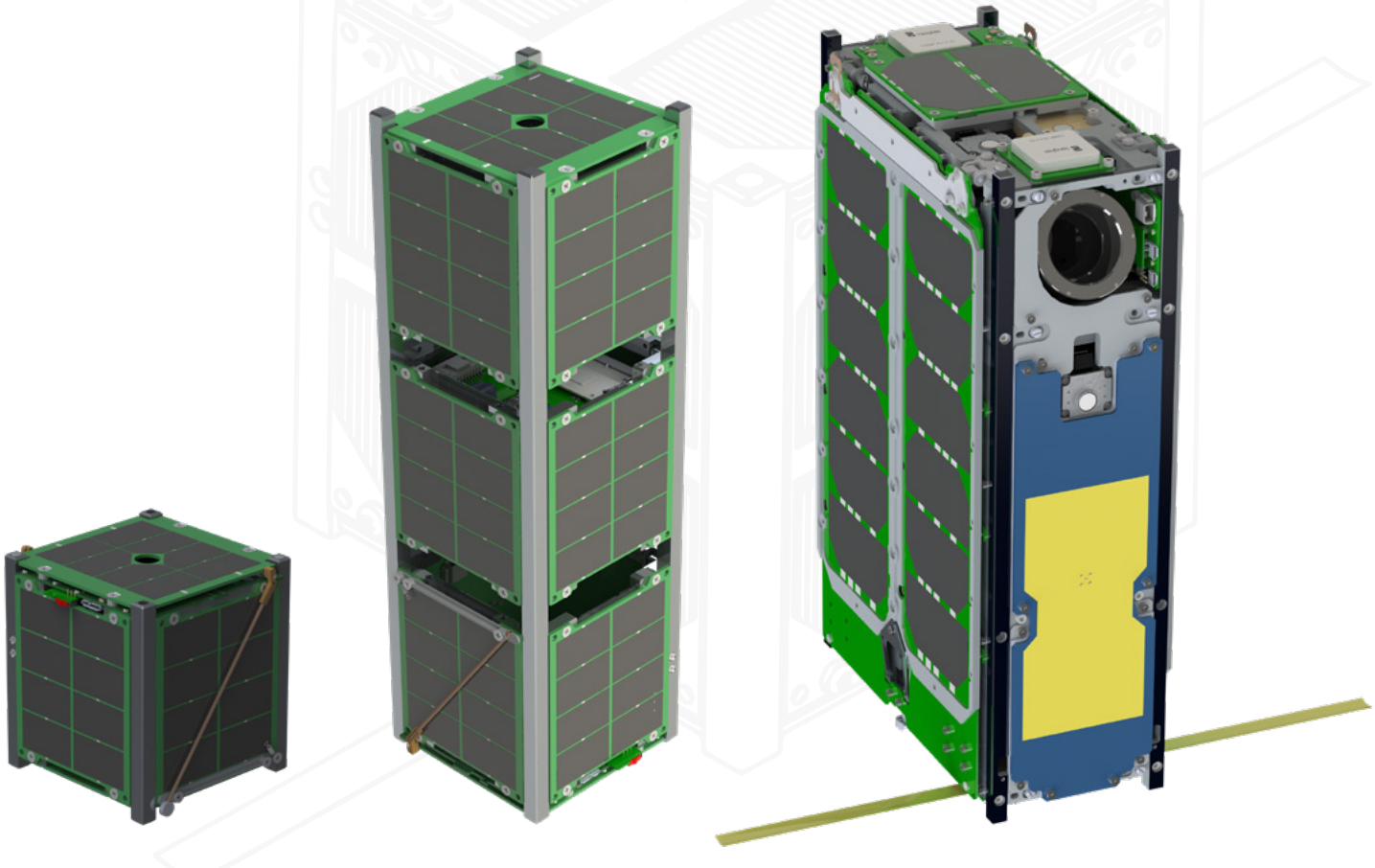
CUBESAT
NANOSATELLITE PLATFORM LINE
SPUTNIX LLC

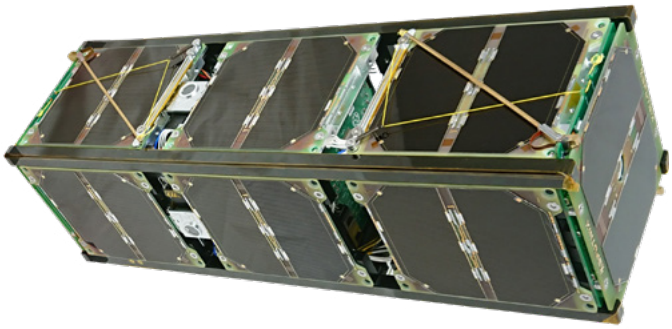
The product line is presented by several platforms of different dimensions – from 1U to 6U with a high degree of unification



