TAKEME2SPACE

Arya-16 (16U CubeSat Bus)

Technical Specifications

1. Project Overview

TM2Space will provide a satellite bus platform including all necessary subsystems in the bus. The subsystems depend on the customer requirements of the bus and can be varied accordingly.

1.1 Systems of 16U Satellite Bus

Subsystem	Quantity	Datasheet
AeroMag Control	1	https://drive.google.com/file/d/1Rh9TsQo_UHn3Y_sZMEnN0YogzLg2WYOm/view?usp=drive_link
Deployed Solar Panels	0 (body mounted only) 2 (single deployed) 4 (double deployed)	https://drive.google.com/file/d/1ALYJK1dbdKuqfM6c9z3dKbrm-YU8LwAz/view?usp=drive_link
EPS	1	https://drive.google.com/file/d/1zCM6gKKXOwGaiZE67J3RjWI1SOWTupNv/view?usp=drive_link
Battery Pack (50Wh)	4	https://drive.google.com/file/d/15H1onnKZB98vKwd1Rz8Mi7vHzW7chY4C/view?usp=drive_link
CMCube (OBC)	1	https://drive.google.com/file/d/106FxmrFTz8CbKcdiPlhrEHqjJz22DSsd/view?usp=drive_link
SunSense (Coarse)	6	https://drive.google.com/file/d/1sdqSaDwkxuQylodNWsEMFu1Nxbg7n5S7/view?usp=drive_link
GPS	1 (Board + Antenna)	https://drive.google.com/file/d/1LojaELN4eITXp4JDpIHQJtL6G7wfGFlW/view?usp=drive_link

Reaction wheel (30mNms)	4	https://drive.google.com/file/d/1wh4sM-hyp9qrT49_q3j2wB-rOO7SSlfe/view?usp=drive_link
StarSense Lite	1	https://drive.google.com/file/d/1LEp8P3adMt73WS_qncbc-XeZXhlUkOvZ/view?usp=drive_link
xHF	1 (transceiver + antenna + deployment)	https://drive.google.com/file/d/10pHUgJZQ0ffOTEJop7lOWpALXKSFdb4V/view?usp=drive_link
sBand	1 (transmitter + antenna)	https://drive.google.com/file/d/1OSMSd18MtjGfuTKE5h5OZoHbKJMS71Rg/view?usp=drive_link
HDRM	2 (only for deployable solar panel)	https://drive.google.com/file/d/1aLu7wtXMpOJksobiQRaJAnzKra2ebRoE/view?usp=drive_link
HyperMagCoil	3	https://drive.google.com/file/d/1w8q79hn0jJz7kQHQm46WVevvL33OC1Ru/view?usp=drive_link

1.2 Technical Specifications

The following table outlines the key technical specifications of the satellite bus proposed.

Satellite Bus	16U
Mass	11-14 kg (configuration dependent)
Dimensions (stowed)	226.3 x 226.3 x 454 mm
Power	Up to 116 W (double deployed panels) Up to 58 W (single deployed panels) Up to 28 W (body mounted panels only)
Battery	200 Wh with Li-ion pack (configurable)
Bus Voltage	3.3V, 5V, 12V, Battery raw
Pointing Knowledge	<0.0125° (1σ)
Pointing Accuracy	<0.025° (1σ)
GPS Accuracy (optional subsystem)	PPS accuracy 20 ns Position accuracy 12 m (3σ) Velocity accuracy 0.9 m/s (3σ)
Slew Rate (30mNms reaction wheel assembly)	3 deg/s on each axis 1.2 deg/s simultaneous on all three axes
Encryption	AES-256-GCM/CBC (On-board)
Design Life	1 year (without propulsion)

Payload	
Mass	Up to 16 kg (configuration dependent)
Envelope	Up to 12U (configurable)
Power for payload (peak)	80 W
Payload Interface	
Data	I2C/CAN/SPI/UART/Ethernet
TMTC	UHF/VHF
Power	3.3V, 5V, 12V, Battery raw
Payload Data Transmission	5Mbps (S-Band)
Data Storage	up to 2 TB

2. Budget Estimate

Configuration 1: Only body mounted solar panels

Category	Item	Price
Satellite Bus (excl. AIT & taxes)	MicroSat Bus (Body mounted panels only)	₹ 2,84,00,000
Payload Integration with bus and testing	TBD (Need more information on the payload to determine integration effort)	TBD

Configuration 2: Single deployed solar panels

Category	Item	Price
Satellite Bus (excl. AIT & taxes)	MicroSat Bus (Single Deployed Panel)	₹ 3,07,80,000
Payload Integration with bus and testing	TBD (Need more information on the payload to determine integration effort)	TBD

Configuration 3: Double deployed solar panels

Category	Item	Price
Satellite Bus (excl. AIT & taxes)	MicroSat Bus (Double Deployed Panel)	₹ 3,65,00,000
Payload Integration with bus and testing	TBD (Need more information on the payload to determine integration effort)	TBD

**The above prices are exclusive of AIT, deployer, launch, LEOP & GSaaS. TM2S works with partners to provide the above services and can submit a bundled pricing on request.*

Questions? Queries? Contact us at info@tm2.space