Each platform can be modified by combining serial devices, the composition of which is described on the company's website: www.sputnix.ru/ru/priboryi/pribory-cubesat.

Also, platforms can be customized for a specific payload.

The SXC6 platform is the latest development of the company and combines the advanced technologies of small spacecraft and the operational experience of the SXC1 and SXC3 platforms.



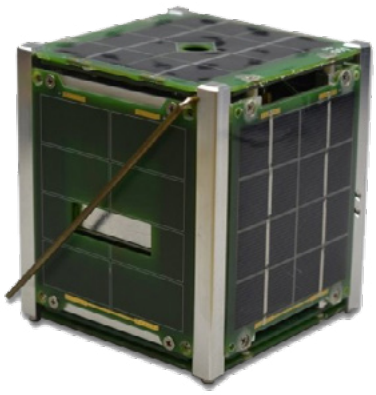
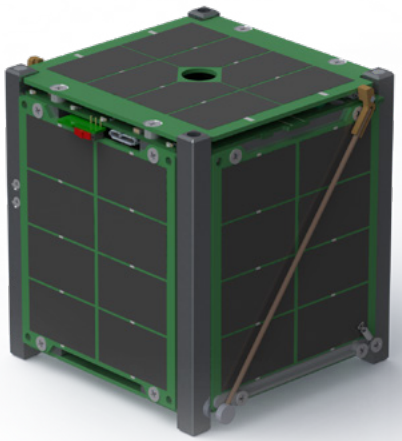


Table 1 – Comparison of SPUTNIX nanosatellite platforms

Parameter	SXC1	SXC3	SXC6
Dimensions	CubeSat 1U	CubeSat 3U	CubeSat 6U
Mass w/ payload	1,33 kg	4 kg	10 kg
Available volume for payload	80x70x20 mm	1U+ (80x70x140 mm)	3U+ (85x85x300 mm)
Max mass of payload	Up to 0,43 kg	Up to 2,6 kg	Up to 6,0 kg
Available average capacity of payload	Up to 0,5 W	Up to 2 W	Up to 8 W
Max available capacity of payload	Up to 16 W	Up to 16 W	Up to 25 W
Type of ADCS	Electromagnetic	Three-axis w/ reaction wheels, magnetometer, angular velocity sensor, solar sensors	Three-axis w/ reaction wheels, star tracker, magnetometer, angular velocity sensor, solar sensors
Orientation modes	B-DOT rotation damping, orientation determination	B-DOT; solar, Earth, star pointing	B-DOT; solar, Earth, star pointing
ADCS accuracy	–	Up to 1°	Up to 0.1°
UHF command radio link	Included	Included	Included, redundant
High-speed X-band radio link	–	Included, option	Included
Deployable solar panels	–	–	Included
GPS-receiver	–	–	Included



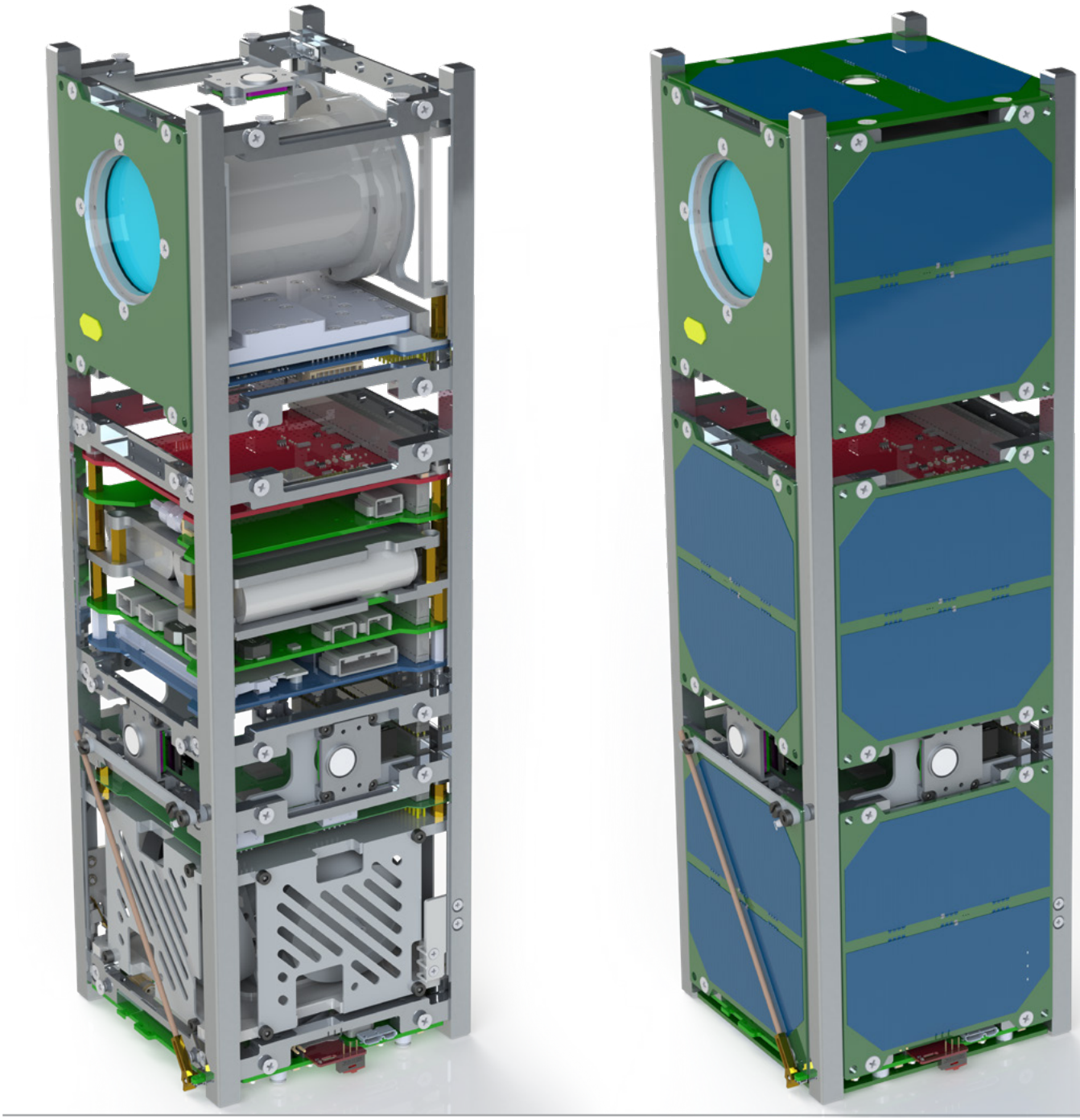
Picture 1 – SXC1 layout

Table 2 – SXC1 Product Specifications

Parameter	Modification	
	SXC1-AS (basic)	SXC1-GA1-AS
Mass assembled (w/o payload), not more than	0,9 kg	0,95 kg
Max mass allowed (w/ payload), not more than	1,33 kg	
Dimensions (w/ springs pressed and antenna folded)	108x108x113.5 mm	
Dimensions at rails (w/ deployment system pressed)	100x100x113.5 mm	
Available volume for payload, not less than	80x70x20 mm (look at «SXC ICD»)	
Output voltage	5 B ±0.5 V	
Output voltage consumption, not more than	2 A	
Available average power consumption of payload on LEO, not more than (to be precised for exact orbit)	200 mW	500 mW
Battery capacity, not less than	39 Wh	
On-board interface	CAN2.0 B	
Number of solar panels	6 pcs.	
Peak capacity made by one solar panel on LEO, not less than	0,9 W	2 W
Operating temperature range	-30...+60 °C	
Telemetry transmitted	Digital beacon with systems and payload status, Regular and rich telemetry of systems by timer, Service telemetry on request.	
Radio channel frequency	435-437 MHz, frequency modulation	
Radio channel protocol	AX.25	
Radio data rate	4800 bit/s, 9600 bit/s (default)	
Battery type	Li-Ion 2S 5000 mAh	
Battery rated voltage	7.4 V	
Max. Battery Charging Current	5 A	

Table 3 – SXC3 Product Specifications

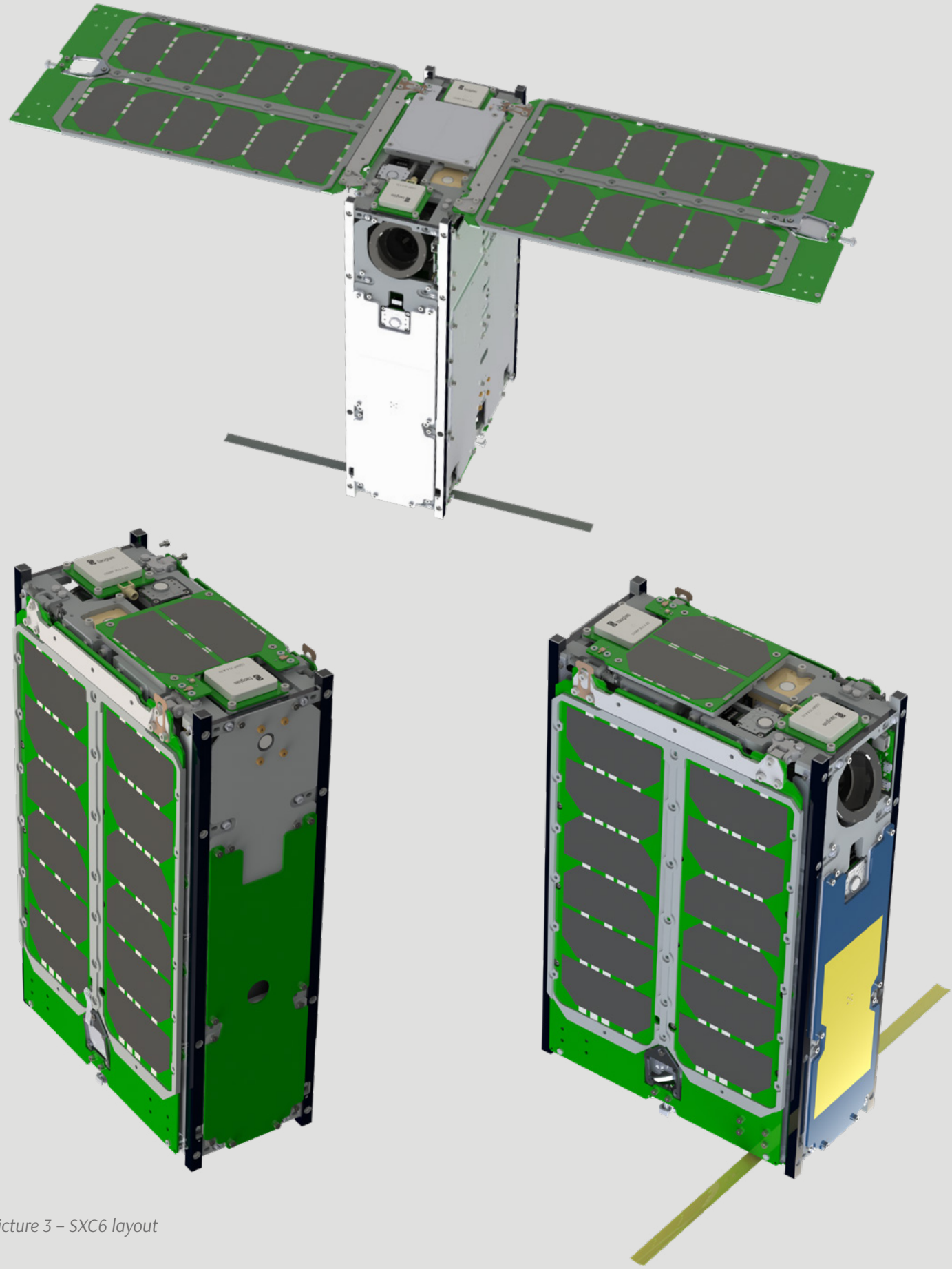
Properties	Modification			
	SXC3-AS (basic)	SXC3-GA3-AS	SXC3-ADC	SXC3-GA3-ADC
Mass assembled (w/o payload), not more than	1,4 kg	1,45 kg	2.2 kg	
Max mass allowed (w/ payload), not more than	4 kg			
Dimensions (w/ springs pressed and antenna floded)	108x108x340.5 mm			
Dimensions at rails (w/ deployment system pressed)	100x100x340.5 mm			
Available volume for payload, not less than	80x70x140 mm (look at «SXC ICD»)			
Output voltage	5 B ±0.5V			
Output voltage consumption, not more than	2 A			
Available average power consumption of payload on LEO, not more than (to be precised for exact orbit)	600 mW	1500 mW	200 mW (Sun orientation)	2000 mW (Sun orientation)
Battery capacity, not less than	39 Wh			
On-board interface	CAN2.0 B			
Number of solar panels	14 pcs.			
Peak capacity made by one solar panel on LEO, not less than	0,9 W	2 W	0,9 W	
Operating temperature range	-30...+60 °C			
Telemetry transmitted	Digital beacon with systems and payload status, Regular and rich telemetry of systems by timer, Service telemetry on request.			
Radio channel frequency	435-437 MHz, frequency modulation			
Radio channel protocol	AX.25			
Radio data rate	4800 bit/s, 9600 bit/s (default)			
Battery type	Li-Ion 2S 5000 mAh			
Battery rated voltage	7.4 V			
Max. Battery Charging Current	5 A			
Orientation and Stabilization Algorithms	B-DOT		B-DOT, solar, Earth, star pointing	
Sensors	Angular velocity sensor, Magnetometer, temperature sensors		Angular velocity sensor, Magnetometer, temperature sensors, Sun sensors	
Orientation setting accuracy on sunny side			1°	
Orientation control accuracy on sunny side			1°	
Orientation setting accuracy on shadow side			5°	
Orientation control accuracy on shadow side			5°	



Picture 2 – SXC3 layout

Table 4 – SXC6 Product Specifications

Properties	Modification SXC6 (basic)
Mass assembled (w/o payload), not more than	6 kg
Max mass allowed (w/ payload), not more than	12 kg
Dimensions at rails (w/ deployment system pressed)	100x226,3x366 mm
Available volume for payload, not less than	3U+
Output voltage	5 B ±0.5 V
Output voltage consumption, not more than	3 A
Available average power consumption of payload on LEO, not more than (to be precised for exact orbit)	8000 mW Sun orientation using deployable solar panels
Battery capacity, not less than	79 Wh
On-board interface	CAN2.0 B
Number of solar panels	28 pcs.
Peak capacity made by one solar panel on LEO, not less than	35 W
Operating temperature range	-30...+60 °C
Telemetry transmitted	– Digital beacon with systems and payload status – Regular and rich telemetry of systems by timer – Service telemetry on request
Radio channel frequency	435-437 MHz (amateur) or 400-401 MHz (commercial)
Radio channel protocol	AX.25, FEC
Radio data rate	9600 bit/s (default), up to 57600 bit/s
X-band frequency	10.3-10.55 GHz (amateur) or 8.0-8.4 GHz (commercial)
X-band protocol	DVB-S2
X-band data rate	Up to 10 Mbit/s
Battery type	Li-Ion 2S 5000 mAh
Battery rated voltage	7.4 V
Max. Battery Charging Current	5 A
Orientation and Stabilization Algorithms	B-DOT, Sun orientation, nadir, Earth pointing, star pointing
Sensors	Star tracker, Sun sensors, GPS, Angular velocity sensor, Magnetometer, temperature sensors
Orientation setting accuracy on sunny side	Up to 0.1° using star tracker
Orientation control accuracy on sunny side	Up to 0.1° using star tracker
Orientation setting accuracy on shadow side	Up to 0.1° using star tracker
Orientation control accuracy on shadow side	Up to 0.1° using star tracker



Picture 3 – SXC6 layout